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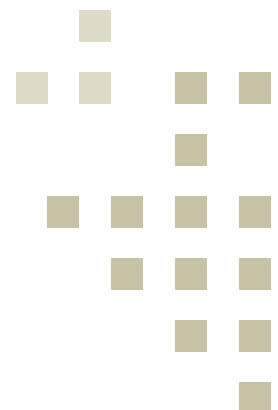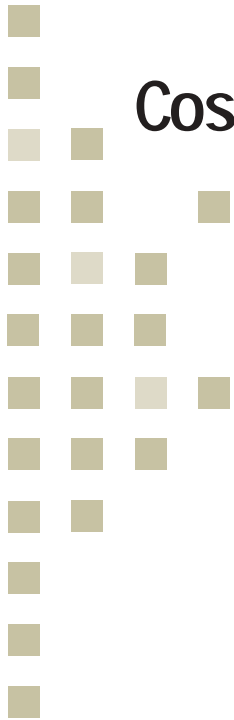
[272] **Report**

Learning, Networks and Sunk Costs in International Trade
Evidence from Norwegian Seafood Exports

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*** The lengthy correlation tables are not included in the main report, but will be made available on www.nupi.no/oecon/oecon-set.html. Interested readers may (upon request) obtain a copy by e-mail.

Preface

For the survey undertaken here, a draft questionnaire was developed by Hege Medin and Arne Melchior in 2001 and discussed with, among others, staff members of the Norwegian Seafood Export Council in Tromsø. We are grateful for the useful comments and suggestions received in this context. Pilot interviews with 10 seafood exporters in Ålesund and Oslo were undertaken in October 2001, and a final questionnaire was completed. The telephone interviews were conducted by Elisabeth Aarseth, who was employed as a research assistant in October 2001–January 2002 for this purpose. We thank her for the great effort and patience involved in obtaining responses from so many firms, and for her complete reporting of the numerous data. Last, but not least, we thank the seafood exporters who sacrificed some of their valuable time in order to share their experience with us and answer the numerous questions. We hope that the report will provide useful for exporters as well as for policy purposes and research, so that their efforts were not in vain.

Transport cost data were collected during the spring of 2002 from 10 transport firms and transport brokers. We are grateful for their assistance in this respect.

Oslo, December 2002.
Arne Melchior

Abstract

This report is based on a survey among 81 Norwegian seafood exporters, covering 1/3 of Norwegian seafood exports. The report shows that tariffs and transport costs remain significant trade barriers in many markets, both ranging from zero to 30% of the sales value in different markets in normal cases. Trade policy, related to tariffs as well as non-tariff barriers such as veterinary standards, remains highly important for seafood exports. On non-tariff barriers, the report identifies markets where e.g. corruption is a problem, with Eastern and Southern Europe on top of the list.

Norwegian seafood exports are to a large extent based on personal customer networks rather than transparent markets with a changing portfolio of customers. Stable networks based on trust reduce risk and lower costs over time by facilitating trade with each customer. Firms also learn from their past experience so that sales costs are reduced over time due to better market knowledge and practices.

Exports to each market grow by new firms entering the market, as well as increased sales to the market from established exporters. Some firms, for example pure trading companies, enter new markets more frequently than others. In general, firms follow other exporters as a "herd" rather than entering new markets alone. A partial explanation is that firms benefit from other firms' exports to a market by obtaining information, and by exports collectively increasing the consumers' awareness of the products. In some markets, transport prices are also reduced over time as exports grow and the supply of transports is developed. A fourth type of "externality" between firms is that they benefit from their employees' past experience and established networks from earlier work in other firms.

When firms enter new markets, they face fixed entry costs, of which establishing sales channels is the most important one. In normal cases, these entry costs are low – in the range 1–5% of average sales to a market. In difficult markets, the entry costs can be considerably higher (in the range 10–32%), and in such markets, the exporters may also face greater risks that reduce expected profits. A minority of firms tend to enter new markets alone, and these face higher risks as well as costs. Large firms invest more in establishing sales channels in order to penetrate markets deeper.

Taken together, the evidence provided in the report indicate that total sales costs vary greatly across markets, from being negligible to 50% of the sales value and even higher. While some trade costs are proportional to the volume sold (e.g. tariffs), entry costs are to a large extent fixed. On the whole, the analysis shows that the variable costs are more important. Fixed costs, as well as learning and externalities, implies that there are economies of scale in the trading activity, and there may be an element of imperfect competition even in markets with many suppliers. This has important implications for the analysis of how trade policy affects markets.

The analysis suggests that current export promotion policy is useful for the exporters, but it should focus more on entry into new markets. Observing

that large firms invest more in market entry and sales offices, an issue is also whether the traditional reliance on direct exports to wholesale customers by many exporters will remain efficient over time.

For research, the analysis implies that fixed costs, learning, networks and externalities in the export activity should be given more attention in theory as well as empirical research. The analysis also shows that trade costs do not unambiguously increase with geographical distance, as commonly assumed in economic geography models. For bulk shipments by sea, it is indeed the case that the world has become smaller, since transport costs from Norway to China are not much higher than to Italy. The analysis supports other evidence suggesting that market entry costs are relatively low for homogenous products such as seafood. The entry barriers may be much higher for more differentiated goods, and the result for seafood exports do not necessarily apply to other sectors.

Summary of main results

Recent research on "border effects" in international trade suggest that nations trade much more inside their borders than across them, even in regions such as the EU where formal trade barriers have come down to a minimum. Hence there must be some "invisible" barriers that impede trade, and the observed "border effects" suggest that these barriers must be rather important.

For several reasons, it is crucial to obtain more knowledge about these barriers. Consider, for example, that there is a tariff of 10% for some trade and this is reduced to zero. If we assume that this is the only trade barrier in place, we will predict that borders will no longer matter, and trade will be completely free. But if there is an additional "hidden" trade barrier of, say 20%, which remains in place after the tariff has been eliminated, the impact of the tariff reduction will be quite different. So in order to evaluate the impact of trade policy changes, we have to know all the factors that impede trade. It could also be the case that the hidden barriers to trade are affected by "globalisation"; e.g. improved communication, transportation, language skills, migration, international investment and so on. Without knowing the hidden barriers and how they change, we may wrongly believe that this impact of globalisation is due to e.g. tariff reductions.

It is also likely that the hidden trade barriers are qualitatively different from tariffs: While the latter are proportional to the sales volume, it is likely that the invisible trade barriers are partly in the form of fixed entry costs that the firms have to pay when entering a market. If this is true, there are economies of scale in the trading activity, and there can no longer be perfect competition in markets (since firms must have some profits to cover their fixed costs). While this is surely no surprise for real-world exporters, it is for economic research, which has until now focused very little on such aspects. Recently, however, more research in this area has been undertaken, and this study attempts to contribute to this new literature.

Economies of scale in the trading activity may occur in the form of tangible costs related to market entry, such as costs of finding customers, advertising, travels and so on. They may also be in the form of learning-by-doing, whereby exporters learn from past experience so that their selling costs are gradually reduced. There may also be economies of scale at the sector level, if exporters learn from one another, i.e. there are knowledge spillovers in the export activity. In the report, we also present some evidence on two other forms of "externalities" or scale economies at the sector level: One is that transport facilities improve as sale to a market develops, so transport costs may fall over time. Another form is "marketing externalities": Customers learn about products as new exporters enter, and this is an advantage to all exporters.

In spite of the recent literature on networks, fixed costs and learning in international trade, it remains true that the exact nature of the "invisible" barriers to trade remains largely unexplored. The purpose of this study, therefore, is to shed light on these barriers to trade, and to compare them to more

"traditional" trade barriers such as tariffs or transport costs. For this purpose, studying all the trade barriers facing exporters in a given sector may be a useful approach, rather then focusing on a narrow set of issues. This report is based on a survey among Norwegian seafood exporters. With 500 seafood exporters and exports to almost 150 countries, Norway is the second largest seafood exporter in the world. The sector is therefore an interesting case for the study of international sales activity. Responses were obtained from 81 of these exporters, based on telephone interviews lasting 45–60 minutes and covering a wide range of issues (see Appendix A for details on the questionnaire). Some questions related to quantitative information about key data such as sales and costs, and other questions asked the respondents to indicate the degree of importance of specific aspects, or to indicate the degree to which they agreed to specific propositions about the export activity. For the latter type of questions, an indicator variable ranging from 1 through 5 was applied. In the report, the results have been transformed to a 0–100 scale, for better intuition when interpreting them. For all questions, especially the ones with qualitative indexes, a certain degree of measurement error has to be expected. In order to check the consistency of the results, partly overlapping questions were asked. On the whole, the results suggest that the information given was mostly consistent. In addition to the survey data, firm-level data for exports in 2000 were used to check how representative the sample is. Additional data on transport costs were also collected from transport firms.

The 81 firms covered 1/3 of Norwegian seafood exports in the year 2000. When comparing the sample to firm-level data for the exports of the whole population of firms, it is representative in most respects, except that it proved difficult to obtain responses from very small firms. For that reason, the average size of the firms in the sample is somewhat larger than for the whole population. Nevertheless, the sample ranges from very small firms, selling for 50 000 NOK to one foreign market, to the largest firm, selling for 1.8 billion NOK to 49 countries (exchange rates 2000: 1 USD=8.80 NOK, 1 Euro=8.11 NOK). Table 1 describes some main features of the sample (data are for 2000).

Table 1: Main characteristics of the sample of Norwegian seafood exporters

	Unit	Minimum	Median	Average	Maximum
Age of the firm	Years	0	15	16	143
Number of employees	Number	1	16	50	1142
Seafood exports	Mill. NOK	0.05	36	150	1822
Share of sales based on own production	%	0	65	54	100
Export sales staff	Number	0	2	4	90
Number of export markets	Number	1	5	8	49
Customers in each export market, average	Number	1	2	3.7	40
Average sales per export market	Mill. NOK	0.03	7	13	103.5

The sample thus includes firms of varying age and size, and if we use the median (i.e. the value with half the firms below and half above) to describe the "typical" firm, it is a 15 years old firm with 16 employees and seafood exports of 36 mills. NOK. The sample includes pure "producers" (producing all the goods in the firm) and pure traders (that buy all the goods from other firms, mainly other Norwegian producers), with the first category being slightly more common. The typical firm sells to five different export markets, with average sales of 7 mills. NOK in each market, and only two customers in each.

Even if the largest firms have more customers in each market, it remains true that on average, the exporters sell to only a few customers in each market. A high proportion (3/4) of sales abroad is direct exports from Norway, but large firms increasingly invest in sales offices abroad, in order to facilitate contact with nd penetrate markets deeper. Wholesalers and manufacturers are the most customers a important customer groups. Small exporters predominantly sell to wholesalers, while large firms sell more to manufacturers. A policy issue is whether the distribution mode that small exporters rely on, i.e. direct exports to wholesalers, will remain efficient in the long run, as overseas production becomes more important and the role of wholesalers in the distribution systems of importing countries becomes less important.

Exporters grow in size by selling to more markets and by selling more to each market. Sales in each market grow due to more customers as well as increased sales to each customer. Exports to an individual market grow by the entry of new exporters as well as by increased sales from each exporter to that market.

When finding their customers abroad, the exporters predominantly rely on personal networks and face-to-face contact with the customers, rather than impersonal forms of marketing such as advertising. The seafood export activity is primarily based on stable customer networks with a modest number of clients rather than transparent markets with a large and changing portfolio of customers. This conclusion is supported by the responses to a number of questions in the survey. The lack of open and transparent markets is also supported by the fact the exporters price discriminate among customers for similar products in the same markets. On average, the firms reported that prices varied by 4–7% (lower/upper bounds).

In order to increase their sales, exporters strongly emphasized the need to build a reputation of being reliable. A reputation of good quality is also important – although there is here a distinction between the quality being "good" versus being "better than for others", and most exporters emphasize the former. The importance of building a brand name obtains an intermediate score for the whole sample, but many firms consider this to be important.

When exporters enter new markets, the market potential is the single most motivating factor. Some firms undertake thorough market analyses before entering new markets, but several firms do not, and sometimes markets are chosen by coincidence. Also for market entry, the personal networks of employees play an important role, and sometimes (especially for younger firms) this market knowledge has been obtained by earlier experience in other firms. Hence labour mobility between firms contributes to knowledge spillovers between them. This is more important for "traders" than for "pro-

ducers", and the pure trading companies also enter (and exit) new markets more frequently.

Tariffs represent an important obstacle to market entry. The firms also report that non-tariff barriers such as cultural differences and different product and veterinary standards are important barriers to entry, that corruption is a problem when entering new markets, and that large markets are more difficult. While some firms sell to the same markets year after year, others frequently enter new markets. While a high share of current exports goes to Western Europe, the firms' entry plans are primarily directed at other markets that have a lower share in current exports. The exporters therefore aim at markets that are not already well established. On the other hand, firms consider it as an advantage that there are other Norwegian exporters present in a market, and very few of them try to be the first entrants in a new market. The survey therefore suggests that exporters behave as a "herd" by entering new markets more or less collectively.

The reasons behind this "herd behaviour" could partly be imperfect information, so that firms enter when the rumour spreads about a profitable new market. Another reason on which the survey sheds light, is that there may be externalities in exporting. As noted above, there could be three different sources of such externalities; learning from other firms, the development of better transport infrastructure, and "marketing externalities" by which the products become better known in the exporting country as exports grow. The survey supports the existence of all three forms of externalities. "Marketing externalities" seem to be more important than knowledge spillovers. On transport cost externalities, we have only scattered evidence, so it is impossible to indicate their overall importance.

The existence of such externalities is also supported by the fact that "export pioneers" that enter new markets first, have higher entry costs than other firms. These "export pioneers" face higher costs as well as higher risks by being first in new markets, and they play an important role by paving the way for other exporters that join the bandwagon later, if the market proves to be promising. The "export pioneers" rely more on impersonal ways of establishing customer contact, and more than other firms they charge low prices initially in order to increase their market share in new markets.

Having established the importance of personal networks and the characteristics of the exporting activity, the study attempts to shed more light on all the main types of trade barriers and trading costs, ranging from tariffs to learning and externalities.

Tariffs facing Norwegian seafood exports vary considerably across markets, ranging from zero to 30% in normal cases. Hence the continued importance of tariffs and traditional trade policy is evident from tariff data alone. This was confirmed by the responses to standardised as well as open questions to the exporters.

The respondents also emphasized the importance of sanitary and veterinary standards as an obstacle to trade, and 1/3 of the firms has experienced their exports to specific markets being hindered by such barriers. There was overwhelming support (87/100) for the need to harmonise such standards internationally.

Seafood exports is an intermediate case with respect to the relative magnitude of transport costs. Within Europe, a large share of seafood exports is shipped by car, with costs increasing almost linearly with geographical distance. For most goods, transport costs within Europe vary between 0.5 and 7% of the price. For very low-price items, however, transport costs may exceed 10 or even 30% for transports within Europe.

For destinations outside Europe, car transports are not feasible, so frozen, dried or salted fish is shipped by sea, and fresh seafood is sent by air. Air transport is much more expensive and here transport costs may be in the range of 16–26% of the price for relatively high-priced goods. For cheaper goods, such transport is mostly prohibitive. Sea transport is, however, much cheaper, so the costs of shipping frozen fish to China is not much more expensive than to Italy. For sea transport, therefore, the link between geographical distance and transport costs is broken. Some of these low prices are only feasible for bulk transport, which requires minimum quantities of 100–300 tons.

In magnitude, transport costs are comparable to tariffs. For small quantities and non-standard, destinations, however, transport prices may be much higher than standard rates. The higher prices for non-standard destinations provide evidence supporting that transport costs are to some extent endogenous, and fall as the supply of transports to new destinations is developed.

Turning to the "invisible" trading costs, we find that the cost of handling shipments is modest, in the range of 1–4% of the value. More interesting, in the light of our focus on market entry costs, are the estimates on fixed costs of market entry. Firms were asked to quantify three types of costs; the costs of establishing customer contacts, the costs of obtaining market information, and the costs of adjusting products to local standards and demand. It turned out that the latter two components were of small magnitude, so the cost of establishing sales channels was clearly most important. Compared to the average sales value to an individual export market, the estimates on such costs ranged from 0 to 24%, with a normal range between 1 and 3%. Adding to this the other two cost components, we find that the total fixed costs of market entry normally range between 1 and 5%, but in some cases they are up to 32%. These results suggest that the fixed entry costs are significant, but in the majority of cases small compared to permanent costs such and tariffs and transport costs.

The qualitative as well as the quantitative evidence from the survey suggests that the costs of market entry are higher for firms exporting differentiated products, and for export pioneers that prefers to be first in new markets. Entry costs do not vary between particular countries or regions but firms report that in general entry costs are higher for culturally distant and large markets. Fixed entry costs also depend on firm characteristics:

– Firms that frequently enter new markets, have to invest more in order to enter these markets.
– Large firms (measured by their total sales), and firms selling to many markets, on average report relatively higher fixed costs. These firms invest more when entering, in order to sell more to each market.

- Firms that report strong learning and network effects also have higher fixed entry costs. This is probably because such firms find it profitable to enter markets more deeply.
- Firms with better risk management tend to have lower fixed entry costs.

The survey data therefore indicate that the fixed costs of market entry vary across firms, due to different sales strategies, skills and exporting products. In some cases, the costs are high because firms enter markets without solid groundwork, and in other cases, the fixed entry costs are high because firms deliberately invest more in order to learn about markets and penetrate them deeper.

On learning-by-doing in the export activity, the survey does not provide hard numerical evidence, but the qualitative information convincingly supports the existence of such effects. On several questions, the responses support the hypothesis that learning from experience decreases sales costs:

Some questions support the existence of "pure" learning-by-doing, whereby e.g. trading with one customer makes it easier to trade with the next. Experience from exporting to one country also facilitates exports to other countries in the same region, although this effect is not as strong as for trade within the same country.

Other questions suggest that learning effects may be linked to networks: When stable customer relationships based on trust are established over time, it facilitates current trade with these customers and lowers costs. The survey data indicate that such network effects are at least as important the "pure" learning effects.

How much do trade costs decrease over time due to experience? Based on the survey, we are not able to quantify this, but the survey suggests that the quantitative effect is significant. It should also be observed that learning may affect the fixed entry costs as well as the current costs.

As noted already, the survey also provides evidence to the effects that there are externalities in the export activity, and that the costs of market entry are high for exporters that enter markets individually before other exporters. The quantitative impact is difficult to assess, but we may, as an illustration, use the upper range of total fixed cost estimates as an illustration. Several firms report fixed entry costs in the range of 10–32% of average sales to each market. These costs could include the impact of learning as well as externalities, but they do not include transport costs. Other firms, however, report total fixed entry costs close to zero, so it is evident that these costs vary across markets as well as firms. But we may use these lower and upper ranges as a very tentative illustration of the possible magnitudes involved.

A final item in our mapping of sales costs is the cost of handling risk. Firms face risk related to the uncertainty about expected sales, and they face risks related to practical difficulties such as payment default, corruption, conflicts about quality, exchange rate losses and the like. The survey data indicate that risks related to corruption, conflicts and payment default are severe in some markets, but on average not so frequent. Payment problems were, however, the most important single reason why firms withdrew from particular markets, and 43% of the exporters had experienced corruption to

be a problem in particular markets. Southern and Eastern Europe was most frequently mentioned with respect to corruption, but also in Asia and Latin America this appears to be a problem.

The survey shows that firms are actively pursuing strategies to contain risk, e.g. by checking customers or hedging against foreign exchange risk. The firms were not asked to report the costs involved in specific insurance schemes, so we are not able to quantify this.

On the whole, therefore, the survey confirms that there are several types of costs involved in exporting. As an illustration, table 2 describes the quantitative impact (to the extent possible) for three hypothetical markets with low, intermediate and high trading costs. Costs related to risk are not included, since we have no reliable estimates on their magnitude. It can be discussed what are the appropriate ranges for each cost item, but the highest estimates below are all within the range of costs reported by exporters (or from the transport cost data).

Table 2: Total quantifiable trading costs in three hypothetical markets			
	Low	Intermediate	High
Tariffs	0	5–10	20–30
Transport costs	0.5	5–10	16–26
Shipment handling costs	0.2	1–2	2–4
Sum variable trade costs	**0.7**	**11–22**	**38–60**
Fixed entry costs	**0**	**1–5**	**10–32**

Hence total trading costs vary from negligible to very high, and the variable costs are on the whole higher than the fixed costs. We cannot add fixed and variable costs together, but the figures suggest that the overall trading costs may indeed be substantial in some markets. The fixed costs as well as the shipment handling costs could be expected to decline over time due to learning, and the high estimates for fixed costs could also be reduced in more established markets due to externalities. It is of course also possible that a market may have low transport costs and high tariffs etc., so our "worst case" is meant purely as an illustration of the upper range. We could have constructed even worse cases based on extreme observations in the data (239% fixed costs, 17% shipment handling costs, 65% transport costs, tariffs above 100%), but that would be abnormal cases.

Table 2 also shows that the "traditional" trade barriers such as tariffs and transport costs are larger than the "invisible" trading costs. It is possible that we have not captured all the variable "invisible" trade costs, such as regular travels to meet customers. The borderline between fixed entry costs and annual expenses is not fully clear, so it is possible that some of what we have named fixed costs here, are also incurred on a regular basis. Nevertheless, it is clear that the fixed entry costs form a significant part of total trading costs, and a component that may be important for how trade evolves over time.

What are the policy implications of the analysis? The analysis shows that "traditional" trade policy relating to tariffs as well as non-tariff barriers remains important. Future trade policy changes may also be the easiest way

of reducing trade costs and entry barriers, since transport costs and "informal" trade barriers may not so easily be reduced.

The report also provides evidence on non-tariff trade barriers such as corruption, and bureaucratic obstacles. Such trade barriers are to an increasing extent covered by trade policy under the heading of "trade facilitation". Such trade barriers are important even in parts of Europe, and the report provides documentation that may be used in the formulation of policy in this area, by identifying countries where such barriers are common.

Exports grow by the conquest of new markets as well as by increased sales to existing markets. New markets are first opened by exporters willing to face high risk and higher trading costs, and for export promotion policies an implication is that measures should to a larger extent be directed at aiding these "export pioneers", as we have called them. This is relevant for export credit guaranty schemes as well as for the services offered by the Norwegian Seafood Export Council (EFF).[1]

On the other hand, increased sales to existing markets it primarily promoted by means of investments in the sales channel, especially by large firms, in order to penetrate markets more deeply. For export-related policies, an important issue is whether the traditional distribution mode relied on by several exporters, i.e. direct exports to wholesalers, will remain efficient or whether exporters should be stimulated to change their practices.

As noted in the introduction, the analysis is also indirectly relevant for policy since a total assessment of trade barriers is necessary in order to evaluate how specific trade policy measures will affect trade. By mapping all types of trading costs, we may evaluate how changes in each component will affect trade.

Related to research in the area, the report has attempted to provide more systematic evidence on the nature of "formal" as well as "informal" trading costs. We have succeeded in demonstrating the significance of fixed entry costs, as well as learning effects, networks and different types of externalities in the export activity. We have not succeeded in quantifying all these components, and more research may be undertaken, e.g. with firm-level trade data, in order to provide more evidence. Theoretical work should also be undertaken in order to examine the implications of these empirical phenomena.

From a research perspective, it is also interesting that trading costs are not strongly and unambiguously related to geographical distance, contrary to the standard assumption in gravity models as well as spatial "new economic geography" models. Neither are transport costs, tariffs nor "informal" trade barriers unambiguously increasing with distance, even if this to some extent the case. The determinants of economic geography are therefore more complex than these models suggest. Hence trade models should take into account that some trade barriers increase with distance and others not (see e.g. Melchior 2000), and some trade costs are fixed while others are variable (see e.g. Medin 2003a). The full implications of network effects also need to be examined more carefully. With search costs and incomplete information, even modest trade barriers may have significant effects on the trade pattern.

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[1]   A separate paper in Norwegian presents more detailed results on the exporters' assessment of current policies in this area.

While we have provided documentation about the importance of networks, we have not derived all their implications.

Finally, it should be emphasized that these results for Norwegian seafood exports do not necessarily apply to other sectors. The results suggest that the fixed entry costs may be relatively low for seafood exports due to the products being relatively homogenous. For more differentiated goods, we would expect the entry costs in foreign markets to be higher. On the other hand, the sector-wide externalities may be higher for homogenous goods, since the exporters are more similar with respect to products as well as knowledge requirements.

1. Introduction

In economic research on international trade, trade barriers are traditionally represented in the form of variable costs, such as an ad valorem tariff or a transport cost. Whether one unit or one million units are exported, the relative importance of trading costs remains the same. For real-world exporting firms, the story is normally different. For most goods, organised international spot markets or auction-type markets do not exist. In most sectors, firms likely have to spend efforts to establish customer networks, learn about markets and build experience on selling to each market. This report presents empirical evidence on the nature of these obstacles to international trade, makes some attempts to quantify them, and discusses the implications they have for theory and policy. The results are based on a survey among Norwegian seafood exporters. Norway being the second largest seafood exporter in the world, with more than 500 exporters selling to 146 countries, makes this sector an interesting case for studying the nature of international sales activity.

While economies of scale in production have become a standard feature in modern theory of international trade and economic geography[2], this report presents evidence that there are also significant economies of scale in the trading activity: There are sunk costs when establishing exports to new markets. These costs are partly observable costs related to market entry (e.g. travels, market analysis and so on), and partly in the form of learning-by-doing so that export costs decline as firms gain more experience.

A related phenomenon is the importance of networks: As the results show, stable customer networks may be important for trade. Stable networks based on trust facilitate trade and reduces risk, and thereby lowers trading costs. Compared to tangible entry costs (e.g. travel costs, advertising), the relationship between initial "investments" or fixed costs at the firm level, and the formation of networks, is less clear. To the extent that networks are personal, they represent a particular form of human capital that may not be transferred so easily as e.g. general market information. In some markets, networks may be easy to establish, while in other cases it is more difficult. To what extent this "probability of matching" depends on the firm's own efforts, and to what extent it depends on the external environment, is an important issue for firm strategy as well as policy.

In standard approaches to trade policy, a reduction in a tariff will normally lead to an expansion of trade, with the magnitude determined by the underlying models of supply, demand and market structure. In the presence of entry barriers in markets, we can no longer be sure that trade policy changes have such effects: In markets with high entry barriers, a lower tariff may be of little help to exporters. Only when trade liberalisation is deep enough so that firms can sell enough to cover their entry costs, will exports occur. Standard trade models are not very helpful for predicting trade in new

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[2] See Helpman and Krugman (1985) and Fujita et al (1999)

markets. If exports are very low and tariffs are reduced by 10%, such models may predict that trade will increase to "very low + a little more". But if entry barriers are overcome, trade may expand by much more than the standard models predict. The effect may also be self-enforcing, because knowledge about overcoming entry barriers may spill over from exporting to non-exporting firms (see e.g. Aitken et al. 1997). For such reasons, modelling entry costs in markets may improve our ability to evaluate the impact of trade policy changes. Some estimates even suggest that the impact of informal trade barriers may have increased in the EU after the internal market was formed, and the unobserved trade barriers are much larger than the barriers affected by the internal market (Brenton and Vancauteren 2001)![3] Hence to provide a reliable assessment of trade policy reforms such as those related to the internal market, it is necessary to obtain more knowledge about the informal barriers.

If there are economies of scale in the trading activity, firms will also have some market power, and the market structure can no longer be perfect competition. Hence even in sectors with little economies of scale in production, there may be some monopoly power in markets. As known from the literature on international trade with imperfect competition, this has important consequences for trade policy. An illustration is the impact of textile quotas in developing countries: Even if such quotas were allocated to exporters in developing countries, importers were able to capture some of the price increase due to quotas (Melchior 1993). Hence these importers had some market power, even in a sector with many producers and slight economies of scale in production. With respect to Norwegian seafood exports, such aspects of market structure may be important in order to assess the impact of e.g. EU anti-dumping duties or minimum price requirements facing Norwegian exports.

Another policy implication is related to the fact that several countries have in place export promotion agencies that explicitly aim at overcoming entry barriers in foreign markets. Such agencies may e.g. help firms to establish customer networks, or undertake marketing. Countries also spend considerable efforts marketing themselves as countries abroad, e.g. by means of official delegations, royal visits and even by arranging huge exhibitions – even Olympic Games. Until now, this has been a policy domain mostly outside the reach of economic research. Research on entry barriers in foreign markets may shed light on how such policies should be shaped. A hypothesis is that export promotion policies related to individual firms, if they are to be effective, should be aimed at markets where entry barriers are not too high (so that support is unlikely to increase exports) or not too low (so that exporters have already overcome the entry barriers). Improved knowledge on entry barriers in markets may help us identify such markets, and hence provide guidance to policy.

Many of the trade costs that firms are facing, are related to culture and institutions, in addition to transportation, and not directly linked to trade

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[3]   This is based on data on changes in domestic sales versus intra-EU exports. It should be observed that economic integration may in some cases lead to reduced international trade – e.g. if firms are no longer able to price discriminate by exporting cheaply (Smith and Venables 1988). Hence we should be aware that trade volumes are affected by market structure and competition, and not only the magnitude of trade barriers.

policies in the importing country. Even if explicit trade barriers are reduced to zero, other trade barriers will remain. An illustration of this is provided by the recent research on "border effects" in international trade: Countries generally trade 5–20 times more "with themselves" (within their borders) than with other countries (see next section for an overview of some results). This applies even in Western Europe, where "formal" trade barriers have been reduced to a low level. While "home preferences" (consumers favour domestic products) may explain some of this gap, it is likely that there are also some "informal" trade barriers that have a significant impact on trade. This report presents specific evidence on the nature of these barriers. As the numerical examples above suggest, they are likely to be of great significance.

An important issue is how "globalisation", not only in the form of trade agreements and other integration measures, but also in the form of improved knowledge about other countries, or better communications, or better language ability, or immigration, or foreign direct investment, affects these informal trade barriers. If it turns out to be true that "informal" trade barriers are more important than the formal ones, it may have deep implications for the analysis of trade as well as for trade policy. As an illustration, consider the fact that a considerable share of world trade takes place within multinationals (UNCTAD 2001). A partial explanation may be that multinationals are able to overcome the informal barriers to trade. Hence foreign direct investment may in itself be a significant "trade policy reform".

As we shall see, Norwegian seafood exports also face significant informal trade barriers. Seafood may be considered as a rather homogeneous good, which – according to the results above – should be expected to have lower information costs than more differentiated goods. On the other hand, seafood is characterised by stringent quality requirements, and because of this it cannot be compared to homogeneous goods such as e.g. metals. So we cannot be certain as to whether the results we obtain for seafood are in the high or low range compared to other sectors. Compared to other studies that focus on the importance of networks and knowledge spillovers for many countries and goods, our analysis is more limited in scope by studying one sector only. On the other hand, the sector study approach allows us to obtain more precise data on the nature of what we have called informal trade barriers. Hence the main contribution of this study is to provide micro-data that shed light on the content of this "black box". Such evidence is scarce in the international research literature, and our aim is to contribute with new information.

In 1998, Norway was the second largest seafood exporter in the world in terms of value (source: FAO database Fishstat+). While some firms established their exports more than 100 years ago, there has been considerable export growth over the last decade, with firms entering new markets. Hence the experiences of these exporters are useful for the study of costs related to market entry. There are more than 500 exporters, of which the largest sell to more than 50 countries. A useful feature of these firms is that, in spite of relatively large sales volumes, most of them are relatively small in terms of employment (the average is 50 employees) and have managers that have a unique overview of the problems involved when selling in different markets.

Hence these sales managers constitute a highly valuable source of information for the questions to be addressed.

In Chapter 2, an overview is provided on the emerging literature on learning, networks and sunk costs in international trade. Chapter 3 presents an overview of the survey, examines how representative the sample is, and in that context also describes some main features of the seafood export activity. Chapter 4 analyses the characteristics of market entry. Chapter 5 gives qualitative evidence on informal barriers to trade by investigating the impact of networks, learning by doing and externalities. Chapter 6 examines the significance and in some cases also the magnitude of different types of trading costs, ranging from tariffs and veterinary standards via transport costs to fixed costs of market entry and learning. Chapter 7 presents results related to risk, including corruption. Chapter 8 discusses the implications for export promotion policies, and Chapter 9 concludes.

Through the report several correlation coefficients are reported. All results are based on correlations significant at the 5% level or better, if otherwise is not explicitly noted. Only in the case where some relationship is also supported by other evidence, we report correlations with P-values between 10 and 5 %. We mainly use Pearson correlations, which have the underlying assumption of normal distribution. Since most variables analysed are qualitative variables, ranging from 1 to 5 this seems like a reasonable assumption. However, when analysing the quantitative sunk costs variables Pearson correlations are much more sensitive to extreme values. We hence use Spearman correlations in order to correct for this. In Appendix D (not included in printed version), correlation matrixes are given for selected variables.[4]

Appendixes A-C include the questionnaire used in the survey, as well as descriptions and summary statistics on the variables used in the analysis.

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[4]   This Appendix is not included in the printed version of the report, but will made available on www.nupi.no/Oecon/Oecon-set.html, and interested readers may obtain a copy by e-mail (upon request).

2. Sunk costs, networks and learning in international trade: Recent developments in economic research

The favourite tools of economists are models of supply and demand. Producers have their cost functions, and consumers have their preferences, and the goods produced neatly find their way from producers to consumers without much trouble. In research on international trade, a tariff or a transport cost may come in between and reduce sales in a particular market, but in most of the literature, there is not much explicit consideration about how producers find their customers and learn about foreign markets. To the extent that trade costs are considered, they are normally modelled in the simplest way: as a proportion of the export value.

Some aspects of the selling activity, such as advertisements and branding, have to some extent been analysed in the economic literature, although not so much in an international context (see e.g. Sutton, 1991). There are, however, many other features that deserve more attention in economic research. The empirical literature on "border effects" in international trade has stimulated an increased interest for the issues. A literature on sunk costs, network building and learning effects in international trade is now emerging, and attempts to analyse these factors. This literature focuses on empirical investigation, but a few theoretical contributions also exist. In the following, a brief survey of this literature will be given.

2.1. Border effects in international trade

Many of the trade costs that firms are facing, are related to culture and institutions, in addition to transportation, and not directly linked to trade policies in the importing country. Even if explicit trade barriers are reduced to zero, other trade barriers will remain and trade within countries as compared to trade between countries is much higher than what we would predict if formal trade barriers were the only obstacles to trade. Empirical evidence on such border effects, is provided by research on trade between regions in the US and Canada: domestic regions, at a given distance and economic size, trade much more with each other than with regions in the other country, even if formal trade barriers are low (McCallum, 1995 and Helliwell, 1996). Similar evidence exists for trade in Western Europe. Brenton and Vancauteren (2001) find that EU countries in 1997 traded 22 times more within their borders than with external trade partners in general, and 13 times more than with other European partners. While "home preferences" (consumer favour domestic products) may explain some of this gap, it is likely that there are also some "informal" trade barriers that have a significant impact on trade. Using new data on non-tariff barriers, Chen (2002) show that tangible trade barriers such as standards explain some of the border effects within the EU,

and that the remaining unexplained border effect within the EU is on average 4.3 – i.e. EU countries on average trade 4.3 times more with themselves than with other EU countries. Related to our study, it is of particular interest that Chen (2002) finds that border effects within the EU are negligible for fish products.

2.2. Sunk export costs

For the exporting firm, informal barriers to trade represent a cost that may take on various forms. Entering foreign markets may involve costs related to conducting market analysis, and acquiring market information. It can for example be necessary to learn a new language or obtain information about cultural and legal differences as well as foreign trading procedures. Further-more, there are obstacles related to finding customers and firms may have to establish foreign distribution networks or sales offices. Also there may be technical or other non-tariff barriers to trade, such as different product stan-dards or veterinary requirements, which represent adjustments costs for the firm. Common for all these costs is that they are not directly linked to the traded volume, and in many cases they are fixed or sunk. For example, the cost of conducting a market analysis is a sunk cost; is not recovered if the firm eventually decides not to export. Further, the cost of maintaining a cus-tomer relationship may be fixed, if, for example, representatives from the firm have to visit the customers each year. Costs related to informal barriers to trade may also be more uncertain than other costs. For example, one can-not know in advance how much it will cost to establish a good relationship, or how much it will pay off. On the other hand, investments in market know-ledge may reduce uncertainty related to cross-border transactions (such as customs and payment procedures or corruption), and hereby reduce the cur-rent costs of exporting.

How important are these sunk costs, and can inclusion of such cost in trade models improve our understanding of determinants behind trade flows and choice of export markets? Several attempts have been made to find empirical evidence on sunk costs in trade, and the first contributions looked for so-called hysteresis in aggregate trade flows. Hysteresis implies that tem-porary changes have permanent effects. With sunk costs, firms will not so easily exit from markets if they have borne the initial investment of entering. Baldwin (1988), Dixit (1989) and Baldwin and Krugman (1989) therefore argue that in the presence of sunk cost in trade, temporary shocks such as exchange rate fluctuations may have lasting effects. A temporary appreci-ation of a country's currency may turn expected profits from exporting posi-tive, so new firms will pay the entry cost and start exporting. If the currency falls back to the original level, firms do not necessarily exit the market because the entry cost is sunk. Only if depreciation is large enough to make the current cost of exporting greater than expected profits, will the firm exit.

The first analyses of hysteresis in trade used aggregated trade flow data. However, Roberts and Tybout (1997) argued that with such data, one cannot distinguish whether trade changes are due to entry/exit or changed sales by existing exporters. They therefore presented an empirical analysis on firm level data from Colombia. This study considerably improved our knowledge about the importance of sunk cost and hysteresis in trade. The authors found

that previous export experience has a substantial effect on the probability of export: a firm that exported in the prior year is up to 60% more likely to export in the current year.

A problem with this kind of analysis is that firm level data is hard to obtain. However, a few other recent papers use firm-level data to test for sunk costs. Cleredis et al (1998) also find evidence on sunk export cost in three developing countries (Mexico, Colombia and Morocco). Evidence from developed countries also exist: Bernard and Wagner (2001) find that export experience in the previous year increases the probability of exporting with above 50 % among German plants. Bernard and Jensen (2001) show that the corresponding number is 36 % among US manufacturing plants. All these studies investigate sunk costs of exports per se. Medin (2003b) analyse the costs existing exporters face when they want to enter a new export market. She finds significant market specific sunk costs among Norwegian fish exporters. Although these studies show clear evidence on important sunk costs in exporting, they are not able to quantify these costs. In a study of Colombian chemical producers Das et al. (2001) attempts to do so. They find that sunk costs are large. Firm are separated into 4 categories according to their domestic output level. For two of these groups (those with the lowest domestic output level), sunk costs exceeded the gross expected export value (being in the order of 242 and 136 million Colombian pesos, respectively).

2.3. Networks

By establishing customer networks, exporters may build relationships based on trust that facilitate export management and reduce risks related to payment default and other problems. The importer may also benefit by reducing risks related to quality and delivery. If such networks are important and stable over time, or if there is a sunk cost involved in creating them, there may be "inertia" in the trade pattern, and there may be "switching costs" involved in changing to new suppliers or customers. Networks may therefore give some monopoly power to suppliers as well as buyers.

The creation of such customer networks may be facilitated by cultural proximity, common languages and similar institutions. There is ample evidence that trade is more intense between countries with a common language. Some research evidence now also exists on the importance of ethnic networks and international migration for trade flows (for a survey, see Rauch 2001). For example, Asian immigrants to the US may have created "agents" that could overcome the informal barriers to trade and hence promote Asian trade with the US. Some empirical evidence suggests that a 10% increase in the stock of US immigrants from another country on average increased US exports to this country by 4.7%, and increased US imports from this country by 8.3% (Gould 1994). For Canada, Head and Ries (1998) found lower "elasticities" of this type (1.3% and 3.3%, respectively). Hence migration affects international trade, and the effect varies across countries.

Since our analysis applies data for an individual sector, an important issue is whether "informal" trading costs vary across sectors. Regarding the fact that Canada's exports are less affected by migration than US exports, a possible explanation suggested is that the cost-reducing effect on trade from

immigration is lower for more homogeneous goods or resource-based goods, which are more important in Canada's exports (ibid.)

Rauch and Trindade (summarised in Rauch 2001) provides evidence that the presence of Chinese ethnic networks have a significant impact on trade between different countries, and that this impact is much larger for differentiated than for homogeneous products. Since Norway has a trade structure that is rather similar to Canada's, one might believe that the results regarding Canada also apply to Norway.

2.4. Learning and knowledge spillovers

While sunk costs represent obstacles to trade, learning and knowledge spillovers may improve firms' ability to export. Learning-by-doing in production is well analysed in economic literature, and says that firms learn about production processes from experience and hence become more efficient over time. This implies dynamic economies of scale. Also knowledge spillovers and externalities that improve production are well analysed (see e.g. Coe and Helpman, 1995 and Grossman and Helpman, 1995). However, these effects may also be present in the export activity. An experienced exporter has probably acquired useful information about the export market and may have established good networks, which makes the costs of exporting lower than for newly established firms. Export experience may also facilitate export of new products, to new customers or to new markets. Further, a high level of international activity within a geographical area or within an economic sector may induce knowledge flows that facilitate the start-up of exports for non-exporters.

Learning effects may take on various forms and the most obvious is perhaps the firm's ability to learn from own experience. If there are fixed trade cost, these should then decline as the firm acquire export experience. Several of the studies than investigate sunk export costs, also test for learning effects. For example, Roberts and Tybout (1997) argue that the sunk cost component they find in export largely consist of the cost of accumulation of information about customers (demand sources). This information is likely to decline over time, and they find that two years after exit, the entry costs are about the same as those for a new exporter. Bernard and Wagner (2001) find that the advantage of own export experience falls with two thirds in a year. Similar evidence on depreciating experience is found in Bernard and Jensen (2001). This evidence on rapidly declining advantages of having entered the export market indicates that a substantial part of fixed export costs is affected by learning. Medin (2003b) also finds that Norwegian seafood exporters learn about exporting to a particular market from exporting experience aquired in other markets.

Another possibly important effect is that firms can learn from other firm's export experience. Such spillovers can occur both on a geographical and a sectoral basis and they may be of different kinds. For example, Aitken et al (1997), which is a pioneer in this field, argue that many geographically concentrated exporters within a given industry may create specialized transportation infrastructure and improve access to information about which goods are popular among foreign customers. However, they do not find evidence on such spillovers in a static model. In contrast Cleredis et al (1998)

find learning effects among Colombian, Mexican and Moroccan firms. They find that a firm is more likely to export if it belongs to an export intensive region or sector. In general, evidence on spillovers from other exporters is ambiguous. Bernard and Jensen (2001) test for spillovers among US firms. They test for region specific spillovers (export activity in the same state, but not the same industry), industry specific spillovers (export activity in the same industry, but outside the state) and local spillovers (export activity within the same industry and state). However, they do not find evidence for any of these spillovers, but they argue this might be because the sample is biased toward large plants. Neither do they distinguish between national firms and MNEs.

Information spillovers may be larger from the export activity of multinational enterprises (MNEs) than from domestic exporters. A large fraction of world trade (according to UNCTAD 2001) takes place within multinationals. An explanation for this may be that as multinationals internalise several trade transactions, they are better able to overcome the informal barriers to trade. Aitken et al (1997) argue that MNEs have unique information about foreign markets, consumers and technology and that they may provide inputs that are not available locally and hence link local firms to foreign buyers. Among Mexican firms they find evidence for spillovers from the export activity of multinationals. On the other hand Barrios et al (2001), who use a similar static framework as Aitken et al (1997), find no evidence for spillovers from the export activity of multinationals and only weak evidence for spillovers from dommestic exporting firms.

Sousa et al (2000) takes one step further and argue that MNEs' R&D and production activity as well as their export activity can improve domestic firms' export activities through demonstration or imitation spillovers, through competition effects and through information spillovers respectively. Demonstration spillovers occur because MNEs through their R&D activities may complement domestic firms innovation activities. This will rise the efficiency of domestic firms and may generate more exports.[5] Further, multinational production may lead to increased competition, especially since MNEs tend to invest in sectors with large entry barriers. Finally, as Aitken et al (1997), they argue that there are information spillovers because multinationals through their export activity have information about consumers' tastes, market structure, competitors and regulations that can be beneficial for domestic firms. Sousa et al. (2000) find that that all three MNE activities have a positive effect on the probability of export among British firms, but that the most important effect goes through the MNE's production activity. This activity has a positive effect on firms' export propensity as well as their probability of export and the authors conclude that it is the presence of MNEs, rather than their specific activities, that induce domestic firms to export. This indicates that the competition effect is more important for domestic firms' export activities.

Barrios et al (2001) also test for spillovers from MNEs R&D activity, but find no effect on the probability of exports for domestic firms. Further, Sjøholm (1999) finds no evidence on information spillovers from the pres-

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5   Several papers find that more competitive firms become exporters. See e.g Bernard and Jensen (1999) and Cleredis et al. (1998).

ence of MNEs among Indonesian firms. He does find, however, that foreign ownership increases the probability of exporting. He also finds that import has a positive effect. A high level of import promotes personal contacts and may facilitate information on foreign markets.

Finally learning may also occur in the particular market. While the above-mentioned studies investigate spillovers from other exporting firms in the potential exporter's home country, Medin (2003b) argue that knowledge may also spill over from other exporting firms in the destination country. She finds that Norwegian seafood exporters learn about exporting to a particular market from other Norwegian firms exporting to the market in question. The learning effects increase with the other firms' export intensity to the market in question.

Common to all the studies mentioned above is that they provide firm-level evidence and as such data are hard to obtain, evidence is limited to a few countries. Information spillovers may also be investigated at a more aggregated level, as attempted by Nicita and Olarreanga (2000). They argue that information about exporting may spill over from trade activity in other countries. Information created by networks or business relationships in one market may be beneficial for the export to other markets. For example, firms that export to a particular market acquire information about e.g. customs administrations, shipping procedures and distribution networks, which can be useful also when exporting to other markets. Also, foreign consumer tastes, product standards and customs admission in one market may be similar in other markets and information about this can be used in future transactions with other countries. Nicita and Olarreaga (2000) argue that information about exporters performance in some markets may spill over to importers in other markets, thus a good performance in one market may be beneficial also in other markets. They assume that USA is an information generating market, and find evidence for that 1 $ increased exports to USA from 4 developing countries (Egypt, Korea, Malaysia and Tunisia) generates on average an extra 2 − 14 cents of export to the rest of the world in the next period.

2.5. The gravity equation

There is strong empirical evidence that bilateral trade volumes fall with distance. As a consequence, empirical equations that express bilateral trade flows as a function of the respective sizes of the two trading partners and the distance between then (see e.g. Linnemann 1966) fit rather nicely to the multilateral trade pattern. The microeconomic foundation of the gravity equation is less understood. Recent trade theory with economies of scale and imperfect competition has improved our understanding (see e.g. Feenstra, Markusen and Rose 2001, Melchior 1998), but by far the story is not fully clear.

Implicitly in the gravity approach, geographical distance is used as a proxy for transport costs, which are believed to increase with distance. While this is at least partly true, it is likely that the distance term in the gravity equation is also strongly influenced by "informal" trade barriers. Hence research on such barriers may improve our understanding of gravity. This is important since the gravity equation has been frequently used in order to pre-

dict trade flows, e.g. between Western and Eastern Europe. It has also been widely used in the analysis of regional economic integration, by estimating regional integration effects on trade flows as deviations from what we should expect based on gravity. But as long as the distance term in the gravity equation is a "black box" that hides transport costs as well as informal trade barriers, we cannot be sure about the accuracy of predictions based on the gravity equation.

An argument for believing that the gravity equation is strongly related to "border effects" is that gravity estimates only change modestly over time, in spite of considerable changes in transport costs and formal trade barriers. The existence of sunk costs, learning and networks all create "inertia" in the trade patterns and could contribute to explaining this apparent stability of the gravity relationship. Hence past trade should be an important element explaining current trade, in addition to other factors. Eichengreen and Irwin (1998) confirm the importance of this by including lagged trade as a variable in the gravity equation, with strong empirical support.

2.6. Theoretical contributions

Theoretical contributions on this field are scarce. To our knowledge there are no theoretical contributions on learning effects in the export activity and only a few considering fixed export costs. Trade models often assume that either all firms or no firms export and that increased exports happens through an increase in each firms' export volume. However, some export booms occurs through an increase in new exporters rather than an increase in the export volume of each firm (Trabold 1998). Venables (1994) presents a model with fixed export costs, and show that both exporters and non-exporters can coexist within the same industry. Trade liberalization, through reductions in both fixed and variable costs, now leads to a higher share of exporting firms rather than an increase in each firms' export volume. Matä (2000) argue that the relationship between fixed and variable trade costs affects industrial structure and determine whether international trade emerges. Medin (2003a) further argue that increasing returns to scale sectors in small countries are more open than in large ones because a higher share of firms export in small countries in the presence of fixed trade costs.

Empirical evidence has shown that exporting firms are larger and more productive than non-exporters. However, until recently there was little knowledge about which way the causality goes: Do exporting firms become more efficient due to their exporting activities, or is it only the most efficient firms that are able to compete in foreign markets? Among firms in Morocco, Mexico and Colombia, Cleredis et al. (1998) find clear evidence that good firms become exporters and not the other way around. Also Bernard and Jensen (1999) find similar results among US firms. Jean (2002) gives a theoretical rationale for this in a model where firms have different marginal production costs. In the presence of fixed trade costs, only the largest and most efficient firms will export. Similar results are presented in Melitz (2002).

Smith and Venables (1991) argue that reductions of entry barriers within a trade bloc can lead to reduced entry barriers to the bloc (e.g. if outside exporters face one standard instead of 15). In this case, countries outside the block may increase their market share in the region as a result of regional

integration. Evans (2000) incorporates heterogeneous fixed trading costs in a theoretical model, and shows how this yields border effects in trade even with zero marginal barriers to trade. By testing a multi-country gravity model, derived form her theoretical model, she finds that ignoring fixed export costs inflates border effects for US firms with 8 – 158%.

In most theoretical contributions on sunk costs in exports, the sunk costs are assumed to be truly fixed or exogenous. An exception is Melchior (2002a), where these costs are endogenous in the sense of Sutton (1991). When firms are allowed to invest in sales organisation or marketing in each market in order to affect demand, the result is that firms invest more in market with low variable trade costs, e.g. their home market. Hence sunk costs amplify the trade-reducing impact of variable trade costs.

2.7. The composition of sunk export costs

Although the literature on sunk costs, networks and learning effects in the export activity is still in an early stage, we have seen clear evidence of learning effects even if different studies disagree about the sources of such effects. There is also clear empirical evidence on sunk export costs, but there is still little evidence on what these costs consist of. Bernard and Jensen (2001) argue on the basis of interviews that distribution networks and financing agreements represent one-time costs in terms of time and money, but generally little effort has been put in quantifying and describing the nature of sunk costs. Entry costs are also likely to vary between firms and Das et al (2001) find that entry costs are declining with plant sizes among Colombian chemical producers. There are different ways of supplying a foreign market, and some involve higher fixed costs than others. As two extremes we may consider a firm exporting via sales agents and a firm investing abroad, where the latter implies higher entry costs, but possibly lower current costs of exporting. The literature on networks also shows that there may be large barriers to entry into foreign market even if these are difficult or impossible to quantify. The empirical evidence suggests that this is an overdue area of great importance for future research.

3. The survey: An overview

In spite of the growing number of research contributions in this field, it remains true that the specific nature of market entry costs remains largely unexplored in the economic literature. As a consequence of this, the survey undertaken is of an exploratory nature, asking a number of questions in a variety of areas rather than focusing on a narrow set of questions. Hence it was decided to use relatively long questionnaires, and to use direct interviews in order to obtain answers to all these questions. A preliminary questionnaire was used as the basis for face-to-face "pilot interviews" with a dozen exporters. On this basis, the final questionnaire was shaped, and telephone interviews (lasting 45–60 minutes) were undertaken with the other respondents. The questionnaire is included in Appendix A, together with median and mean values for each variable, as well as the number of observations.

3.1. Main characteristics of the sample

A random selection of 158 firms was drawn from a list of Norwegian seafood exporters provided by the Norwegian Seafood Export Council. This list included a total of 514 exporters, and was a complete record of Norwegian seafood exporters. It turned out, however, that the list also included some firms that were not active, or that were not active exporters, or that exported via other firms. So 30 of the 158 firms were dropped as irrelevant for this survey. Out of the remaining firms, responses were obtained from 81 firms, which is 51% of the random sample or 63% of the relevant firms in the random sample.

Table 3: Firm sample and response	Number	Percentage
Random selection	158	
Irrelevant	30	
Relevant sample	128	100
Responses	81	63
No response	47	37

For the 81 firms for which responses were obtained, there were missing values for individual variables in some cases. For most variables, the number of observations is 81 or close to this. For some questions or variables, the number of observations is somewhat lower. The number of observations for each variable is given in Appendix A. In some cases, e.g. related to the quantification of fixed export costs, missing observations were due to the difficulty of the questions. In other cases, responses were not obtained due to the time constraint. It was e.g. difficult to obtain complete trade data for all firms, partly because the respondents of large firms did not remember in detail their sales to all markets, or did not have time to report such details. In

some cases, complete trade data were supplemented after the telephone interviews.

In addition to the survey data, we also have data from Statistics Norway on seafood exports during 1996–2001 for individual firms (anonymised). For brevity, we refer to these data as EXPDATA. These data are used in order to check how representative the survey data are, and to provide some relevant background information. Thirdly, the survey did not cover transport costs (in order to limit the duration of interviews), and transport cost data were collected for shipments to more than 40 destinations.

3.2. The questionnaire

The questionnaire (Appendix A) included three types of questions:

– Basic data on firm size, trade, distribution channels, ownership etc.
– Qualitative questions on the nature of trade activity and trading costs, where exporters were asked to indicate the importance of various aspects, or the degree to which they agreed to various statements, on a scale from 1 through 5. In this report, we have recalculated the responses to a 0–100 scale for better intuition (1=0, 3=50, 5=100).
– Questions concerning the magnitude of trading costs.

In order to limit the influence of the respondent's character, the qualitative questions were generally worded in order to relate to the firm's own experience rather than the general views of the respondent. In spite of this, it is difficult to assess to what extent the answers are true expressions on the firm's experience or the attitudes of the respondent. In the questionnaire, some questions were also more difficult than others. For example, the number of employees is much easier to report than the magnitude of entry costs in markets. The reliability of answers on the former is likely higher than for the latter. Such problems, in addition to methodological problems that generally apply to such surveys (e.g. scaling problems, respondents guessing when they do not know etc.), imply that the data should be interpreted with some caution. In order to control for the consistency of responses, the questionnaire included partly overlapping questions, or related questions which could be used in order to check this. In general, the results reported here suggest that the responses were consistent.[6]

In Appendix B, the frequency distributions for all the qualitative index variables are presented. Appendix C describes auxiliary variables that were constructed based on the original data.

3.3. How representative is the sample?

The firms in the survey had altogether seafood exports of 12.0 billion NOK, or 38% of total Norwegian seafood exports in 2000, at 31.5 billion NOK. While this share is fairly high, the share of exporting firms covered is much

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6   There were some exceptions to this, however: When firms reported their average number of shipments to each customer, the number of customers in each market and the average value of a shipment, the product of these three should equal average sales to a market. When compared to similar figures from the trade data, however, there were considerable discrepancies.

lower. In 2000, there was a total population of 484 exporters in the whole seafood industry[7], so only 17% of the exporting firms were covered. Hence it is evident that the firms in the sample are larger than the industry average. While the average seafood exports of the firms in the sample was 150 mill. NOK, the comparable figure for all Norwegian seafood exporters was only 65 mill. NOK. There are large variations in firm size: The smallest firm is a pure exporter of seafood and has total sales of only 50 000 NOK, and the largest firm has total sales of 2.7 billions NOK, of which 1.8 billions NOK is exports of seafood. It is likely that smaller firms have less capacity or are less interested to spend time on responding to surveys of the type undertaken here, so the firms not responding were smaller than the average.[8] Another possible reason is that smaller firms are over-represented in the group of "irrelevant" firms in Table 1. As an illustration, there was in the whole population of seafood exporters in 1999–2000 68 firms (out of 552) that exported in 1999, but not in 2000, and 72 firms that exported in 2000, but not 1999. These were mainly small exporters. Since the lists of firms used to draw the random sample were not fully updated, it probably contributed to a higher dropout rate for smaller firms.

The geographical distribution of exports in the sample is mostly representative compared to the whole industry. The firms in the sample exported to 96 countries, while the whole industry exported to 146 countries. To some extent, this gap may be due to incomplete reporting by the firms interviewed; only 68 firms gave fairly good information about the geographical composition of their exports.[9] Nevertheless, the data cover exports to a large number of markets. The distribution of sales across markets was fairly representative compared to the overall population. On average, the firms in the sample exported to 8 countries, while the average for the whole population was 7.7. The largest firm in the sample exported to 49 countries, while the maximum in the whole population was 54. Diagram 1 shows the number of countries that firms export to, for the firms that gave fairly good information about this:

Diagram 1: The number of export markets per firm
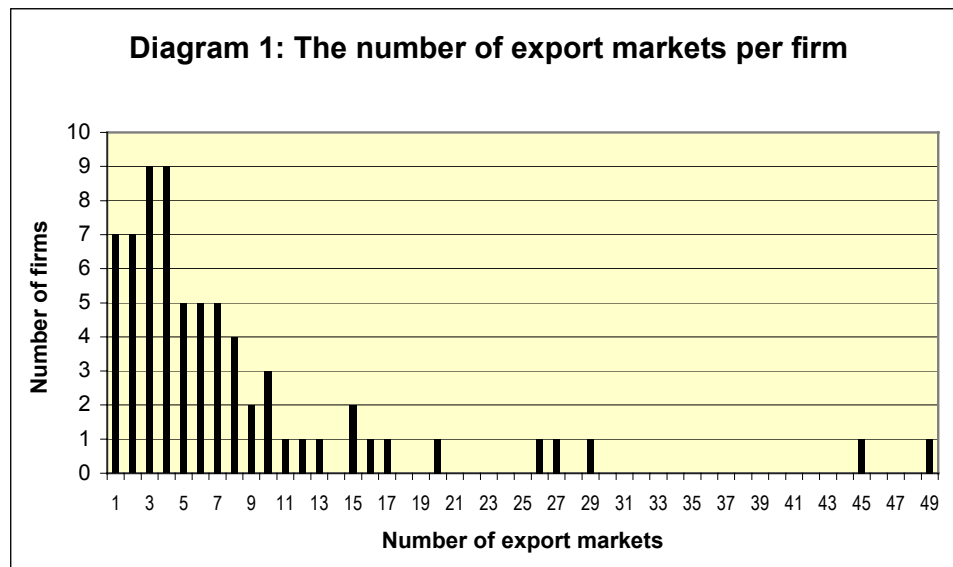
The median value is 5, and the majority of firms export to a few countries. While the median value was also 5 for the total population, a main difference in the distribution is due to the under-representation of very small firms in the sample. In the whole population, 20% if the firm were small and exported to only one market, whereas this share in the sample was only 10%. Among the firms that exported in 1999 but not in 2000 (in the total population), 39 out of 68 exported to only one market. Among the 72 newcomers in 2000, 31 exported to only one market. Hence our sample is biased by not including many of these very small firms. For the rest of the size distribution, the sample is quite representative.

Diagram 2 shows the most frequently observed export markets, measured by the share of firms exporting to these markets, compared to the share of firms in the total population selling to these markets.

Diagram 2: The share of firms selling to major markets, in the sample compared to the total population of exporters
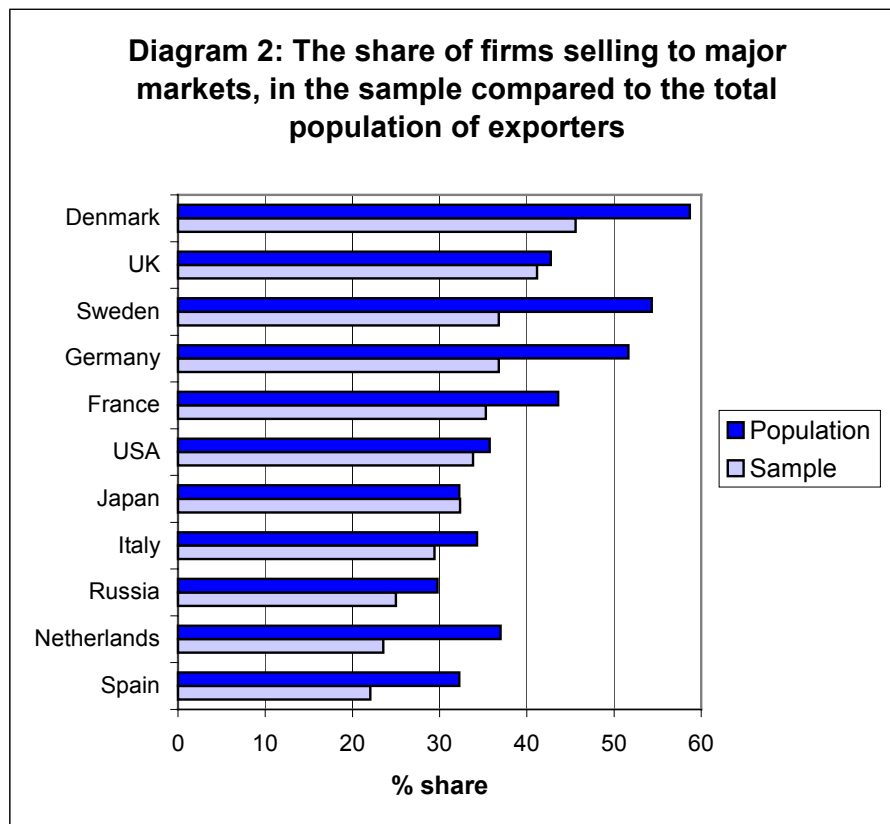
With some variation, the ranking is similar in the sample and in the total population, so the geographical distribution of exports in the sample is quite representative. On the other hand, these major markets are slightly under-represented in the sample (the lower bars are generally shorter), as compared to the total population. This may be due to the under-representation of small firms.

Diagram 2 suggests that Western Europe is the major export region. In general we find that firms prefer markets that are close to Norway, both in a

geographical and cultural sense. This is confirmed by Diagram 3, which shows the number of firms in the sample exporting to different regions. Here Western Europe has been split into Northwest and South, with the latter region including the Mediterranean countries. The reason for this sub-division is that business culture varies between North and South (according to several exporters), and we are later interested in checking whether this has an impact on the firm's attitudes. See Appendix C for details in the definition of regions.

Diagram 3: The number of firms exporting to each region

Region	Number of firms
Northwest Europe	52
South Europe	41
North America	32
Asia	30
Eastern Europe	22
South America	10
Africa	9
Oceania	1
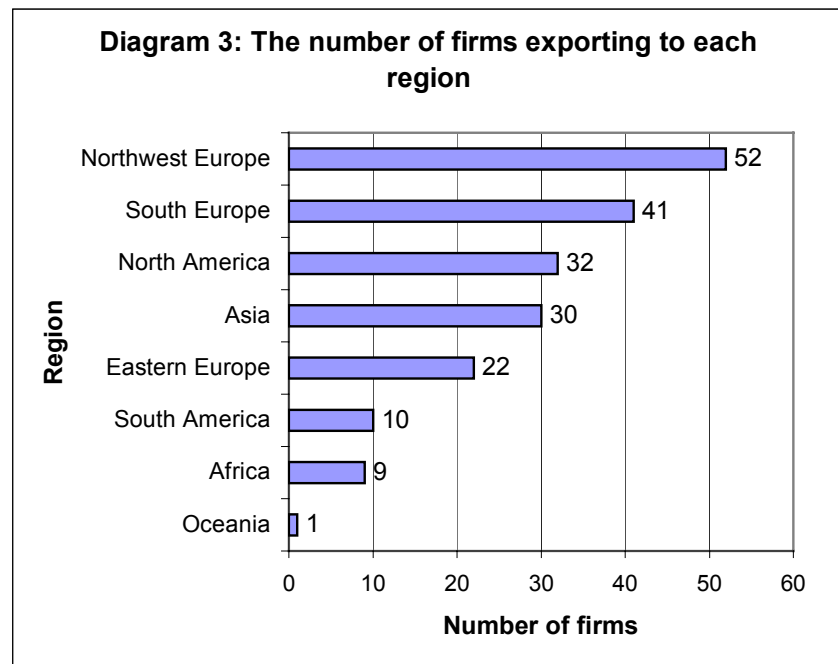
While many exporters are involved in the major regions, relatively few firms export to South America, Africa and Oceania. Hence for these regions, the data provide more limited evidence on specific characteristics.

Comparing diagrams 1–3, one might believe that smaller exporters mainly sell to the closer markets in Western Europe, while it is the largest exporters that export to remote countries or regions. However, if we check whether firm size is correlated with the sales to different regions, we find no significant correlations. Hence small firms also sell to more distant markets. This is also confirmed if we look at the total number of markets that a firm sells to (which is closely correlated with firm size). Within the sample, it is not true that e.g. "a firm that sells only to a few markets, export mainly to Western Europe". Similarly, we might believe that young firms mainly sell to closer markets. This is generally not true. Correlation coefficients show that older firms are more likely to sell to Africa and North America, while younger firms are more likely to export to Asia. With respect to the other regions, there are no significant correlations. It is possible that these conclu-

sions could be modified if the sample had included more of the very small firms with sales to one market only.

In terms of product coverage, the sample is fairly representative, but with some under-representation for smaller product groups. The firms were asked to report the composition of their exports with respect to some broad categories. Product category variables were constructed from this (see Appendix C for details). Table 4 shows the composition of seafood exports in the sample between these categories, compared to the whole population:

Table 4: The distribution of seafood exports across product categories, in the sample and in the whole population		
Category	Sample	Total exports 2000
White fish (cod, coalfish etc.), also including dried and salted fish	34	32
Aquaculture (salmon, trout)	51	42
Pelagic fish (herring, mackerel etc.)	6	17
Crustaceans (shrimps, mussels etc.)	1	5
Other/ industrial	7	4
Data source, total exports: NOREXP. On product groups, see Appendix C.		

The largest product groups are well represented in the sample, with some over-representation for fish from aquaculture. Two of the smaller product groups are under-represented. This limits our ability to check whether responses are systematically different for these product groups. This bias should, however, not constitute a major problem for the analysis.

3.4. Producers versus traders

While some of the firms produce all the goods themselves, other firms are pure trading companies that buy all the seafood they export from other producers. Table 5 shows the total sales of the firms in the sample, and its composition with respect to own production, purchase from Norwegian producers and imports.

Table 5: Distribution of total sales in terms of own production, purchase from Norwegian producers and imports, aggregate for the firms in the sample (observations=80)		
	Mill. NOK	% of total sales
Total sales	23401	100
Own production	13857	59
Purchase from Norwegian producers	8791	38
Imports	683	3
Total seafood sales	17256	74

26 firms (33%) were pure trading companies, while 25 (31%) produced all the merchandise themselves. On average, however, the firms relied more on own production. Only a small part of total sales was imported (3%). These

imports originated in 17 different countries, of which Russia and Denmark were mentioned most frequently (by 5–6 exporters).

There are some, but not too strong, systematic differences between "producers" and "traders":[10]

– The "traders" are more often pure exporters with no domestic sales; hence exports on average represent a higher share of total sales for the "traders".
– The "producers" are more frequently parts of larger corporations.
– The "producers" emphasize more frequently branding as a part of their sales strategy.
– The "traders" enter new markets more frequently, and they also withdraw from markets more frequently. The former should not be interpreted in the sense that "producers" do not sell to distant markets – this is not supported by the data.

Except for these aspects, "producers" and "traders" were not systematically different. For example, the magnitude of reported trading costs does not vary systematically between the two categories, so the data do not support a hypothesis telling that "traders" are more efficient exporters than "producers".

3.5. Distribution channels and the type of customers

The knowledge requirements for exporting will surely depend on the type of customers and the choice of distribution mode. If an exporter sells directly to local retailers, knowledge about local issues may be required to a larger extent than if the firm sells to wholesalers or manufacturing firms. In the former case, one would expect that direct exports is quite demanding, as compared to sales via a local sales office or a distributor. The firms were asked to report the share of their exports for different customer types as well as distribution modes. Table 6 summarises this information. The mean values are the average percentage shares for each item, which will be different from the share of exports for this category. Therefore the share of exports is also reported in brackets for each item (based on a total including the firms that responded to these questions, i.e. 80 for distribution modes and 66–68 for customers, see Appendix A).

A very high proportion of sales abroad is in the form of direct exports, and wholesalers and manufacturers constitute the most important customer groups. By comparing the means with the shares of exports in brackets, we see that firms using sales offices are large exporters, and that large exporters also sell more to manufacturers. As a consequence, the numbers in brackets are lower than the percentage means. Conversely, firms selling to wholesalers, and firms relying on direct exports, are smaller than the average. These conclusions are supported by correlation coefficients between the respective variables. These correlations also reveal that sales offices are particularly important for firms exporting to manufacturers, and less important (as we would expect) for firms selling to wholesalers.

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10 In addition to the correlations mentioned in the text, it is also true (but trivial) that "producers" are larger then "traders" in terms of employment, since they include the production staff.

Table 6: The allocation of exports on different distribution channels and customer types

Distribution of exports on different sales channels		Types of customers for exports	
	%		%
Directly from the firm	84.5 (73.7)	Retailers	12.0 (16.8)
Via agent	13.0 (13.3)	Manufacturers	27.3 (44.4)
Via sales office	2.4 (12.7)	Wholesalers	49.3 (31.0)
Other	0.0 (0.3)	Other	10.0 (7.9)
Note: Averages of the % shares reported by each firm are reported. In brackets, the shares of exports are given.			

The largest and most successful firms selling to many countries are, therefore, less traditional in their choice of distribution mode, by relying to a larger extent on investing in sales offices abroad. Reasons for establishing sales offices typically include

- a wish to penetrate the market deeper and have closer customer contact, e.g. with respect to manufacturers
- complexity of markets, language problems and even daytime differences (with respect to markets in Asia and America)
- plans to establish production in the respective markets.

Nine firms, i.e. a modest share, reported to have sales offices abroad, with 18 such offices in 10 countries. The countries were the USA and Japan (3 offices), Poland, China, France and Spain (2), and the UK, Hong Kong, Italy, and Denmark (1).

The reliance on direct exports and wholesale customers for most firms in the sample also raises the issue of whether this choice of distribution mode is or will remain efficient in the long run. In some countries and sectors, wholesale distribution has gradually been replaced by other forms, e.g. retailer chains and to some extent trading houses. The internationalisation of production also suggests that investments in production abroad will be a more common feature. As will be demonstrated later, freight rates for bulk sea transports of frozen fish is so low that local fish processing is an option in overseas markets. As a consequence, distribution and production decisions will be linked to a larger extent than before, and the traditional pattern of distribution in Norwegian seafood exports may have to be considerably revised.

4. Export expansion and market entry

Given our focus on entry barriers in markets, the survey focuses on how firms enter markets, and which obstacles and costs they face. In addition, the information we have on the trade pattern of firms gives indirect evidence on how trade expands. This chapter focuses on the nature of exports and market entry. Chapter 5 gives qualitative evidence on informal trade barriers, while Chapter 6 provides quantitative evidence on the components of trading costs and entry barriers.

4.1. The composition of export growth

A useful point of departure for the analysis of market entry is to ask: How do the exports of an individual firm, or the exports to an individual market, develop? Given that exports consist of a number of trade relationships between exporters and importers, the question is whether trade grows due to the number of exporters, the number of importers or the value of trade between each pair of exporters and importers.

Let us first ask the question from the perspective of each exporter: Do its combined exports grow due to the number of export markets, the number of customers in each market, or the sales to each customer? From Chapter 3, we already know that there is a strong positive correlation between firm size (measured by exports) and the number of markets a firm sells to. In addition, a firm's total exports depend on its sales to each market, which again depends on the number of customers in each market and the value of sales to each of them.

The firms were asked to report their lowest, mean and maximum number of customers in an individual market (see Table A4 in Appendix A). 68 firms responded to this, and the average values for these are shown in Diagram 4, together with the maximum values reported (the minimum values reported were 1 for all three question). Hence in the diagram, the upper bars refer to a single firm, while the lower three bars show the averages.

Diagram 4: The number of customers in each market

Category	Maximum	Average
Largest	50	8.4
Mean	40	3.7
Lowest	5	1.2

Number of customers
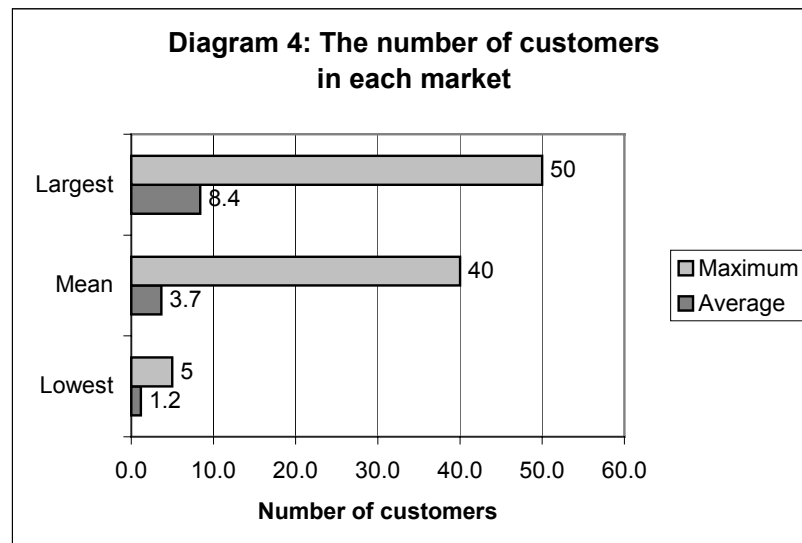
For the average exporter, the number of customers varies between 1.2 and 8.4 in different markets, with a mean of 3.7. As seen from the diagram, the largest reported number of customers in an individual market was 50. Generally, however, firms have a limited number of customers in each export market.

With respect to the sales to each customer, the firms were asked to report the lowest, highest and average number of shipments per customer, and the lowest, highest and average value of each shipment. Multiplying the average, values of the two, we obtain a variable corresponding to average sales per customer. As seen from Table 7 below, this is also positively correlated with total firm exports, and a firm's average sales to each market depends positively on its sales to each customer as well as its number of customers.

Table 7: The composition of firm exports. Correlation coefficients between total firm exports and the number of markets, customers and the sales to each customer

	Total firm exports	Total firm exports (largest firm deleted)	Number of markets	Average sales per market
Number of markets	0.79 (0.0001)	0.64 (0.0001)	–	–
Average sales per market	0.66 (0.0001)	0.82 (0.0001)	0.24 (0.0426)	–
Average number of customers per market	0.36 (0.0027)	0.30 (0.0137)	0.37 (0.0035)	0.29 (0.0240)
Average sales per customer	0.32 (0.0187)	0.59 (0.0001)	0.03 (0.8619)	0.73 (0.0001)
Note: Pearson correlation coefficients, P values in brackets.				

Large firms have on average more customers per market, and they sell more to each customer. The correlations also show that a firm's total exports depends positively on the number of markets it sells to, as well as its average sales per market. From the third column, where the largest firm is deleted from the sample, we see that the magnitude of the two respective coefficients is similar but with the opposite ranking. Hence we cannot draw a very strong conclusion as to whether sales per market or the number of export markets is most important for the growth of a firm's exports.

On the whole, therefore, a firm's total sales increase via more markets, more customers and larger sales to each customer. Therefore, the efficiency of the firm with respect to all the three dimensions is of importance.

To what extent are large and small exporters different with respect to their export behaviour? As we would expect, large exporters have more employees in sales and marketing related to exports in absolute terms, and weakly so also in relative terms. Knowledge and education seem to create better exporters as the employees of these firms on average have higher education. Large firms more often have their own web page. Large exporters are more frequently part of larger corporations. They export more frequently via

sales offices abroad, and less frequently in the form of direct exports or via export agents.

Large exporters secure themselves more often against exchange rate fluctuations and say more often that export credit guarantees are crucial for their export to many markets. This might be an indication of risk aversion, but it may also be because they export more frequently to risky markets. This is further underlined by the fact that these firms experience payment default more often than other exporters.

There are some differences between firms that export to many markets and firms that have a high export volume. Most importantly, firms that export to many markets disagree more often that sales costs fall over time as firms gain experience. This is consistent with their behaviour, since strong learning-by-doing in individual markets could create an incentive for staying in the same markets instead of entering new ones. Also, the firms that export to many countries find customers more often on trade fairs than other firms.

Similar to our examination of the components of export growth of the individual firms, we may ask whether the exports to a given country depend on the number of exporters or the sales per exporter. On this issue, it is more interesting to study the whole population rather than the sample.[11] Using the data set EXPDATA (covering the whole population of firms), we find that total exports to each market is strongly and positively correlated with the number of exporters in each market as well as their average sales volumes (the correlation coefficients are 0.83 and 0.78, respectively, with P values of 0.0001 in both cases. The number of Norwegian seafood exporters in each export market varies between 1 and 284 for the 146 markets, with an average of 30. So even if each exporter has a limited number of customers, buyers in large markets may choose between many suppliers, and this should increase the competition in such markets.

4.2. Determinants of market entry

The analysis above shows that entry into new markets is an important source of export growth for each exporter, and that the entry of new exporters is an important source of growth in exports to each market. This provides a background for the analysis of market entry in the survey.

Some firms sell to the same markets each year, while others enter new markets frequently. Entry can be a result of strategic planning or the existence of specific knowledge in the firm, or it can be a consequence of exogenous events such as tariff reductions, favourable exchange rate changes, or even pure coincidence. In order to find out the driving forces behind firms' entry decisions, we asked them to state whether or not they agreed to several statements. Table 8 shows some of these statements.

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[11]   The issue could be analysed using the sample data, but this would involve a considerable effort recoding the trade data. Since this section is background information and we are interested in the extent of competition in markets, we prefer to use the EXPDATA set.

Table 8: Questions related to market entry	
Variable	Question
STANDARD[12]	Exports to a market frequently have to be adapted to binding national quality requirements, veterinary rules or testing requirements
TARIFFS	Reduced tariff barriers would have lead our firm to export to new countries
CULTURE	The larger the cultural differences, the more resources are needed in order to start exporting to a new market
NETWORKS	The personal networks and experience of employees are to a large extent decisive for which markets we choose to enter
BIGMARKET	Large markets are more demanding and require more resource use if you are to start exporting
CORRUPTION	It is difficult to start exporting to markets with a lot of corruption
DEMAND[11]	Exports to a market frequently has to be adapted to local patterns of taste and demand, or voluntary standards
ACCIDENT	Frequently, coincidences are decisive for whether we enter a new market
ANALYSIS	We always undertake a thorough analysis of the market potential before we enter a new market
NORWEXP	When exporting to a new market, it is an advantage that other Norwegian exporters are already present, since our product or Norway is then known
NORINFO	When other Norwegian exporters are already present in a market, we get hold of useful information that facilitates exporting there
EXCLUSIV	We search for markets where there are no other Norwegian exporters present already

Diagram 5 shows the average value of the answers, with a high value indicating agreement. Observe that the diagram includes obstacles to entry as well as positive reasons for entry, so the interpretation of high and low values var y across variables.

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[12] Note that this statement is not directly directed towards entry into new markets. Adaption to foreign conditions is however, often a one time cost and is thus relevant as a barrier to entry.

Diagram 5: Determinants of entry

Determinant	Average score (scale 0-100)
Standard	75
Tariffs	73
Culture	71
Norwexp	70
Networks	68
Bigmarket	59
Corruption	59
Demand	57
Norinfo	53
Accident	48
Analysis	45
Exclusiv	23
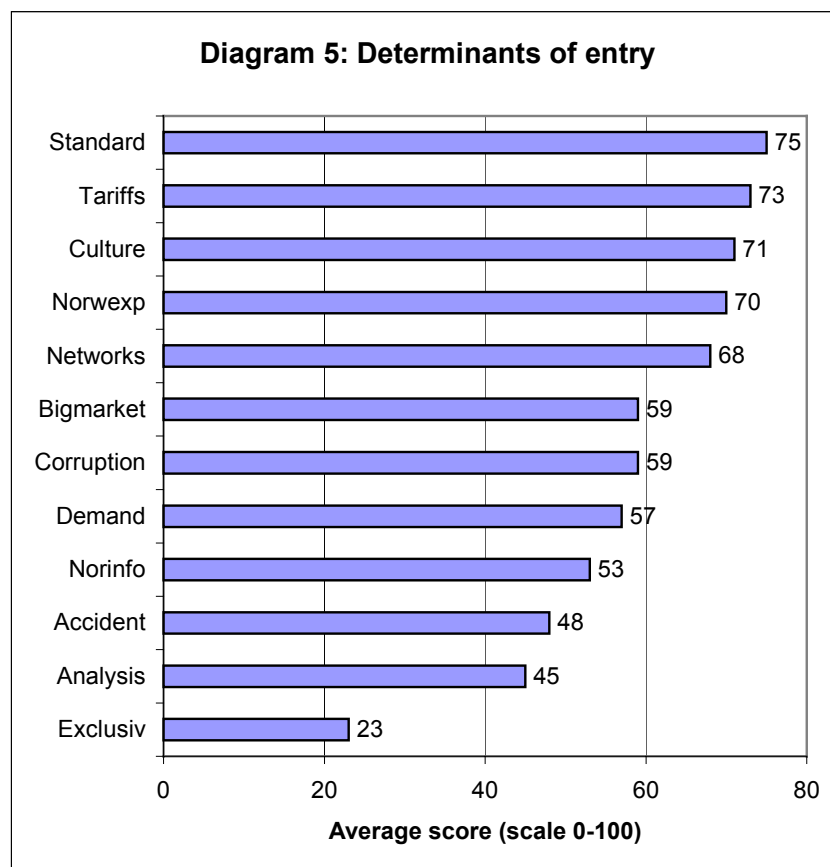
Tariffs, as well as non-tariff barriers such as adaptation to foreign standards and cultural differences, are considered to be large barriers to entry. The high mean values are underlined by the fact that over 70% fully or partly agree to these claims (see Appendix B for the whole distribution of the answers).

Personal networks and experience of employees is also an important determinant of entry. Some firms (especially young firms) obtained this knowledge by hiring staff with previous experience from other export firms. This was confirmed by the fact that the more firms emphasised personal experience and networks as a determinant of entry, the more important was also experience that their staff members had obtained by working in other firms. Hence labour migration between firms is an important source of knowledge spillovers in the export activity (see section 5.6 for more on this).

Diagram 5 shows that many firms find large markets more difficult to enter than small ones. This does not mean that firms avoid large markets, however, because large markets will also have the benefit of large demand. As we shall see below, market potential is the most important reason for entering new markets.

Corruption also seems like a relatively large barrier to entry, and the firms were asked to list countries where they had experienced corruption as a problem. 35 firms chose to do so and Russia is the country that tops this list

(see Chapter 7 for more details). It is worth noting, however, that a surprisingly high share of 31 % fully or party disagree that corruption is an obstacle to entry, thus firms differ a lot on this question (see Appendix B).

Firms do not only have to adapt to foreign legal standards, but also to foreign demand and voluntary standards. To a certain degree this is viewed upon as a barrier to entry. Note however, that even if many firms have to adjust their products, the costs of doing this is not very high. When quantifying the cost of adjustment to foreign (both legal and voluntary) standards and demand, on average firms report it to be between 0,02 and 0,86 % of their total fish export value (see chapter 6.4)

To a varying degree firms plan their entry decisions. Many firms do not conduct a market analysis before entering new markets, and as many as 35% fully or partly agree that markets are often chosen by coincidence. The correlation between these two answers is high and significant, which indicates consistency. Both small and large firms fail to plan entry thus this is not a result of lack of resources in small firms.

Knowledge spillovers constitute a positive externality between trading firms, so that the activity of one firm benefits another. The three last variables in Table 6 also intend to check whether exporters are "lonely riders" in export markets or whether the exporters are a "herd". The very low average score on the variable asking whether exporters search for exclusive markets with no other exporters present, indicates that the firms consider it to be an advantage that other Norwegian firms are present in the market.

This advantage could either be due to knowledge spillovers (firms learn from the experience of others), or due to a marketing effect, whereby the exporters collectively make Norwegian seafood products known in the market. There could also be an external effect for transportation: In established markets with large sales and many exporters, transport infrastructure is more developed. If an exporter tries to enter a market alone, it may face higher entry costs for all these three reasons. Two of the three aspects is covered by the variables NORINFO and NORWEXP in the table and diagram above. The average score on the NORINFO variable suggests that learning about particular markets from other firms is of some importance, and as such a source of externalities between exporters. The even higher average score for the NORWEXP variable indicates that "marketing externalities" between firms may be even more important. On "transportation externalities", some evidence will be provided in Chapter 6.

4.3. Characteristics of entrants

The firms were asked to state whether they considered entry into new markets, and 37 firms, or 46% (N=81), responded positively to this. These firms were also asked to state in which markets they planned to enter. We will refer to these firms as entrants.

There is no significant correlation between plans for entry and firm size, thus both large and small firms are eager to enter new markets. As noted in Section 3.3, however, pure trading companies enter new markets more frequently than others. To a larger extent than others, entrants benefit from regional knowledge when they enter new market in a region. Entrants are more aware about entry costs, for example do they believe that entry costs

are higher in culturally different markets. Entrants more often find customers by travelling to the market in question and they report more frequently than others that they have to adjust their products to local tastes and demand. Entrants have more foreign ownership than other firms, which may indicate that knowledge about exporting spill over from foreign owners.

In total, 39 potential markets were listed, and most of these were in Eastern Europe and Asia. Diagram 6 shows the number of firms that listed countries in the respective regions as a potential market for entry.

Diagram 6: Potential markets for entry, by region
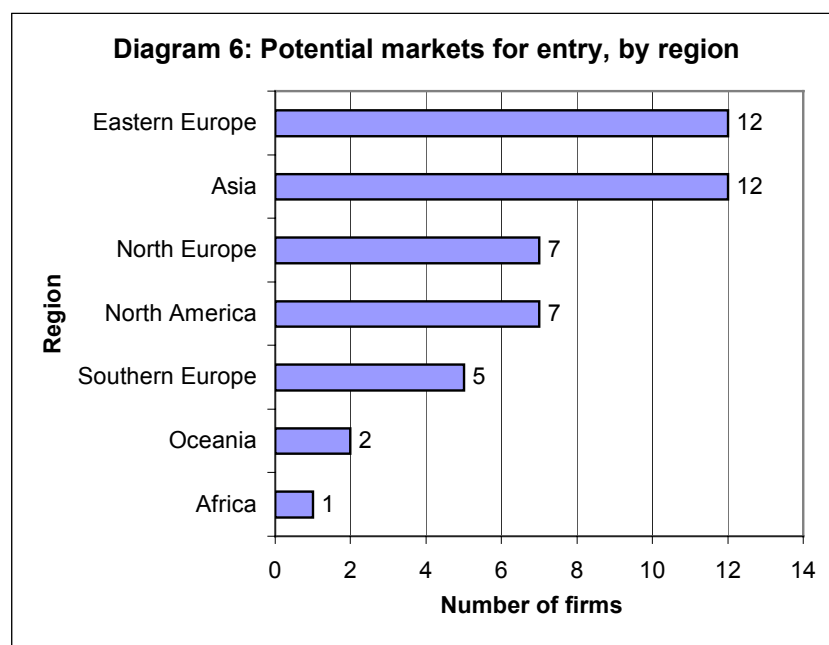
In Diagram 3, it was shown that North-West Europe, Southern Europe and North America were the regions with most Norwegian exporters present. Compared to this, Diagram 6 shows that only a moderate number of firms plan to enter these markets. [13] Eastern Europe and Asia, i.e. the intermediate regions in Diagram 3, are the most popular regions for entry, suggesting a growth potential in these markets. Hence there may be a "saturation effect" in markets, and the "marketing externalities" resulting from the entry of new firms are likely to be exhausted at some stage.

Although these results suggest that exporters search for new markets that are not already "taken" by other exporters, we have seen that the presence of other Norwegian exporters in a market is generally considered to be an advantage. Hence exporters search for new markets, but the majority prefers to enter such markets collectively as a "herd" rather than individually. Such externalities may explain why few firms plan to enter markets where very few exporters are present. Alternatively, this may be due to very high entry barriers in these markets.

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[13] 7 of the 37 entrants did not report number of countries they export to, thus the numbers are not completely comparable.

Obviously, market entry is also fundamentally determined by market conditions and sales potential. When the "entrants" were asked about their reasons for entering particular markets (an open question without response alternatives), the most important reason stated was the market potential. The responses were classified in different categories, shown in Diagram 7.

Diagram 7: Reasons for entry
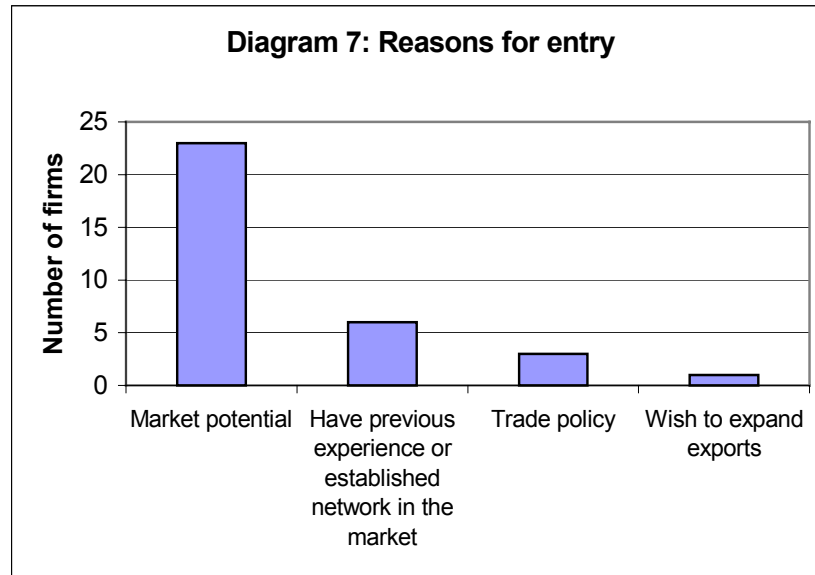
Despite the fact that trade barriers were reported as an important obstacle to entry (see Diagram 5), only 3 firms report trade policy aspects as important for the entry decision. This apparent contradiction may be explained by the fact that the reasons behind specific and positive entry decisions (as in Diagram 7) may be different from the reasons why firms do not enter (as the trade policy variable in Diagram 5 is related to). Hence we may interpret Diagram 7 as telling that given that entry is possible, sales potential is the most determinant of entry. In a few cases, specific changes in trade policy may cause entry. As an illustration, tariffs facing Norwegian seafood exports in Mexico have recently come down due to the EFTA-Mexico free trade agreement. Some firms were explicitly aware of this and entered the market as a consequence. Other firms, however, were not aware of the tariff reductions even if they might be of importance. Hence some firms are "myopic" in the sense that they follow the herd rather than the tariff schedules.

4.4. Characteristics of "export pioneers"
Even if exporters behave as a herd by entering more or less collectively in markets, it is also the case that this behaviour is not coordinated. Hence some exporters have to come first. Even if the average score on the EXCLUSIV variable above is low, some firms have a high score on this variable. In order to understand the dynamics of export development, it is therefore of special interest to check whether these "export pioneers", that search for markets where they can be the first entrants, are different from

other exporters. We do this by checking whether the score for EXCLUSIV is correlated with the score for other variables. This reveals that the export pioneers, compared to other exporters

– have high fixed costs related to gathering market information and adjustments of products.
– face payment problems more frequently.
– charge lower prices initially in order to enter markets.
– use trade fairs and similar arrangements, and the services of the Norwegian Export Council, more frequently in order to find customers.
– To a higher degree learn from own export experience.

Such export pioneers are also found more frequently among exporters based on aquaculture, which is plausible given the fast geographical expansion of such exports over the last years.

Hence the export pioneers have larger entry costs (also in the form of low initial prices) than other exporters, and have to use other methods for finding customers. They also emphasize learning effects more than other firms, which should make the real cost of entry into new markets even higher (the correlation coefficient is only significant at the 10 % level). To what extent these exporters are rewarded for their high initial costs later, by a higher market share, is impossible to tell from our data. If there are considerable external effect in exporting to a specific market, this may not necessarily be the case: It may be the "herd" that comes later that reaps the benefits after the export pioneers have paved the way for exports to new markets, and incurred larger costs.

This analysis has implications for export promotion policies: Measures to stimulate exports may be more important during the initial stages of export market development.

5. Customer networks, learning by doing and externalities

In the previous chapter, it was shown that firms' entry into new markets is determined by a number of factors. Some of these factors, such as tariffs, are exogenous and not affected by the firms' own activity. On the other hand, the evidence suggested that personal networks as well as the presence of other Norwegian firms in a market are conducive to market entry. In this chapter, we present more evidence on the role of networks and externalities. How do firms build their customer relationships, and how are trade costs affected by such networks? Why is it an advantage that other exporters are present in a market? Is it because exporters learn from each other, or because there is a "marketing effect" by common entry in a market?

In addition, we also examine whether firms learn from their past activity, so that trade costs fall over time. If this is the case, there are dynamic economies of scale in the exporting activity. This may also be the case if firms invest in building customer relationship that last over time.

The evidence presented in this chapter is mainly qualitative. In Chapter 6, we shall attempt to quantify some of the informal barriers to trade.

5.1. How do firms find customers? The importance of network building.

Costs of establishing sales channels constitute an important component of the fixed costs of entering a market (see next chapter). An essential part of this cost is the resources used to find customers. The methods applied for this purpose vary between firms. Some firms invest more in order to establish long-term customer relationships, while others sell to different customers each year and spend less on building customer networks. Some firms try to distinguish themselves from other firms by building up a good reputation or an own brand, while others do not. Some firms may be well known and are contacted directly by the importers, while other firms do not have this privilege. Some firms use public lists of importers and assistance from export promotion agencies, while others rely more on personal contacts and experience.

Firms were asked to report the importance of different ways of finding customers. The alternatives are listed in Table 9, while the average results are presented in Diagram 8. A high value indicates high importance. Some of these questions give qualitative evidence on the nature of entry costs. More quantitative evidence will be presented in the next chapter.

Table 9: Different ways of finding customers

Variable	Description
PERSONAL	Uses personal contacts
TRAVEL	Travels to the country to find potential customers
IMPORTERS	Is contacted by importers
FAIRS	Meets importers at trade fairs
SALEINFO	Maps potential buyers and sends sales information to these
EFFINFO	Use information from Norwegian Seafood Export Council (EFF) or meet customers on EFF arrangements
EXCOUNCIL	Use services from the Norwegian export council
ADVERTISE	Advertise in local media

Diagram 8: The importance of different ways of finding customers

Category	Mean score
Personal	84
Travel	61
Importers	54
Fairs	44
Saleinfo	38
EFFinfo	28
Excouncil	24
Advertise	6

Mean score (scale 0-100)
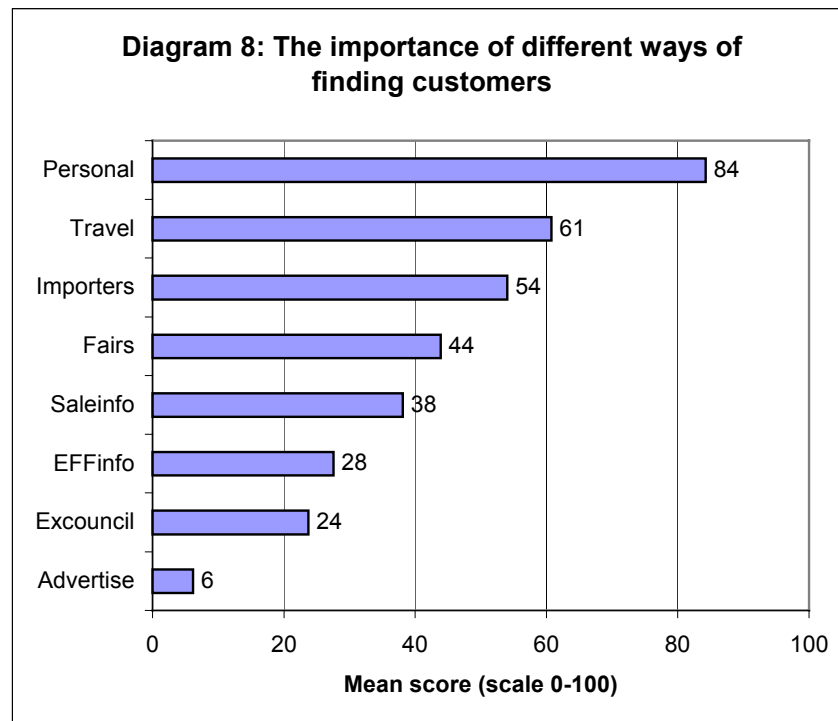
The importance of personal networks is clearly confirmed: The most important way of finding customers is to use personal contacts. The mean value is at 84 and only 5 % of the respondents fully or partly disagree that they use personal contacts when finding customers. This is consistent with the results from chapter 4.2, telling that personal networks are important for the choice of export markets. The second most important method is to travel to the importing country, also pointing to the importance of personal customer networks. Also 36% fully or partly agree that importers contact them. There is no evidence that larger exporters are more often contacted by importers; hence even small firms may get customers "for free" by building a solid reputation or providing information to customers. Less "personalised" ways

of establishing contact, such as advertising, sending out information or using information from the export councils are not very important.

These results indicate that building networks is of vital importance to Norwegian seafood exporters. An issue is how these networks affect the costs of exporters. On order to shed light on this, firms were asked to what extent they agreed to several statements about network building and the cost of establishing new customer relationships versus maintaining old ones. In Table 10 we list the statements, while Diagram 9 shows the average results, with a high value indicating a high extent of agreement. Diagram 9 also includes three other variables that will be explained below.

Table 10: Aspects of network building and the stability of customer relationships	
Variable	*Description*
LONGTERM	We sell to the same importers year after year, when a sales channel has been established
COSTLONG	The costs and time used on exports are lower for long-term contracts, since with mutual trust, all details do not have to be reviewed each time
NEWIMP	For new importers, there is much more work involved in settling details related to quality and delivery
CUSTLEARN	If you export to one customer in a market, it is much easier to export to another customer in the same market
NETWORKS	The personal networks and experience of employees is to a large extent decisive for which markets we enter
NETPROD	For each fish species, the buyers are different, so an own network has to be established in each product area
EXPERIENCE	The employees' earlier export experience from other firms is an important part of the firm's market knowledge
PRICEVAR	The prices are negotiated with each customer, and vary to some extent even for products of similar quality in the same market

Diagram 9: Aspects of network building and the stability of customer relationships

Category	Score
Longterm	89
Costlong	89
Newimp	74
Custlearn	66
Networks	68
Netprod	47
Experience	63
Pricevar	63
Reliable	91
Quality	75
Branding	52

Average score (scale 0-100)
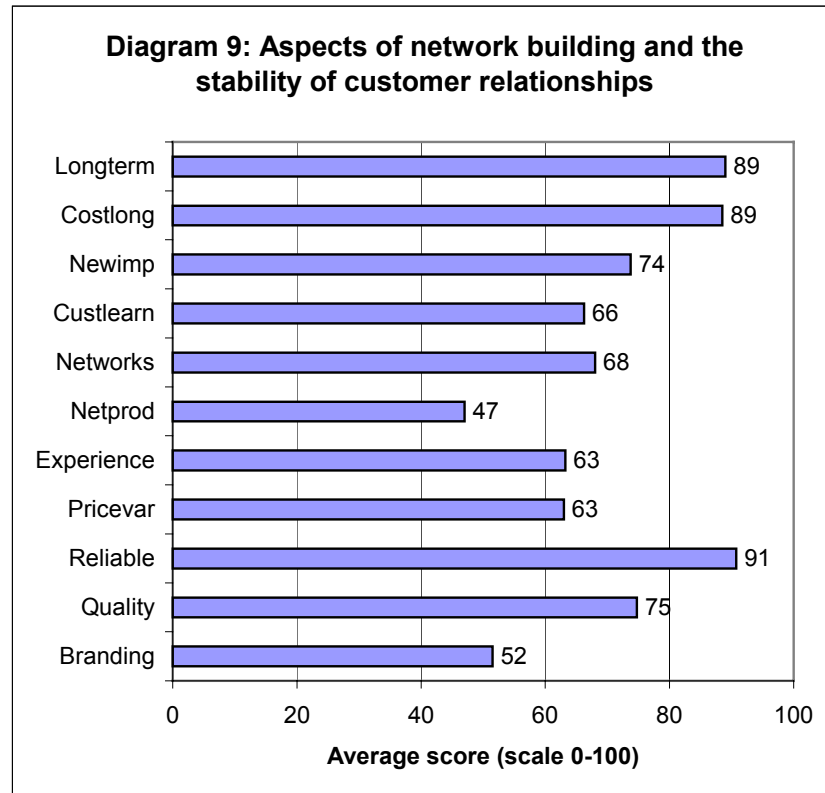
All indicators related to network building obtain a high average score, thus Diagram 9 confirms the results from Diagram 8. In addition, the results suggest that networks have a significant impact on costs: It is less costly to sell to the same importers year after year instead of establishing new contacts. The costs and time use in exporting is lower for long-term contracts, and it is much more time-consuming to clarify details on quality and terms of delivery with new customers. Maintaining long-term customer relationship is thus a priority for most firms. The question on whether customer networks are product specific (NETPROD) obtains an intermediate score. A reason may be that some customers buy different product types, so networks for different products are partly overlapping.

Good networks and personal contacts may be due to experience acquired within the firm, or due to experience acquired by the employees through previous work in other firms. Diagram 9 shows that the employees' personal networks and experience from other firms is an important component of the firm's market knowledge. Hence learning in the firm as well as knowledge spillovers from other firms via moving staff seem to be important.

Some indirect, although less clear, evidence on the importance of personalised "network markets" is the high extent of price variation in markets, for an exporter's sales to different customers. To a considerable extent, the exporters agreed that their prices to different customers for similar products could vary considerably in the same market. Asked about the magnitude of

this variation, as many as 18 % say prices vary with more than 10%, and an additional 27% say they vary with between 5% and 10 %. On average, the exporters reported that prices varied by 4–7%.[14] If there had been open and transparent "auction-type" markets, prices would be expected to converge. The extent of price variation hence indicates that markets are network-based and non-transparent.

One way of attracting customers and building up networks is to distinguish oneself from other firms by reputation or brand building. To investigate to what extent firms employ these methods, we presented three statements about the importance of building up a brand or reputation. The statements are listed in table 11 while the results are shown in Diagram 8 above. A high value indicates importance.

Table 11: The importance of branding and reputation	
BRANDING	The firms attempts build an own brand name in order to profile itself toward customers
QUALITY	We try to increase our market share by offering better quality than our competitors
RELIABLE	A reputation of reliability and the ability to deliver is crucial in order to succeed as an exporter

The three lowest bars in Diagram 8 show that firms find it very important to have a good reputation both regarding quality and reliability. The older the firms are, the more important are these factors, which may indicate that it takes time to build up good reputations. However, this may also indicate that firms with a good reputation are more able to survive in the business. Around half of the respondents say it is important or very important to build an own brand. This can be costly and it may be necessary to enter market profoundly in order to succeed, as brand-builders are more likely to have foreign investments than others.

5.2. Learning-by-doing in the export activity

The last section shows that personal networks and long-term customer relationships are of major importance in Norwegian seafood exports. Since it takes time to build such networks, this implies that export costs may fall overt time, thus there are dynamic economies of scale in the export activity. Another form of scale economies may arise if there is learning by doing (LBD) in the export activity so firms learn from own export experience.

Such "learning-by-doing" implies that producers or, in our case, exporters, become more efficient as a result of learning from their past activity. Hence time must matter; experience from one period should result in lower costs in the next period. A first check, therefore, could be to examine if older firms have lower costs than younger firms when exporting similar products to similar markets.

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14   Since the magnitude of price variation was reported in ranges (0–1, 1–3, 3–5, 5–10 and above 10%), the exact figure is impossible to derive. If we use the lower bounds in each interval, the average is 4.08. If we use the upper bound, with 15 for the range above 10%, the average is 7.3. See variables PVARLOW and PVARHIGH in Appendix A.

Such gains from experience could in principle affect the fixed entry costs (that vary across firms) as well as the variable trading costs. With respect to fixed costs, however, there is no significant correlation between the age of a firm and the magnitude of fixed costs when entering new markets. One possible explanation could be that the LBD gains are quickly exhausted, and that costs are reduced over time only for young firms. If we focus only on firms with an age below 20 years, the sample is reduced to 44 firms. Now there is in fact a significant negative correlation between age and the fixed costs on obtaining information about new markets (but not for establishing sales channels). Hence very young firms have larger costs in this respect. As shown in the previous section, these information costs are on average small. Hence experience may affect the fixed entry costs, but the impact is modest.

Related to variable export costs, "learning-by-doing" was covered in the survey by means of qualitative information: Firms were asked various questions on whether their sales costs were affected by experience:

Table 12: Questions related to learning-by-doing	
Variable	*Question*
REGION	If we export to one country in a region (e.g. Eastern Europe or Asia), the costs and time use when entering another market in the region is much lower
NEWPROD	The costs and time spent on exporting a new product to a market is lower if we already sell other products to that market
CUSTLEARN	If you export to one customer in a market, it is much easier to export to another customer in the same market
LEARNING	The costs and time spent on exporting to a country are initially high, and then gradually fall considerably
NEWIMP	For new importers, there is much more work involved in settling details related to quality and delivery
LONGTERM	The costs and time used on exports are lower for long-term contracts, since with mutual trust, all details do not have to be reviewed each time
NETPROD	For each fish species, the buyers are different, so an own network has to be established in each product area

Firms were asked to state to what extent they disagreed or disagreed to these propositions. On the whole, this evidence suggests that LBD is important in the exporting activity. Diagram 10 shows the mean response:

Diagram 10:
Does experience reduce export costs?

	Mean response (0-100 scale)
REGION	44
NEWPROD	76
CUSTLEARN	66
LEARNING	62
NEWIMP	74
LONGTERM	88
NETPROD	47
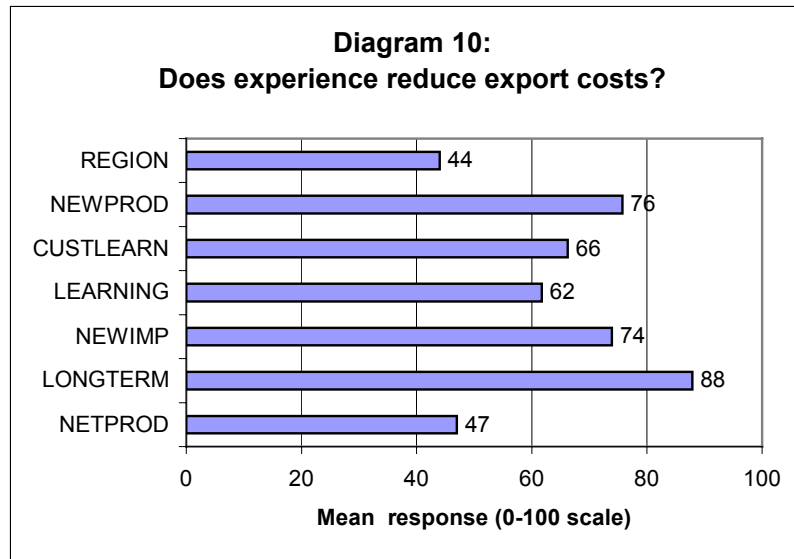
The results indicate that experience within a single country is of considerable importance (the five variables in the middle), but that the gains obtained in that way is only to some extent applicable to other countries (the REGION variable). The different values for the five variables in the middle may partly be caused by the way questions were asked (i.e. asking whether costs became "lower" versus "considerably lower". Nevertheless, the scores across these five variables are consistent and fall within the same range. The differences could also be because each variable focuses on a particular aspect of learning.

We have to show some caution with interpreting this as evidence on LBD, since decreasing costs over time could also be due to the establishment of networks. "Knowing markets" is different from "knowing people". We may call the first aspect "pure LBD", and the second "network LBD". The latter is also linked to trust and the elimination of risk, while the former is a type of knowledge that applies more generally. Knowing from last section that stable customer networks play a crucial role, we should check whether the responses above could be related to network LBD rather than pure LBD.

From this angle, an effect that is closes to "pure" LBD is that experience with one customer gives lower costs for the next (CUSTLEARN). By trading with one customer, the exporter obtains knowledge about the country specifics of doing trade, and this lowers costs later on. However, there is also an aspect of network here, as knowing one customer may imply that one is a part of a network that makes it easier to find other customers.

The variable (NEWPROD) may indicate a network effect as well as a learning effect. The fact that selling one product gives lower costs for the next could be because the same customers buy both products. As a check, we also asked whether customer networks were product specific or not (NETPROD). The average response was 47 (the lowest variable in the diagram), indicating that it is more often than not the case that the same customers buy different products. There is, however, no significant correlation between this variable and the country/product variable above. Hence it is

reasonable to accept the high score on the NEWPROD variable as influenced by pure LBD as well as network effects.

The two variables related to customer experience (NEWIMP, LONGTERM) indicate that some of the cost reductions over time are linked to network effects. Both these variables obtain a high average score, indicating that trust and the elimination of risk is an important aspect of network LBD.

In general, the firms' responses to these questions were not depending on the main characteristics of firms, such as size, education level or the types of products they sell. The responses to some of the different questions above were positively correlated, however: 14 out of the 15 correlation coefficients are positive, but only three of them significant at the 5% level or better. Hence the different variables capture slightly different aspects of LBD.

The highest correlation (0.61) was obtained between the REGION and CUSTLEARN. Since both these variables reflect pure LBD, this might suggest that the firms being able to gain from pure LBD share some common characteristics. Checking the data, however, only a few such common features are found: Such firms are more concerned about risk, and they believe – more than other firms – that entry costs are higher in culturally distant markets. They also tend to undertake more price discrimination among their customers. High scores on pure LBD are also more common among younger firms (the correlation is only significant for the younger part of the sample). This evidence provides some (although not very strong) support for the proposition that the gains from pure LBD are relatively quickly exhausted over time. If this is correct, pure LBD is more important for newcomers, while network effects are more permanent.

The LEARNING variable can capture various effects: If the cost and time use on exporting fall over time this can be due to sunk cost in the export action (next chapter treat this issue more in detail). It can further be due to network effects because it takes time to build good networks, or finally it can be a pure learning effect because firms over time build up market knowledge that makes it easier to export.

In general it is problematic to use the evidence above to rank the importance of the different effects, as statements are formulated differently. In REGION and LEARNING the formulation of the questions are "fall considerably" or "much lower", while the wording in the other variables are only "lower". This is probably the reason why these variables obtain a lower score than many other variables. The lower average should hence not be interpreted as evidence against the hypothesis that experience obtained in one country is also useful in another, or that one becomes a better exporter over time.

5.3. Externalities between firms: Learning versus marketing effects

In the analysis of market entry in Section 4.2, some evidence was provided that supported the existence of externalities between firms. Externalities imply that the activity of one firm has a direct impact on other firms. Such externalities can be positive (e.g. learning from other firms) or negative (e.g. congestion, destroying the reputation of the sector). In the literature on eco-

nomic geography and growth, positive externalities are frequently the source of agglomeration, i.e. a clustering of firms in a nation or geographical area. If such externalities also apply to the exporting activity, there may be clustering also there: A group of exporters may obtain a cost advantage that increases their sales and their market share.

In the former analysis, we have presented evidence in support of the existence of at least three forms of externalities in the export activity:

Knowledge spillovers, by which one firm learns from the experience of other firms: Evidence on this was provided by the NORINFO variable in Section 4.2, telling that exporters obtain useful market information from other exporters when they enter new markets.

Marketing externalities, by which the presence of other exporters increases the consumers' awareness of seafood products: Evidence on this was provided by the NORINFO and EXCLUSIV variables in Section 4.2, which suggested that exporters enter new markets as a "herd" rather than "lonely riders". Evidence that "export pioneers" had higher entry costs (Section 4.4) supported this.

Endogenous transport costs: Some (less systematic) evidence is provided in next chapter in support of the hypothesis that transport costs are much higher for non-established export markets, so that transport costs fall over time as the "transport business infrastructure" is developed (Section 5.2).

We also concluded that the survey data suggested that the marketing externalities were more important than the knowledge spillovers. Regarding the quantitative impact of transport externalities, only some scattered evidence was provided, nevertheless suggesting that this effect may be quantitatively significant.

A fourth type of externality briefly mentioned in section 4.2 was due to labour migration between firms: Firms were asked whether it was the case that "The employees' earlier export experience from other firms is an important part of the firm's market knowledge". The average response of 63 suggests that such labour migration between firms is important, but not extremely so.

To what extent do these externalities relate to exports to an individual market only, and to what extent are they exclusive to Norwegian seafood exporters? It is evident that migration of skilled labour between firms has an impact that is not confined to an individual market, hence this is a type of externality that applies to the sector in general. It may be limited in terms of geographical reach, and contribute to explaining the strong clustering of seafood exporters in South West Norway.

Marketing externalities and transport externalities are evidently linked to individual markets. The question here is whether such externalities only benefit Norwegian exporters, or if e.g. exporters from Chile also benefit from such externalities. This is more likely to be the case for marketing externalities; Norwegian salmon exports may increase the consumers' interest in salmon, and this may also benefit other salmon exporting nations. The Norwegian Seafood Export Council focuses on building a national reputation, by marketing seafood with explicit reference to Norwegian qualities (pure nature etc.). The survey does not provide specific evidence on whether such "national branding" is efficient. If it is, it is also more likely that mar-

keting externalities in the export activity do not spill over to other nations' firms.

Regarding knowledge spillovers, it is likely that these are confined to Norwegian exporters only, due to language, networks and culture. These spillovers are likely to be partly market specific, and partly useful for exports to other markets as well.

As with learning and networks, is hard to obtain hard evidence on the quantitative impact of these various forms of externalities. The data provided here suggest that they may be of considerable importance. While knowledge spillovers, transport externalities and labour migration affect the firms' costs; marketing externalities affect demand and increase the profitability of exports. By combining export data for individual exporters with data on demand conditions in importing markets, it may be possible to obtain more knowledge about the quantitative impact of externalities. It will be hard, however, to find solid evidence on one type of externality if the others are not also taken into account.

In general, we would expect that the importance of externalities to some extent depends on the homogeneity of products: Seafood exporters are relatively similar in terms of their products as well as knowledge requirements, and for that reason, they may benefit from marketing effects as well as knowledge spillovers from other exporters. For highly differentiated and branded products, we would expect that the scope for sector-wide externailties is smaller.

5.4. Conclusion

The results in this chapter give qualitative evidence of informal barriers to trade. Personal networks, learning by doing and externalities are of major importance in Norwegian seafood exports. This is also confirmed by Medin (2003b), who finds that past export experience among Norwegian seafood exporters increases the probability of exports to a particular market. This is true both for experience acquired in the particular market and experience acquired in other markets. The evidence presented above does not allow a quantification of these effects. In order to do this, more detailed data on costs and/or prices would be needed. However, the responses suggest that the effects are significant also quantitatively. In the following chapter, we shall also present some quantitative evidence on the magnitude and the nature of selling costs.

6. Barriers to trade and the composition of trading costs

Chapters 4 and 5 have presented evidence on the characteristics of markets and qualitative evidence on entry barriers. In this chapter, an attempt will be made to quantify the total costs of exporting, by examining each individual component of these costs, and finally trying to add these together.

6.1. Tariffs and product standards

From Chapter 4, we have already seen that tariffs are considered as an important barrier to entry by firms. A full-scale examination of the tariffs facing Norwegian seafood exports abroad will not be undertaken here, but some examples will be given in order to illustrate the magnitude of tariff barriers. [15] Outside Europe, Norwegian seafood exporters face normal MFN (Most Favoured Nation) tariffs in most markets. Within Europe, tariffs have been reduced due to free trade agreements. EFTA has free trade agreements with most of the countries that have applied for EU membership, and for these countries in Central and Eastern Europe, the tariff level facing Norwegian seafood exports is very low (on average 0.25%, see Melchior 2002b).

In order to give a general impression about the level of tariff barriers facing Norwegian seafood exports, we checked the tariffs in some markets for the product categories shown in Table 13. Exports of these categories were at 20.6 billion NOK in 2000, hence they constituted 2/3 of total seafood exports.

Table 13: Product categories for which tariffs were checked	
Tariff classification 2000	Description
3021201	Fresh salmon (bred), not fillet
3025000	Fresh cod
3032101	Frozen trout
3032201	Frozen salmon, with head
3035009	Frozen herring
3037401	Frozen mackerel below 0.6kg
3041011	Fresh salmon fillet
3042010	Salmon fillet, frozen
3042033	Frozen cod fillet
3054100	Smoked salmon
3055103	Stockfish of cod
3055107	Klipfish of cod
3055903	Klipfish of saithe
3056200	Salted cod
16052003	Frozen shrimps, packets > 2kg

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[15]   For a more extensive analysis of tariffs, see Melchior (2003, forthcoming).

Table 14 summarizes evidence on tariffs in different markets for these items. Tariffs were in most cases unchanged from 2000 to 2002. For Mexico, China and Taiwan, tariffs for 2000 are indicated below, together with their final level after the planned tariff reductions due to trade policy changes have been carried out. Details are provided in Appendix E.

Table 14: Summary of tariff information for selected countries, for the products shown in Table 13	
Country	Summary of tariff information
EU	No tariff preference for Norway due to the free trade agreement for fresh and frozen salmon (2%), smoked salmon (13%) and herring and mackerel (15-20%). 70-100 tariff preferences for white fish, bringing tariffs down to 0-3.9%, 7.5% for shrimps (MFN level 20%). Minimum price agreement for salmon did not hurt exports in 2000, but is a problem in 2002.
Poland	Tariffs are zero for all items, due to the EFTA-Poland free trade agreement.
Russia	10% for all items except smoked salmon and shrimps, for which tariffs are 20%.
USA	Zero for all items except smoked salmon (5%) and fresh salmon, which is subject to anti-dumping/ countervailing duties at totally 26%.
Canada	Zero for all items.
Brazil	11.5% for all items except stockfish and klipfish of cod, and salted cod, for which the tariff is zero.
Mexico	Tariffs at 30% for most items (23% for shrimps), but tariffs will be reduced to zero for most items due to the EFTA-Mexico free trade agreement – with differing length of the transition periods.
Japan	Varying from 5% (salmon, shrimps) to 15% (klipfish, stockfish, salted cod).
China	14-28% before WTO entry, later reduced over some years to 10-16% due to WTO accession (5% for one item).
South Korea	Only information about 7 items, 10% for frozen fish, 20% for klipfish, stockfish, salted fish, shrimps.
Taiwan	15-24% for most items, 70-101% for herring and mackerel, being reduced to 10-24% (60-86% for herring and mackerel) due to WTO accession.
Source: Norwegian Seafood Export Council (EFF), tariff database.	

The table illustrates that tariffs are still high in some markets, and that trade policy still matters strongly for seafood exports. The reduction of tariffs for China and Taiwan due to WTO accession, as well as the elimination of Mexican tariffs due to the EFTA-Mexico free trade agreement, illustrate this.

When the exporters were asked if they wanted to express specific views on policy issues, 51 firms raised issues related to trade policy, with 31 of them emphasizing the importance of tariffs.

Another issue related to trade policy is sanitary and veterinary standards, that are important for seafood exports. In the survey, the importers were asked to what extent they agreed to the following three statements on such standards:

Table 15: Question related to standards	
Variable	Statement
STANDARD	Exports to a market frequently have to be adapted to binding national quality requirements, veterinary rules or testing requirements
STANHARM	The firm is in favour of international harmonisation of quality requirements, standards and veterinary rules
DEMAND	Exports to a market frequently has to be adapted to local patterns of taste and demand, or voluntary standards

Exporters agreed strongly to the first two statements, with an average score of 75 for STANDARDS and 87 for STANHARM. This suggests that firms consider binding veterinary and sanitary standards to be of great importance. The somewhat lower average score for the third variable (DEMAND, 57) indicates that voluntary standards matter but constitute less of a problem.

Firms were also asked whether they had experienced that veterinary standards etc. had hindered the firm's exports to specific markets. 26 firms confirmed that this was the case and table 16 shows the results.

Table 16: In which countries have veterinary standards hindered export?	
Countries:	Mentioned by how many firms:
USA, Russia	5
Brazil	4
Lithuania and Israel	3
Poland	2
Argentina, South Korea, Czechia, Mexico, Hungary, Italy, Finland, Bulgaria, Romania, Egypt and Jordan.	1

Table 16 suggests that problems with veterinary standards are not very common in Western Europe, but rather frequently occurring in Eastern Europe and in overseas markets.[16]

On the whole, there is no doubt that "formal" trade barriers related to trade policy still matters strongly. In the following, we shall attempt to shed light on other types of trade barriers and trading costs as well, in order to obtain a more complete picture.

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[16] On the other hand, some exporters complained about too strict practices in this area followed by the Norwegian authorities!

6.2. Transport costs

Transport costs vary considerably across commodities. For lightweight high-tech goods, they represent an insignificant fraction of the product price. At the other extreme we find goods for which transport costs may be as high as 50% or more of the product price (see e.g. examples in Wijnolst and Wergeland 1996, 254). Seafood trade is an intermediate case, as will be shown below. For seafood exporters, not only the transport price but also the quality and reliability of transports is important, due to the quality requirements for the products.

The magnitude of transport costs in general can be gauged from trade data by comparing f.o.b. (free on board) and CIF (cost, insurance and freight) trade data. According to such calculations, insurance and freight represented 9% of the value of world trade in 1965, with transports as the most important component. The share declined to a little above 6% in 1985, with little change in 1985-94 (ibid., 244). While it is true that transport costs have been considerably reduced over the 20th century due to technological improvements, it is not certain that there has been a strong decline during the recent decades.

We asked if the exporter always arrange transportation and this received a score of 73 %, indicating a high degree of agreement. However exporters of frozen pelagic fish to Asia more seldom arrange the transportation. It is commonly assumed that transportation costs increase proportionally with distance, but when asked about whether or not transportation costs are doubled when the distance is doubled few firms agreed, and the statement only received a score of 23. Quantitative transport cost data were excluded from the survey in order to limit the duration of interviews, but we have supplemented the data by obtaining transport cost data for Norwegian seafood exporters from 10 large brokers or transport firms. In addition to obtaining information on the magnitude of transport costs, these data show that it is only partly true that transport costs increase with distance.

Fish can be transported by road, railway, sea or air. Due to the rapid development of road transportation, the share of railway transports has declined, and railway is today of modest importance. Hence most Norwegian seafood exports are carried by road, sea or air. Sea transport takes longer time and is therefore primarily used for frozen, dried or canned seafood. For fresh or chilled seafood, road or air transportation are the main alternatives. Air transport is much more expensive and is only used for exports to remote destinations where road transport takes too long. For these reasons, the main types of shipment and transportation for Norwegian seafood exports are:

– For close destinations in Western Europe (Denmark, Sweden, Germany etc.), all types of seafood exports are mainly carried by car.
– For more remote destinations in Europe (the Mediterranean, Eastern Europe), fresh seafood is mainly carried by car, while frozen seafood is carried by car or ship, or a combination of the two. For large quantities, sea transport is cheaper for these destinations, especially if bulk transports (not containers) are possible.
– Fresh seafood is transported by air to remote destinations such as Asia and North America.

– Frozen and dried seafood exports to remote destinations are carried by ship. In some cases, the cargo is transported by car to main European ports before being loaded onto the ships.

Diagram 11 shows the transport costs per kilogram to various destinations, for all transport types.

Diagram 11: Transport costs versus distance
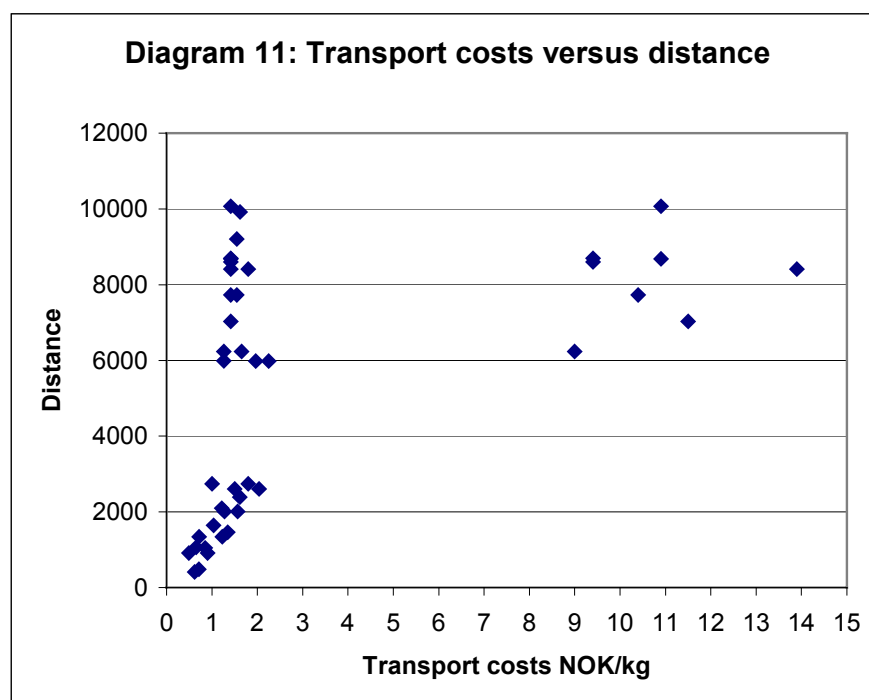
The lower left cluster of observations includes transportation to Europe, with the Mediterranean countries as the most remote destinations and Sweden and Denmark as the closest ones. For the closest destinations, road transportation is almost universally applied. For the more remote destinations, ship is a cheaper alternative for frozen seafood, especially for large quantities. The prices for road transports varies between fresh, frozen and dried fish since the net weight taken by a container varies from 18-20 (fresh) to 23-25 tons (frozen). Hence transport is cheaper for frozen fish. In the diagram, average values are given, for simplicity.

For car transports, the transport cost increases more or less linearly with distance, from 0.62 NOK/kg (Stockholm) to 2.04 (Greece). Hence within Europe, transport costs are strongly related to geographical distance. But for the more remote European destinations, for which sea freight is a viable alternative, this relationship between transport costs and distance gets blurred, as we see for the increased spread of data points at distances between 2000 and 3000. For Portugal, car transport costs 1.80 NOK/kg, but frozen fish by sea and in bulk has a cost of 1 NOK/kg.

The upper left cluster of observations in the diagram, which includes sea transportation across continents, illustrates even more strongly that the cost

of sea transportation is very weakly related to distance. Frozen fish in bulk may be shipped to China for 1.41 NOK/kg, compared to 1-1.50 to Mediterranean countries. Hence for cargo that may be transported by sea, the relationship between geography and transport costs is weak.

As shown by the upper right cluster of observations, air transportation is expensive, ranging from 9 to 14 NOK/kg. For air transports, there is a positive relationship between geographical distance and prices, but this is not unambiguous since there is considerable price variation for destinations equally far away, and air freight may cost the same for different destinations in a large continent.

Hence the diagram shows that transport prices vary across transport modes and product types, and the relationship between geographical distance and transport costs is therefore ambiguous.

In order to obtain an assessment of the relative importance of transport costs, it is useful to express them as a percentage of the export price. Table 17 below presents this for a selection of the items in Table 13, based on the following assumptions:

The average export price in 2000 for Norwegian total exports of each item is used. Due to transport costs, trade adjusts so that high-priced items are shipped where transport costs are high. In order to evaluate the ex ante impact of transport costs, it seems reasonable to use the average f.o.b. prices for total exports.

The relevant transport mode is used in each case, e.g. frozen fish to the USA and Japan is shipped by sea whereas fresh fish is assumed to be shipped by air. Air transportation is indicated in the table in **bold**, cases with sea transports are underlined. For transports to Italy, sea+road transports are also assumed for the frozen items (although the price difference here is not too large). Transport prices may vary somewhat for each destination; here average prices based on available information have been used.

Observe that the table, for the sake of illustration, includes trades which are not actually undertaken; e.g. shipping fresh cod by air to the USA and Japan faces transport costs of 42-65% so this is probably not a profitable operation.

Table 17: Transport costs as a percentage of the average export price					
Description	Price (NOK)	Denmark	Italy	USA	Japan
Fresh cod	21.27	3.7	7.4	**42.3**	**65.3**
Frozen trout	35.05	1.9	_3.7_	_3.6_	_4.0_
Frozen herring	3.46	19.3	_37.0_	_36.4_	_40.7_
Frozen mackerel	6.62	10.1	_19.3_	_19.0_	_21.3_
Fresh salmon fillet	54.57	1.4	2.9	**16.5**	**25.5**
Frozen salmon fillet	64.16	1.0	_2.0_	_2.0_	_2.2_
Frozen cod fillet	37.77	1.8	_3.4_	_3.3_	_3.7_
Smoked salmon	91.32	0.9	1.7	**9.9**	**15.2**
Stockfish of cod	144.06	0.5	_0.9_	_0.9_	_1.0_
Klipfish of cod	55.31	1.2	_2.3_	_2.3_	_2.5_
Klipfish of saithe	21.36	3.1	_6.0_	_5.9_	_6.6_
Salted cod	35.17	1.9	3.6	_3.6_	_4.0_

Transport costs vary between 0.5% to 65.3% of the f.o.b. price. While transport costs to Denmark are generally low (0.5-3,7%), they may bite for very low-priced items such as frozen herring. When the goods are shipped to Italy, the transport rates are doubled, to 0.9-7.4% for most items. For the USA and Japan, transport rates are still moderate for frozen, dried and salted fish which may be shipped by sea (0.9-6.6), except for frozen herring and mackerel (19-41%). For fresh fish, air transport is here the only alternative, and the transport rate increases to 10-65%. For a large export item such as fresh salmon fillet, the rate is 16.5-25.5%. Even with a high rate of 25.5%, however, fresh salmon fillet for 66 million NOK were exported to Japan in 2000. The actual f.o.b. price to Japan was somewhat higher than the average for total exports, so the actual transport rate was at 21%.

The transport rates illustrated here show that the importance of transport costs varies across destinations and products. On the whole we may conclude that shipping costs are significant but not very high for most seafood trade, but very high for some low-priced items and for overseas air transportation.

The transport rates given above are for "standard destinations", e.g. main ports with a developed infrastructure. Furthermore, they are given for standard quantities, e.g a 40-feet container or the like. Outside the main destinations, and for smaller quantities, transport rates may be higher, sometimes considerably higher.

Observe also that the rates given here are for transport from Western Norway; a seafood exporter from Northern Norway has to add to these rates approximately as much as it costs to ship fish to Denmark.[17] Hence these

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[17]   Reported price increases for transporting seafood from Tromsø, Northern Norway ranged from NOK 0.22 (boat) to 0.86 (road) per kilo (average estimates). This may be compared to a standard average rate of 0.71 NOK/kg for road transportation to Denmark.

exporters face an additional "tariff" of some percentage points when exporting.

With respect to non-standard destinations, the price increase all depends on the infrastructure developed for the destination in question. For example, sea transportation to smaller ports in Japan give a price increase of 25%. For transports to Africa via Nigeria, the price for road transports from Nigeria is "normal" towards some countries, but much higher for others. Transports to Croatia, Slovenia and Serbia is not much more expensive than to Italy, due to acceptable roads. For car transport to more difficult destinations, one firm reported that prices could increase by 2-300%.

With respect to quantities, freight rates for small volumes can be much higher than reported above. Car transport and partly sea transport is generally based on containers (or trailers for road transport), and the costs for smaller volumes may be considerably higher. One firm reported a 30-40% price increase for a shipment of less than one tonne. If more than one container is shipped, however, the price normally remains the same. For sea transport, the low rates for overseas transport given above are in some cases based on bulk transport, which requires minimum quantities of 100-300 tons. If a few bundles of stockfish are sent to South Africa by non-specialised sea freight, the transport cost may be 3-4 times higher. For air transport, rates are given per kilogram and fall somewhat with the volume[18] (a range of 10-20% was reported by one company). These examples illustrate that the transport costs given above are for the most efficient standard modes of transportation, and they should therefore be interpreted as lower bounds. For non-standard markets where an exporter starts by selling small quantities, the transport rates may indeed be high. This illustrates that transport costs are to some extent endogenous; as trade develops, the supply of transportation is gradually developed and the freight rates fall. There is, therefore, some evidence suggesting that endogenous transport costs is a third form of externality in the export activity. In this context, we should distinguish between physical infrastructure (ports, airports, roads etc.) and "business infrastructure" (i.e. that there is a sufficient transport supply and correspondingly a developed market for transportation). While the physical infrastructure is a more long-term project depending on a country's development in general, the business infrastructure may be developed over some years as some trade is opened. When we use the term "endogeneous transport costs" we mainly think about the latter.

When asked about changes in transport costs over time, the transport firms responded the following:

– Car transport prices had been stable for a long time.
– Air transport rates vary considerably due to changes in supply and demand, with lower prices in periods with excess capacity.
– Sea freight rates also vary considerably over time due to supply and demand, and recently there has also been a downward price trend due to increased competition in the business.

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[18] Some air transport firms have standard thresholds; e.g. one firm reported that prices differed according to whether the shipment was below or above 100, 500, 1000 and 3200 kilos.

Hence during recent years, there has not been a general trend towards lower transport prices for seafood exports, but some recent decline for sea transportation.

6.3. Shipment handling costs

For each shipment, an exporter has to make a deal with the customer, and make the practical arrangements involved. The exporters were asked about the smallest, highest and average time spent on each shipment. We recalculate this into money using a cost of 400 NOK/hour, and compare this to the average value of a shipment also reported by the respondents. It is possible that this cost estimate is lower than the staff costs in some firms, therefore the estimates below should be considered as lower bound estimates. Table 18 shows the results.

	Average	Highest observation
Table 18: The cost of handling a shipment,as a % of the average value of a shipment		
Low estimate	1.1	11.4
High estimate	3.9	40.0
Mean estimate	0.9	17.1

The number of observations is here low for the low/high estimates (see Appendix A, Table A4), since the majority of exporters only reported averages. The mean estimate is therefore more reliable. On average, the cost of handling a shipment is only 1.3% of the sales value. Some firms, however, report much higher costs, and this suggests that if the efficiency in handling current transactions is too low, it may represent a significant trading cost. Such costs also apply to domestic sales, so for the average firms this is hardly a "border cost". On the other hand, it may be the case that the cost of handling shipments may be higher for certain markets. We therefore check whether the shipment handling costs depend on firm or market characteristics. We find that:

– Firms with more educated staff has lower shipment-handling costs.
– The more shipments per customer per year, the lower are the shipment handling costs.
– Large shipments are more costly to handle also in relative terms.
– Firms relying on personal networks have lower handling costs. This is in conformity with the evidence on lower costs in long-term customer relationships, reported in section 4.5.
– These costs are lower for firms conducting a thorough market analysis before entering markets.
– Firms that discriminate on price among customers have higher shipment handling costs.

Hence the administrative costs on handling shipments depend on firm characteristics. They do not, however, depend on firm size in general, and they do not vary across markets or product types.

In the survey, the firms were also asked two questions about the costs of handling small shipments. They were asked whether they agreed to the propositions that

– The larger the shipments are, the lower is the price (SHPRICE).
– For very small shipments, we either have to say no or charge a high price to cover the costs (NOSMALL).

The mean responses of 36 and 82, respectively, indicate that the exporters mainly disagreed with the first proposition, and mostly agreed with the second. A reason may be that the costs of handling shipments are in relative terms high for very small shipments, but thereafter do not increase strongly after a certain threshold has been passed. The positive relationship between costs and shipment size shown above could be caused by this "cost function". On the other hand, the restrictive attitude towards small shipments could also be due to the fact that transport costs are much higher for very small quantities (see Chapter 6).

On the whole, shipment-handling costs constitute a small trade barrier for most exporters. But for less professional exporters, and for very small shipments, they can represent a more significant barrier to trade.

6.4. Fixed Costs of Exporting[19]

Given that current data on sunk costs in exporting are scarce, a contribution of this study is to resent new data new data on the costs of entering new markets.

Firms face a number of different barriers when entering a new export market. While some barriers are easily measurable, such as tariffs, others are harder to quantify. An example of the latter is cultural differences. As shown in chapter 4, cultural barriers are considered as important entry barriers by the firms. While the impact of e.g. cultural barriers is difficult to quantify directly, we have attempted to obtain indirect evidence on such costs by asking firms how much time and resources they use when entering new markets. We expect that such barriers will vary across different firms depending on their different skills, sales strategies and attributes of their export products:

– Entry costs may vary across products: For example, fresh fish may have stricter quality requirements than frozen fish, so an exporter of fresh fish may have to spend more time in order to establish trust in the customer relationships. In general, differentiated products may be more difficult to sell because they more often must be adjusted to the customers' particular demands. It can also be more demanding to gather information about markets for differentiated products.

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[19] Results in this section is based on Spearman corelation, which puts lower emphasis on extreme values.

– Some firms may invest heavily in new markets in order to obtain a high market share, while others start with more modest ambitions and smaller entry costs.
– Firms may differ with respect to risk aversion. Very risk-averse firms may wish to spend more money in order to reduce risk, and this adds to the entry costs.
– Firms with large networks may easier find customers in new markets, and hence have lower entry costs.
– Firms with considerable export experience may have lower entry costs because of learning-by-doing.
– In addition, entry barriers may vary across different markets:
– Cultural differences may imply higher entry costs because of risk, or because obtaining market information is more costly.
– Different legislation may force the firm to spend more resources in contract negotiations, and the sales costs may be reduced over time as the firm learns about the practices in the new market.
– Different product standards may create a need to adjust products to an individual market. Such adjustment may imply a fixed cost in e.g. production equipment, packaging or labour use.
– Large markets may be more difficult to enter, e.g. if they are less transparent so that information costs are higher. Large markets may also require larger marketing efforts.

In order to capture these differences, we asked firms to report the fixed costs of entering a market. Three cost categories were included; the cost of establishing a sales channel, contact and negotiations with the customer (Sales); the costs of obtaining information about the market they want to enter (Info); and the costs of adjusting products to the market (Adjust).

For these three categories of sunk costs, firms were asked to report the lowest, highest and average entry costs. Since the questions turned out to be very difficult to answer, many firms chose to report only the high/low estimates. For this reason, we use these data in order to describe fixed entry costs.

The fixed cost estimates vary considerably across firms, with the highest total fixed cost reported at 1.5 million NOK and the lowest at zero. Three firms reported total fixed costs amounting to 172%, 221%and 239% of their average seafood exports to each market, respectively. Two of these firms were, however, large food producers for which seafood has a share of less than 10% (close to zero in one case). The third firm had recently started to export, and the export volume only constituted 3 % of total sales. This suggests that some firms may invest in high start up costs of exporting, because their expected gains from exporting are high.

The three mentioned firms are extreme outliers with respect to the relative magnitude of fixed costs. Since we are primarily interested in studying such costs for seafood exports, we delete these firms from the sample when studying fixed entry costs. In Appendix A, Table A7, the mean values for the whole sample are shown. Table 19 presents the main results for the reduced sample.

Table 19: Fixed costs of entry.High/ low estimates reported by the firms (three extreme observations deleted from sample)

Absolute value of fixed costs (1000 NOK)						
Cost item		Mini-mum	Median	Mean	Maxi-mum	N
Sales channel	Low	0	9	30.9	400	56
	High	0	75	228.5	1500	59
Market information	Low	0	1	6.0	50	51
	High	0	15	51.1	500	52
Product adjustment	Low	0	0	2.7	50	54
	High	0	0	45.6	1000	55
Total	Low	0	10	36.2	500	60
	High	0	117,5	289.4	1500	68

Relative size of fixed costs (% of average fish exports to each market)						
Cost item		Mini-mum	Median	Mean	Maxi-mum	N
Sales channel	Low	0	0.06	0.52	10	47
	High	0	0.9	3.16	23.6	50
Market information	Low	0	0	0.13	2	43
	High	0	0.13	0.93	20	44
Product adjustment	Low	0	0	0.02	0.3	44
	High	0	0	0.86	21.8	45
Total	Low	0	0.1	0.60	10	51
	High	0	1.3	4.5	32	58

Diagram 12 reports the absolute value of the fixed export cost, while Diagram 13 reports fixed export costs as a share of each firms' average exports of seafood products to an individual market. The sample averages and the maximum values are reported (i.e. the latter is for one firm only). The minimum value reported was zero for all cost types. As seen from Table 19, the median values were also low for many of the cost categories.

Many firms failed to give estimates on all cost components. When calculating the total fixed costs, we used the method described in Appendix A, Table A7. Totals were calculated for firms reporting at least two of the cost categories. To the extent that firms have fixed costs for the third category that are not reported, the estimates on total costs are biased downwards, and the averages are therefore lower bounds based on the available information. In some cases where maximum estimates were missing, medium estimates for a cost category was used when calculating the upper estimate for total costs. The average total upper estimate is also for this reason biased downwards.

Diagram 12: Fixed costs of exporting (values)

Type of cost (y-axis)

Value (1000 NOK) (x-axis)

Legend: Max High, Max Low, Mean High, Mean Low

Total: 1500, 500, 289, 36
Adjust: 1000, 50, 46, 3
Info: 500, 50, 51, 6
Sales: 1500, 400, 229, 31

Diagram 13: Relative size of fixed export costs

Type of costs (y-axis)

% share of each firm's average exports to one country (x-axis)

Legend: Max High, Max Low, Mean High, Mean Low

Total: 32, 10, 4.5, 0.6
Adjust: 22, 0.3, 0.9, 0.02
Info: 20, 2, 0.9, 0.1
Sales: 24, 10, 3.2, 0.5

Diagram 12 shows that the fixed cost estimates range from 0 to 1,5 million NOK. Average total costs are between 36 000 and 289 000 NOK. If we express fixed costs as a share of average seafood exports to an individual market (Diagram 13), the highest cost reported is 32% of this. On average, total costs are between 0.6 % and 4.5% of average exports to each market. If sales are lower during the first period after entry, the percentages will be higher compared to that. There is considerable variation across firms, with many firms reporting total fixed entry costs close to zero. The evidence therefore supports the proposition that the fixed costs of market entry in the seafood export activity are on average low. Furthermore, if we include the three extreme observations in the sample, the magnitude of total fixed costs is positively correlated with the firms' total and average sales, but negatively correlated with the share of seafood exported. This provides some evidence supporting the conclusion of Chen (2002) that entry costs for seafood are low compared to other sectors. An interesting hypothesis is that low fixed entry costs is the main reason why Norway, as a small country, has succeeded so well in world seafood markets.

The overall most important fixed cost component is related to establishing a sales channel. Obtaining market information is slightly more costly than the adjustment of products. The higher cost of establishing a sales channel is consistent with the importance of customer networks for Norwegian seafood exporters. In order to establish such networks, firms have to invest in building customer relationships.

 A first important observation is that if firms export other goods than seafood, their sunk costs tend to be higher. Even after deleting the three extreme observations with little seafood exports, the absolute size of fixed costs related to information and product adjustment is negatively correlated with the share of seafood in total sales. This supports the hypothesis that fixed entry costs for seafood exports are relatively low compared to other sectors. A main reason may be that seafood is a relatively homogenous type of good. This is also supported by the fact that both relative and absolute entry costs related to product adjustment are on average significantly higher for firms exporting processed seafood, which is generally more differentiated.[20] Furthermore, entry costs for exporters of frozen fish are on average lower. This is particularly so for the costs of establishing sales channels. Frozen fish is a more homogenous good regarding quality, thus less effort has to be put in establishing trust in the customer relationship. The hypothesis regarding product homogeneity is moreover supported by the fact that firms that compete in quality report higher (absolute and relative) fixed costs on product adjustment. Firms that more often have to adjust their products to local demand or voluntary standards, report higher fixed costs of gathering information. All these results are in line with other research findings indicating that entry barriers are higher for more differentiated goods.

Another interesting observation is that when we have called "export pioneers", i.e. firms that look for markets where no other Norwegian exporters have entered, have consistently higher both absolute and relative fixed costs

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[20]   Based on the trade data, two variables were constructed in order to reflect the extent of processing and industrial manufacturing of seafood products. The statement here is based on correlations between these variables and the fixed cost estimates.

related to market information and product adjustment. This suggests that it is more costly to enter markets with no other Norwegian exporters. The result is supported by the fact that the "export pioneers" more often agree that when there are other Norwegian exporters in a market they perceive useful information that facilitates exporting to the market in question. Thus despite that the pioneers recognize the benefit of spillovers from other Norwegian exporters, they choose to enter markets individually.

Why do the export pioneers enter new markets in spite of the higher costs involved? Given that their sunk costs are higher, the expected gains, e.g. from a dominant market position or "first-mover advantages", should also be greater. But if all exporters knew this, they would generally seek to enter these markets. Hence there must be something that distinguishes the "export pioneers" from the rest.

A first possible explanation is that entry into new markets is more risky, and the export pioneers are more willing to take risk. This is supported by the data: The export pioneers experience conflicts with the customers more often than other exporters. Such conflicts may be related to delivery and quality as well as payment delay or default. This suggests that markets with few other Norwegian exporters are more risky, and the pioneers bear a higher cost by entering them.

A related "behavioural" explanation may be that some firms follow more aggressive marketing strategies. Firms that undercut prices in order to enter new markets, in fact also have higher sunk costs. These firms have higher absolute entry costs on product adjustment as well as on market information. Hence firms that are more aggressive in their marketing, are willing to bear higher entry costs. If they succeed, they may reap the benefits of a larger market share, with less competition from other Norwegian exporters.

Another explanation why some exporters invest more in new markets may be that they have different information. The export pioneers may be better informed about the market potential, or they may have too little information about the risks involved. As noted in Chapter 4, it is impossible to tell from the data to what extent the export pioneers are rewarded for their investments in entering new markets, and hence whether their assessments are right. But some results suggest that export pioneers may underestimate risk: Firms that safeguard themselves against foreign exchange risk, have lower relative fixed sales costs. Furthermore, firms that experience frequent payment delays have higher absolute fixed costs of establishing sales channels, while those that never experience payment default have lower costs of this type. This suggests that large entry costs may partly be caused by an underestimation of risk, or that firms do not safeguard against risk.

The analysis therefore suggests that product and firm characteristics are important determinants of sunk costs. In addition, the large variation in sunk costs across firms may be due to export market characteristics: Some firms sell in easy markets, others in more difficult ones. Is this the reason why sunk costs are on average so low that a large share of exports is destined for the "easy" European markets? Do the firms reporting higher sunk costs mainly sell to more difficult markets?

We find, however, little evidence on variation of entry costs across regions. There are no significant correlations between the size of entry costs and

the share of exports to particular regions; hence entry costs in Northern Europe or Asia or Latin America do not stand out as different from the sample average. However, certain market characteristics such as size and cultural differences seem to have an impact.

Firms that perceive cultural differences as a serious trade barrier (as measured by the variables CULTURE and CULTRISK) also have significantly higher fixed sales costs in absolute terms. When exporters were asked whether they agreed or not to the statement that "The larger the cultural differences are, the more resources have to be spent in order to start exporting to a new market", the average score was 69 out of 100. Hence we may conclude that firms face higher entry costs in culturally different markets.

Furthermore, there is strong evidence that the fixed costs of entering large markets are higher than the average. There is a positive and significant correlation between practically all measures of absolute fixed export costs and a positive response to the following statement: "Large markets are more demanding and require more resource use if you are to start exporting." This, together with other evidence from the survey, confirms that large markets are more complex and entry therefore requires more investment. On the other hand, expected sales in these markets may be higher, so the relative magnitude of entry costs is not higher than the average for these markets, except for information costs that are weakly higher also in relative terms.

With respect to other firm characteristics, we find a number of plausible links with fixed costs, such as:

– Firms that plan to enter new markets, have higher fixed costs related to obtaining market information. This is plausible, given the need for information about new markets.
– Firms that conduct a thorough market analysis before entering a new market on average report higher absolute fixed costs related to market information.
– Observe also that while pure trading companies tend to enter new markets more frequently, the relative size of fixed costs does not vary between producers and traders.

Firms that frequently exit from markets, on the other hand, have higher costs related to both establishment of sales channels and obtaining market information. This may seem counterintuitive, as large sunk costs make exit more expensive. An explanation may be that such firms have lower skills on customer relationships and managing information, and they exit more frequently from markets because they have not undertaken a careful evaluation of the risk and market potential.

Firms that report that employee's personal networks are decisive for which markets they enter also report higher fixed costs (both absolute and relative) related to establishment of sales channels. More personalised sales methods may therefore be costly, but given the importance of such methods, firms may find it profitable to invest in network building and solid customer relationships. This is further underlined by the fact that firms that frequently use personal contacts as a way of finding customers, also report higher relative fixed costs of establishing sales channels. Firms that travel to the impor-

ting country in order to find customers report higher absolute fixed costs of both establishing sales channels and gathering market information. Furthermore, firms that sell to the same importers each year report higher relative fixed costs of establishing sales channels. Again, this may indicate that firms find it profitable in the long run to use resources on establishing good networks.

Firms that report high fixed costs (both relative and absolute) of gathering market information also tend to be more affected by learning effects: These firms more often agree that the cost and time use of export to a market is higher in the beginning and then falls considerably over time. A reason for this may be that firms with good knowledge about the markets also are more able to learn from export experience.

Firms that sell to retailers have higher fixed adjustments costs (both absolute and relative) than others. This seems reasonable, as these customers may be more demanding about of special adjustments of the products. On the other hand, firms that sell to manufactures and wholesalers have lower costs of establishing sales channels, which is probably because these customers buy large quantities.

Firms that report high average costs per shipment, also tend to report high relative fixed costs. A reason may be that these firms export more demanding products.

While these results confirm the existence of measurable fixed costs of market entry and their variation across markets, products and firms, the results indicate that on the whole, the relative magnitude of these costs is not very high for the majority of firms. A cost that is, on average, between 0.6 and 4.5% of average sales to each market, is low compared to e.g. transport costs or tariffs in many markets. On the other hand, these costs are higher the more differentiated the product is and and they are slightly higher for the "export pioneers" that open new markets for other exporters. While there is little evidence on differences in sunk costs between particular countries or regions, we can in general say that entry costs are higher for more "difficult" markets. Hence a main conclusion must be that measurable fixed costs of market entry constitute a trade barrier that is modest in large established markets, but of greater importance in new and culturally different or particularly complex markets. When evaluating what is a "high" fixed cost in this context, we may observe that a range of 10-32% is what we would consider a high fixed cost based on the upper range in the (reduced) sample.

6.5. Summing up: Total trading costs and its components

The analysis here has provided quantitative evidence on a whole range of costs related to the exporting activity. The analysis shows that exporting involves a number of barriers and cost components that are significant:

– Tariffs range from zero to 30% in important markets.
– Transport costs range from almost zero to 25% in major markets, and may be much higher in new markets or for small shipments.
– Shipment handling costs are normally in the range of 1-4%, but may be even higher for small shipments.

–   Fixed costs are in the range of 0.6-4.5% in normal cases, but can be higher for particular firms, products and markets.

In addition Chapter 5 showed that networks and learning-by-doing imply that export costs are higher in the beginning when firms enter new markets and that externalities between firms imply that costs are lower for markets with many exporters. Since we unable to quantify these effects, it is impossible to add them together with the quantitative evidence on trade costs. Also, some of these costs are partly overlapping, since learning affects fixed costs as well as shipment handling costs, and externalities affect the fixed costs of entry as well as current costs and profitability. On the other hand, the significance of networks, learning-by-doing and externalities implies that we should not only look at the averages for the quantifiable cost components, but also the maximum values. We have seen that individual firms in normal cases may face fixed entry costs up to 32% of their average sales value to each market. One firm that recently had started to export reported the fixed export costs to be above 200% of the export value. Transport costs may also be doubled or trebled in case of exports of small quantities to exotic markets. For such reasons, it would be no surprise to observe total trading costs of 50% or more to particular markets.

It is not likely that these estimates generally apply to other sectors, since the nature of markets, the tariff levels and the transport costs vary across sectors. Some other studies (Chen 2002) suggest that information costs of exporting within the EU are low in the seafood export business. The estimates presented here show that this may be correct for major markets. But it does not apply to all markets, and even for relatively homogeneous seafood products, the "informal" trade barriers may be significant in some markets. Our results also support evidence telling that entry costs are higher for more differentiated goods, and that the homogeneity of products is a major reason why the entry costs are on average relatively low for seafood. On the other hand, it is possible that sector-wide externalities related to learning and marketing may be greater for relatively homogenous goods, since individual exporters and customers are more similar.

7. Attitudes toward risk and risk management

Risk related to exports may act as an informal trade barrier that may deter firms from entering into particular markets. There are two major types of risk: The first is related to commercial risk related to market conditions such as exchange rate fluctuations or business cycles The second is related to all kinds of unforeseen events or troubles that may affect the profitability of exports, such as payment default, transport problems, and the like.

Since firms face fixed entry costs, exports have the character of investment under uncertainty. Accordingly, firms will tend to enter less frequently in more risky markets (Aarseth 2001).

With respect to the second major type of risk, the firms may take precautions in order to handle this. This may be done by means of using intermediaries (agents, wholesalers), by using more resources to obtain information about the quality of customers, or by explicit insurance schemes such as forward trading in foreign exchange markets, or export credit guarantees. Such precautionary measures have their cost in terms of manpower or money, and hence also imply an "export tax" due to risk. Creating stable customer networks may also be motivated by the need to eliminate risk, as noted in the preceding analysis.

The risks that the exporters face, are to a large extent likely to be country-specific; we expect that the amount of risk is related to the economic stability, culture and institutions of importing countries. They may also be related to cultural distance – if information about the reliability of customers is more difficult to obtain or interpret in different cultures.

Relating to seafood trade, a particular aspect of risk concerns product quality: For the buyer, it is important to know that the delivered quality is appropriate. In order to eliminate such quality risk, stable customer relationships and reputation building may be of major importance.

The survey mainly focused on risk related to unforeseen troubles. With respect to the commercial risk we investigated to what extent firms insure themselves against exchange rate fluctuations and to what extent available export credit guarantees are important for exports. Firms were asked the following questions that have particular relevance for the issue of risk:

Table 20: Variables relating to risk	
Variable name	Question
PAYMENT	Payment default by the buyer almost never occurs
CONFLICT	Conflicts with the buyer concerning quality and terms of delivery almost never occur
TRANSPRO	Unforeseen problems with respect to transportation almost never occur
CORRUPT	It is difficult to start exporting to markets with high corruption
CULTRISK	In markets with a different culture, it is difficult to distinguish between good and bad customers
PAYDELAY	Delayed payment from the buyer occurs frequently and is a big problem
INSURANCE	The company always takes steps to insure against missing payment (e.g. by asking for advance payment or by obtaining credit information about the customer)
FOREX	The company always insures itself against foreign exchange risk
GIEK	Better access to export credit guarantees from GIEK would lead to exports to new markets
EXCREDIT	Available export credit guarantees are crucial for the firm's exports to some markets

As before, the exporters were asked to state to what extent they disagreed or agreed. Observe that for the first three variables CONFLICT, TRANSPRO and PAYMENT, a high value indicates that risk is a small problem, while the reverse is true for the subsequent variables CORRUPT, CULTRISK, and PAYDELAY. The last four variables address the role of explicit measures by firms related to risk (GIEK is the Norwegian Guaranty Institute for Export Credits). Diagram 14 shows the average score for the variables:

Diagram 14: Variables related to risk: Average score

Variable	Mean value
PAYMENT	79
CONFLICT	63
TRANSPRO	61
CORRUPT	59
CULTRISK	58
PAYDELAY	54
INSURANC	84
FOREX	72
GIEK	56
EXCREDIT	52

Mean value on scale 0-100
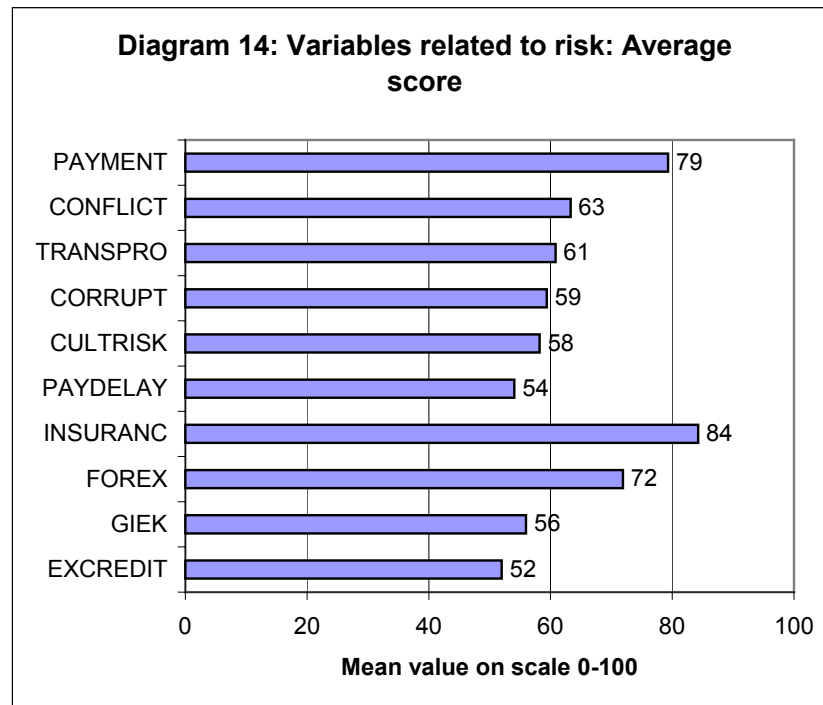
In general, these results suggest that

- risk constitute a problem
- this problem is significant but not too severe¨
- the majority of exporters take precautionary measures to handle risk.

The upper three variables are all worded negatively ("almost never occur") and the relatively high mean scores indicate that unforeseen problems and conflicts occur, but not very frequently. Payment default is rare, but conflicts with importers or unforeseen problems with transportation occur somewhat more frequently.

The next three variables are worded affirmatively ("it is a big problem", "it is difficult") and the above-average mean scores suggest that risks related to corruption, cultural differences and delayed payment are more serious, but not extremely serious, problems.

For the last four variables, the above-average mean score indicates that firms are actively pursuing strategies to handle risk, especially by checking customers and insuring against foreign exchange risk.

The responses of the firms to these questions are likely to be influenced by where they sell as well as structural characteristics of the firms. We may obtain information about this by checking whether their responses on risk variables were correlated with other variables in the data set.

- With respect to the country profile of exports, we find that:
- Transport problems are more frequent in Asia.

– North America is a less risky region where conflicts almost never occur.
– Firms exporting to Southern Europe were more eager to insure against foreign exchange losses.
– Companies exporting to Asia considered limitations in GIEK's offer to be a more serious problem.

The attitude towards corruption was not significantly affected by the geographical distribution of a firm's exports. We might have expected this to be the case, given greater problems with corruption in e.g. Eastern Europe. When asked about markets where they had experienced corruption to be a problem, 22 markets were mentioned, and 35 exporters (43%) had such experiences. Table 21 summarises this information.

Table 21: In which markets is corruption a problem?	
Country or region:	Mentioned by how many firms:
Russia	13
Italy	7
Eastern Europe in general	5
Brazil	4
Portugal	3
Venezuela, Portugal, China, Nigeria	2
USA, Estonia, Poland, Croatia, Hungary, Spain, Ukraine, Ivory Coast, Kazakhstan, Egypt, Japan, Germany (East), Latin America in general	1

According to this, corruption is widespread, with Eastern and Southern Europe obtaining the dubious honour of being the regions with the highest rank. But even Latin America, Asia, Africa and to a lesser extent North-West Europe and North America are on this blacklist.

Firms exporting to Southern Europe were more eager to insure themselves against missing payments and especially then problem seem to be particular big in Spain and Italy. When asked about in which markets lack of payment was a problem 7 firms mentioned these countries. Only Russia is mentioned by more firms. The problem seems to be quite general, however, and in total 56 markets or regions are mentioned by at least one firm. 3 firms report such trouble to occur in all export markets. Perhaps surprisingly, firms exporting to Africa experienced payment delays as a smaller problem.

Table 22 shows the markets where at least three firms have experienced lack of payment.

Table 22: In which markets has the firm experienced lack of payment?	
Country or region	Mentioned by how many firms:
Russia	8
Italy, Spain	7
USA, Brazil, Poland, Japan, UK, France, Germany	4
Taiwan, Sweden, Latvia, Greece, Estonia, Denmark, China	3

An interesting observation is that the perceived risk of payment default is related to the fixed costs borne by firms when entering new markets: The higher fixed costs, the higher is the perceived risk of payment default.[21] This is contrary to the hypothesis that "solid groundwork" reduces default risk. An interpretation is that fixed entry costs are higher in markets with higher risk.

Another parallel story is that the less time a firm uses per shipment, the less it checks the quality of its customers. One might then expect that such firms, that do not do their "homework", would be punished by greater problems with payment default. This is not confirmed, however, so again, it is likely that variations in the resource use per shipment is more related to the markets firms sell to, rather than the quality of the exporter. So firms that sell in safe and low-risk markets may "do it fast", while firms selling to difficult markets have to use more resources.

Hence an interpretation of the last two observed facts is that risk is market-specific and pushes up the trading costs per shipment as well as the fixed cost of entry into markets.

If firms use intermediates (e.g. agents) in order to handle risk, it could influence their perceptions. To some extent, this is evident from the data: The firms that export directly to their customers, perceive corruption to be a greater problem than the average, while those exporting via agents perceive corruption to be less important than the average. On the other hand, the use of import agents may give "false insurance"; conflicts with buyers were, compared to the average, perceived to be a greater problem by the firms using agents than by the firms exporting directly.

Large seafood exporters, and firms with a more educated staff, were more inclined to insure against foreign exchange risk. On the other hand, these firms perceived payment default to be a greater problem than the average. The latter correlation may be due to the fact that large firms export to more countries, and therefore are more involved in countries where such problems are greater. Risk may also be related to ownership structure and we find that firms that are part of a larger corporation think available export credit guarantees are more important than others. A reason for this is that such firms more often experience delayed payment.[22]

Aspects related to risk are the major reasons why firms withdraw from markets. When asked about market exit, 34 firms reported that they had withdrawn from particular markets. Table 23 shows the major reasons why they pulled out.[23]

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[21] Such fixed costs are measured by 12 different variables. The correlation coefficients between PAYMENT and these 12 variables were negative in all cases, and statistically significant at the 5% level or better in four cases (and at the 10% level in two more cases).
[22] This correlation is only significant at the 10 % level.
[23] Since some firms stated different reasons for different markets, the sum of column 2 exceeds 34.

Table 23: Reasons for market exit		
Reason for exit from market	Number of exporters	Markets reported
Payment problems	11	Eastern Europe (7), Asia (4), Western Europe (3). Southern Europe (3)
Competitiveness	6	10 countries in different regions
Corruption or fraud	4	Eastern Europe (2), Italy (2), China
Veterinary barriers or conflicts on quality	3	Arabic countries, Israel, Scandinavia
Tariffs	3	EU, Mexico
General economic conditions	3	Africa, Germany, Turkey
Communication problems	2	China, Taiwan
Fish supply	2	Western Europe
Bureaucracy	1	EU, Spain
Currency availability	1	Africa (4 countries), Mexico

Payment problems is clearly the most frequent reason for market exit, and it applies to several regions. Corruption and conflicts about quality are also important reasons. The evidence on market exit therefore support the evidence above, suggesting that exporters face considerable risks and the ability to handle risk is important for export performance.

Concluding, we observe that the handling of risk is a final component of the costs firm incur when exporting. The magnitude of the problem is likely to vary across markets, but we are not able to give precise estimates on the magnitude of the costs involved.

8. Implications for export promotion policies

The Norwegian authorities have various measures in place that attempts to assist exporters in their activity. Trade policy is of course of major importance, as shown in Section 5.2 on tariffs and product standards. The export credit guaranty facility GIEK has been mentioned, as well as the Export Council and the Seafood Export Council (EFF). The survey also included some questions related to these areas, and the results will be briefly discussed here.[24]

Export credit guarantees are important in some markets, but not in others. Firms that export mainly to Western Europe or North America, do not rely on such measures. In other markets, however, they may be significant. As a consequence of this, the close-to the-middle mean score for the variable GIEK above (and another information on export credits, not reported here), hides that this is very important for some firms, and unimportant for others (a bimodal distribution). The firms that were concerned with export credit guarantees, frequently also complained that the geographical coverage of GIEK's scheme was too limited. They maintained that GIEK's coverage of risky markets was too limited: "GIEK is OK where it is not needed".

With respect to EFF, the exporters were asked about their own use of EFF's services, and they were also given the option of expressing further views on these activities. Among EFF's services, the marketing of Norwegian seafood abroad was generally regarded as important for the firm's exports. The same applies to EFF's information about tariffs and other trade barriers in foreign markets, which are used by a majority of the exporters. In the open supplementary questions, the respondents also mainly expressed positive views on these activities, especially on information about trade barriers. With respect to marketing, however, there is a conflict relating to the product focus of EFF's marketing: This has disproportionately focused on salmon, and exporters of other products expressed an interest in more marketing in their product areas.

EFF's general information about foreign markets, and services from EFF with respect to mapping potential customers, we considered less important for the firms. The market information was considered to be very appropriate for some markets, but in spite of these cases it was criticised for being too general and not sufficiently focused on new markets where such information is particularly needed. As noted from our analysis of fixed costs, there are indications that EFF's services with respect to finding customers is more efficient than EFF's market information.

With respect to all these schemes, a general issue is how new versus old markets should be given priority. Should export promotion schemes primar-

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[24]   These issues are treated in more detail in a short paper in Norwegian, see Melchior (2002c).

ily aim at helping the "export pioneers" to enter new markets, or is there a need for continued support also in more established markets? In general, the results of this study suggest that the former is important. A policy implication is that market information, information about tariffs and trade barriers, and also export credit guarantees, should focus to a larger extent on "emerging seafood markets" where the entry costs are higher. The survey does not, however, give decisive evidence on when such support measures are no longer needed. It is therefore not possible to draw strong conclusions on whether measures related to more established markets are "useless" or not.

9. Concluding comments: Main results and their implications for policy and research

On the whole, the survey confirms that there are several types of costs involved in exporting. As an illustration, table 24 describes the quantitative impact (to the extent possible) for three hypothetical markets with low, intermediate and high trading costs. Costs related to risk are not included, since we have no reliable estimates on their magnitude. It can be discussed what are the appropriate ranges for each cost item, but the highest estimates below are all within the range of costs reported by exporters (or from the transport cost data).

Table 24: Total quantifiable trading costs in three hypothetical markets			
	Low	Intermediate	High
Tariffs	0	5-10	20-30
Transport costs	0.5	5-10	16-26
Shipment handling costs	0.2	1-2	2-4
Sum variable trade costs	0.7	11-22	38-60
Fixed entry costs	0	1-5	10-32

Hence total trading costs vary from negligible to very high, and the variable costs are on the whole higher than the fixed costs. We cannot add fixed and variable costs together, but the figures suggest that the overall trading costs may indeed be substantial in some markets. The fixed costs as well as the shipment handling costs could be expected to decline over time due to learning, and the high estimates for fixed costs could also be reduced in more established markets due to externalities. It is of course also possible that a market may have low transport costs and high tariffs etc., so our "worst case" is meant purely as an illustration of the upper range. We could have constructed even worse cases based on extreme observations in the data (239% fixed costs, 17% shipment handling costs, 65% transport costs, tariffs above 100%), but that would be abnormal cases.

Table 24 also shows that the "traditional" trade barriers such as tariffs and transport costs are larger than the "invisible" trading costs. It is possible that we have not captured all the variable "invisible" trade costs, such as regular travels to meet customers. The borderline between fixed entry costs and annual expenses is not fully clear, so it is possible that some of what we have named fixed costs here, are also incurred on a regular basis. Nevertheless, it is clear that the fixed entry costs form a significant part of total trading costs, and a component that me be important for how trade evolves over time.

What are the policy implications of the analysis? The analysis shows that "traditional" trade policy relating to tariffs as well as non-tariff barriers remains important. Future trade policy changes may also be the easiest way of reducing trade costs and entry barriers, since transport costs and "informal" trade barriers may not so easily be reduced.

The report also provides evidence on non-tariff trade barriers such as corruption, and bureaucratic obstacles. Such trade barriers are to an increasing extent covered by trade policy under the heading of "trade facilitation". Such trade barriers are important even in parts of Europe, and the report provides documentation that may be used in the formulation of policy in this area, by identifying countries where such barriers are common.

Exports grow by the conquest of new markets as well as by increased sales to existing markets. New markets are first opened by exporters willing to face high risk and higher trading costs, and for export promotion policies an implication is that measures should to a larger extent be directed at aiding these "export pioneers", as we have called them. This is relevant for export credit guaranty schemes as well as for the services offered by the Norwegian Seafood Export Council (EFF).

On the other hand, increased sales to existing markets are primarily promoted by means of investments in the sales channel, especially by large firms, in order to penetrate markets more deeply. For export-related policies, an important issue is whether the traditional distribution mode relied on by several exporters, i.e. direct exports to wholesalers, will remain efficient or whether exporters should be stimulated to changing their practices.

As noted in the introduction, the analysis is also indirectly relevant for policy since a total assessment of trade barriers is necessary in order to evaluate how specific trade policy measures will affect trade. By mapping all types of trading costs, we may evaluate how changes in each component will affect trade.

Related to research in the area, the report has attempted to provide more systematic evidence on the nature of "formal" as well as "informal" trading costs. We have succeeded in demonstrating the significance of fixed entry costs, as well as learning effects, networks and different types of externalities in the export activity. We have not succeeded in quantifying all these components, and more research may be undertaken, e.g. with firm-level trade data, in order to provide more evidence. Theoretical work should also be undertaken in order to examine the implications of these empirical phenomena.

From a research perspective, it is also interesting that trading costs are not strongly and unambiguously related to geographical distance, contrary to the standard assumption in gravity models as well as spatial "new economic geography" models. Neither are transport costs, tariffs nor "informal" trade barriers unambiguously increasing with distance, even if this to some extent the case. The determinants of economic geography are therefore more complex than these models suggest. Hence trade models should take into account that some trade barriers increase with distance and others not, and some trade costs are fixed while others are variable. The full implications of network effects also need to be examined more carefully. With search costs and incomplete information, even modest trade barriers may have significant

effects on the trade pattern. While we have provided documentation about the importance of networks, we have not derived all their implications.

Finally, it should be emphasized that the results for Norwegian seafood exports do not necessarily apply to other sectors. The results suggest that the fixed entry costs may be relatively low for seafood exports due to the products being relatively homogenous. For more differentiated goods, we would expect the entry costs in foreign markets to be higher. On the other hand, the sector-wide externalities may be higher for homogenous goods, since the exporters are more similar with respect to products as well as knowledge requirements.

Appendix A: The questionnaire, and summary statistics of the survey data

The questionnaire was in Norwegian, and we have tried to make the English translation below "psychometrically" equivalent. For each question, variable names used in the report are also listed, as well as the unit applied, the mean and the median values, and the number of observations (N). For several variables, an index from 1 through 5 ("Index 1-5" in the tables below) was applied: Respondents were asked to state whether they fully agreed to certain statements (5) or if they completely disagreed (1). In other cases, a similar index was used to indicate the importance of various aspects, with 1=no importance and 5=very important. Yes/No questions were coded as a 1/0 dummy. In some cases, additional variables were constructed based on the survey data; these are marked with an asterisk * and inserted together with the original variables where appropriate.

Table A1: Basic data on firms					
Wording in questionnaire	**Variable name**	**Unit**	**Median**	**Mean**	**N**
Name of firm	See next				81
Identification number of firm	ID*	Number			81
Name and position of respondent					81
When was the firm established?	See next	Year			81
Age of firm	AGE*	Years	15	35.75	81
Year of reported data, if not 2000		**Year**			
Number of employees	EMPLOY	Number	15.5	49.75	80
Total sales	SALES	1000 NOK	70000	292506	80
Share of seafood in total sales (wide definition of seafood, including marine raw materials)	SEAFOOD	%	100	93.75	80
Exports of seafood in 1000 NOK	FISHEXP	1000 NOK	36000	149675	80
Share of seafood sales exported	EXPSHARE*	%	100	65	80
Share of sales based on: Own production	OWNPROD	%	65	54	80
Share of sales based on: Purchase from Norwegian producers	NORWAY	%	20	40.71	79
Share of sales based on: Imports	IMPORTS	%	0	5.81	79
If imports; from which countries:		Countries			14
Number of man-years in sales and marketing related to exports	EXPSTAFF	Number	2	4.14	81
Number of employees in sales and marketing related to exports with minimum 3 years of education from colleges or universities	EXPEDUC	Number	1	2.63	81

Table A1 continued ...					
Wording in questionnaire	**Variable name**	**Unit**	**Median**	**Mean**	**N**
Share of employees in sales and marketing related to exports with minimum 3 years of education from colleges or universities	SHAREEDU*	%	50	52.0	78
Has the firm its own web page (Yes/No)?	WEBPAGE	1/0	1	0.56	81
Share of foreign ownership	FOWNED	%	0	7.85	80
Investment abroad (Yes/No)	INVABROAD	1/0	0	0.26	81
Is the firm part of a larger corporation (Yes/No)	CORPORAT	1/0	0	0.43	81
If yes above: Describe briefly the role of the firm in the corporation	Verbal information				

Table A2: Export markets							
Distribution of the firm's exports on goods and markets 2000 (approximate figures in 1000 NOK)							N=68
Country	Most important products					Years of exporting	Sales office?
	Product 1	Product 2	Product 3	...	...		
(Country names)	(Description)	(Description)	....			(Years)	(x = Yes)
Note: Some firms, especially large ones with exports to many countries, responded to this question by e-mail after the interviews. Some firms reported their exports incompletely. The number of observations N=68 are firms that were considered to report the distribution of their exports fairly completely. 9 firms reported having sales offices abroad.							

Table A3: Currencies, distribution channels and the type of customers						
Wording in questionnaire		**Variable name**	**Unit**	**Median**	**Mean**	**N**
In what currencies are the firm's exports settled (% shares)	NOK	EXPNOK	%	60	55.75	67
	USD	EXPUSD	%	2	18.85	66
	Euro	EXPEURO	%	0	9.76	67
	Yen	EXPYEN	%	0	4.69	68
	Other	EXPOTHER	%	0	6.11	70
Distribution of exports on different sales channels (% shares)	Directly from the firm	DIRECT	%	100	84.49	80
	Via agent	EXPAGENT	%	0	12.95	80
	Via sales office	SALESOFF	%	0	2.38	80
	Other (specify below)	ALTSALES	%	0	0.06	80
If "Other" > 0 above, specify:		Verbal information				1
Types of customers for exports (% shares)	Retailers	CSDETAIL	%	0	11.83	71
	Manufacturers	CSMANUF	%	0	27.32	71
	Wholesalers	CSWHOLE	%	50	49.31	72
	Other (specify below)	CSOTHER	%	0	10	75
If "Other" > 0 above, specify:		Verbal information				15
If the firm has sales offices abroad: Specify the reason why these were established		Verbal information				9

Table A4: Shipments and the number of customers						
Wording in questionnaire		**Variable name**	**Unit**	**Median**	**Mean**	**N**
Number of customers in each market	Lowest	CUSTLOW	Number	1	1.16	68
	Highest	CUSTNIGH	Number	5	8.44	68
	Average	CUSTNO	Number	2	3.69	68
Shipments per customer per year	Lowest	SHIPLOW	Number	12	24.78	65
	Highest	SHIPHIGH	Number	3	25.28	58
	Average	SHIPNO	Number	50	75.67	58
Value of a shipment (1000 NOK)	Lowest	SHVALLOW	1000 NOK	50	129.81	69
	Highest	SHVALHI	1000 NOK	1100	3789.7	70
	Average	SHVAL	1000 NOK	400	853.58	63
Time spent on each shipment	Lowest	SHTIMELO	Man-hours	1	1.77	35
	Highest	SHTIMEHI	Man-hours	4	9.94	34
	Average	SHTIME	Man-hours	1.5	3.32	62

Table A5: Contact with customers and marketing					
General question: How is the contact normally established for the first time with the firm's customers? Indicate importance on a scale from 1 through 5 (1=unimportant, 5=very important, - = do not know).					
Wording in questionnaire	**Variable name**	**Unit**	**Median**	**Mean**	**N**
Meets importers at trade fairs	FAIRS	Index 1-5	3	2.76	80
Is contacted by importers	IMPORTERS	Index 1-5	3	3.18	80
Uses personal contacts	PERSONAL	Index 1-5	5	4.37	81
Travels to the country to find potential customers	TRAVEL	Index 1-5	4	3.45	78
Advertises in local media	ADVERTISE	Index 1-5	1	1.25	81
Maps potential buyers and sends sales information to these	SALEINFO	Index 1-5	2	2.53	80
Uses information from EFF (the Norwegian Seafood Export Council) or meets customers at arrangements held by EFF	EFFINFO	Index 1-5	2	2.10	78
Uses services from the Norwegian Export Council in order to find customers	EXCOUNCIL	Index 1-5	2	1.95	80
The firms attempts build a brand name in order to profile itself toward customers	BRANDING	Index 1-5	3.5	3.06	80
Other (specify)	Verbal information				

Table A6: Statements about the exporting activity					
General question: State whether you agree or not to the following statements (1=completely disagree, 5=agree completely, - = do not know). Note: With respect to the use of resources in the export activity, we are interested in the use of money as well as time/ labour use.					
Wording in questionnaire	**Variable name**	**Unit**	**Median**	**Mean**	**N**
Relationship to customers:					
We sell to the same importers year after year, when a sales channel has been established	LONGTERM	Index 1-5	5	4.56	80
The prices are negotiated with each customer, and vary to some extent even for products of similar quality in the same market	PRICEVAR	Index 1-5	4	3.52	79
Supplementary question: For products of similar quality in the same market, prices may vary with: 0-1%	PVAR_1	Count			6
1-3%	PVAR_3	Count			17
3-5%	PVAR_5	Count			16
5-10%	PVAR_10	Count			19
More than 10%	PVAR_MAX	Count			13
Index of price variation, using lower bounds above	PVARLOW*	Index 0-10	3	4.08	71
Index of price variation, using upper bounds above and 15 for PVAR_MAX	PVARHIGH*	Index 1-15	5	7.35	71
The larger the shipments are, the lower the price	SHPRICE	Index 1-5	2	2.43	81
For very small shipments, we either have top say no or charge a high price to cover the costs	NOSMALL	Index 1-5	5	4.28	80
For new importers, there is much more work involved in settling details related to quality and delivery	NEWIMP	Index 1-5	4	3.95	80
The costs and time used on exports are lower for long-term contracts, since with mutual trust, all details do not have to be reviewed each time	COSTLONG	Index 1-5	5	4.54	79
For each fish species, the buyers are different, so an own network has to be established in each product area	NETPROD	Index 1-5	3	2.88	66
A reputation of reliability and the ability to deliver is crucial in order to succeed as an exporter	RELIABLE	Index 1-5	5	4.63	81
We try to increase our market share by offering better quality than our competitors	QUALITY	Index 1-5	4	3.99	80

Table A6, continued:					
Wording in questionnaire	**Variable name**	**Unit**	**Median**	**Mean**	**N**
Conflicts with the buyer concerning quality and terms of delivery almost never occur	CONFLICT	Index 1-5	4	3.53	81
Choice of markets and costs/time use related to sales in different markets:					
If we export to one country in a region (e.g. Eastern Europe or Asia), the costs and time use when entering another market in the region is much lower	REGION	Index 1-5	3	2.76	58
If you export to one customer in a market, it is much easier to export to another customer in the same market	CUSTLEARN	Index 1-5	4	3.65	74
The costs and time spent on exporting to a country are initially high, and then gradually fall considerably	LEARNING	Index 1-5	3	3.47	81
The costs and time spent on exporting a new product to a market is lower if we already sell other products to that market	NEWPROD	Index 1-5	4	4.03	69
When exporting to a new market, it is an advantage that other Norwegian exporters are already present, since our product or Norway is then known	NORWEXP	Index 1-5	4	3.80	75
Reduced tariff barriers would have lead our firm to export to new countries	TARIFFS	Index 1-5	5	3.94	78
The marketing of seafood by EFF (the Norwegian Seafood Export Council) is important for the firm's exports to some markets	EFFADV	Index 1-5	4	3.31	80
Large markets are more demanding and require more resource use if you are to start exporting	BIGMARKET	Index 1-5	4	3.40	73
The larger the cultural differences, the more resources are needed in order to start exporting to a new market	CULTURE	Index 1-5	4	3.90	67
The employees' earlier export experience from other firms is an important part of the firm's market knowledge	EXPERIENCE	Index 1-5	4	3.53	76
The personal networks and experience of employees are to a large extent decisive for which markets we choose to enter	NETWORKS	Index 1-5	4	3.72	78
Frequently, coincidences are decisive for whether we enter a new market	ACCIDENT	Index 1-5	3	2.94	79

Table A6, continued:					
Wording in questionnaire	**Variable name**	**Unit**	**Median**	**Mean**	**N**
We search for markets where there are no other Norwegian exporters present already	EXCLUSIV	Index 1-5	1	1.93	76
We always undertake a thorough analysis of the market potential before we enter a new market	ANALYSIS	Index 1-5	3	2.82	77
When we enter a new market, we initially charge a low price in order to increase our market share	LOWPRICE	Index 1-5	1	1.81	81
It is difficult to start exporting to markets with a lot of corruption	CORRUPTION	Index 1-5	4	3.38	74
Specify markets where the firm has considered corruption to be a problem:		Countries			35
Risk related to exports:					
The firm always insures against foreign exchange risk	FOREX	Index 1-5	5	3.88	64
The firm always insures itself against payment default by new customers (e.g. by asking for advance payment or credit information)	INSURANC	Index 1-5	5	4.37	81
Payment default by customers almost never occur	PAYMENT	Index 1-5	4	4.17	81
If payment default occurs, specify in which markets:		Countries			34
Delayed payment by customers occurs frequently and is a great problem	PAYDELAY	Index 1-5	3	3.16	80
In markets with a different culture, it is more difficult to distinguish between good and bad customers	CULTRISK	Index 1-5	3.5	3.33	70
Available export credit guarantees are decisive for the firm's exports to some markets	EXCREDIT	Index 1-5	3	3.09	78
A better offer from GIEK (the Guaranty Institute for Export Credits) would have led to exports to new markets from the firm	GIEK	Index 1-5	4	3.24	72
Transportation:					
It is always the exporter that arranges the transportation	EXPTRANS	Index 1-5	4	3.94	81
Unforeseen problems with transportation almost never occur	TRANSPRO	Index 1-5	3	3.43	81
If the distance is doubled, transport costs are doubled	TRANSGEO	Index 1-5	2	1.90	81

Table A6, continued:					
Wording in questionnaire	Variable name	Unit	Median	Mean	N
Standards and product adaptation:					
Exports to a market frequently have to be adapted to binding national quality requirements, veterinary rules or testing requirements	STANDARD	Index 1-5	4	3.99	79
Specify markets where the firm has experienced that veterinary requirements etc. has hindered the firm's exports		Countries			26
The firm is in favour of international harmonisation of quality requirements, standards and veterinary rules	STANHARM	Index 1-5	5	4.46	78
Exports to a market frequently has to be adapted to local patterns of taste and demand, or voluntary standards	DEMAND	Index 1-5	3	3.28	76
Market information:					
The importer tell us what we need to know about regulations in the importing country	IMPINFO	Index 1-5	4	3.52	79
We frequently use information from EFF (the Norwegian Seafood Export Council) about tariffs and other trade barriers in potential export markets	EFFTRADE	Index 1-5	3	3.29	80
To a large extent, we use EFF as a source of information about market potential and demand conditions in new export markets	EFFANAL	Index 1-5	2	2.35	80
When there are already other Norwegian exporters present in a market, we get hold of useful information that facilitates exporting there	NORINFO	Index 1-5	3	3.13	77

Table A7: Estimates on fixed costs						
General question: Try to give an estimate of fixed costs and the use of time related to initiating exports to new markets. What are the components of these costs?						
Note: Due to the great difficulty of these questions, respondents were allowed to give their answers in the unit (1000 NOK, man-hours, man-weeks etc.) that was most easy for them. The responses in time units were later recalculated into 1000 NOK by means of an estimated costs per hour based on information from some exporters (NOK 60000/month, 14000/week, 2800/day, 350.						
/hour). Most exporters also found it difficult to report average estimates as well as low/high estimates, so most firms reported one or the other. An open category ("Other") was also included in the questionnaire, but is dropped below since no firms responded to this.						
Wording in questionnaire		**Variable name**	**Unit**	**Median**	**Mean**	**N**
Establishing a sales channel and contacts/ negotiations with the customer	Lowest	CLOWSAL	1000 NOK	10	31.2	58
	Highest	CHIGHSAL	1000 NOK	100	230.2	61
	Average	CMEANSAL	1000 NOK	30	46.1	10
Obtaining information about the market	Lowest	CLOWINF	1000 NOK	1	6.9	53
	Highest	CHIGHINF	1000 NOK	15	55.9	54
	Average	CMEANINF	1000 NOK	0	16.9	22
Adaptation of products	Lowest	CLOWAD	1000 NOK	0	3.0	55
	Highest	CHIGHAD	1000 NOK	0	50.1	56
	Average	CMEANAD	1000 NOK	0	8.5	43
Lower bound estimates of total fixed costs: Sum of the cost items above (see note below)	Lowest	CLOWTOT*	1000 NOK	10	37.0	63
	Highest	CHIGHTOT*	1000 NOK	123	296	71
	Average	CMEANTOT*	1000 NOK	14	42	48
Note on the calculation of total fixed costs: Since some firms reported high/low estimates, some reported average estimates, and a few firms reported a mixture of the two, the calculation of totals was complicated. The following method was applied:						
- For firms reporting at least two of the cost categories (or one if reporting sales costs) as either average or high/low estimates, the total was calculated as the sum of the reported figures, for the respective variables. For the firms reporting figures for only two categories, we cannot know whether the third item is zero or unknown, hence the totals are lower bound estimates.						
- If the high estimate is missing for one category, but the average estimate for the same category is reported. CHIGHTOT is calculated as the sum high and average estimates. The same applies for low estimates when calculating CMEANTOT. This also leads to downward biased estimates.						

Table A8: Exit and entry in markets	
Wording in questionnaire	N
To which markets has the firm formerly exported, and later withdrawn? (Table of countries/ most important products)	34
What were the reason(s) why the firm stopped exporting to these markets? (Verbal information)	33
Does the firm plan to start exporting to new countries? (Table of countries/ most important products)	37
Reasons why the firm wants to export to these countries (verbal information)	30

Table A9: Regulatory framework and measures to promote the firm's exports	
General question: State briefly possible points of view or suggestions for measures/ improvements in the following areas:	
Wording in questionnaire	N
Marketing of fish in export markets by the EFF (the Norwegian Seafood Export Council)	57
EFF's information about tariffs and other trade barriers	55
EFF's information about market conditions in potential export markets	36
The GIEK (Guaranty Institute for Export Credits) schemes	30
Trade policy measures	51
Other aspects	5

Appendix B: Frequency distributions for index variables						
Note: For the following variables, and index ranging from 1 through 5 was used, with high (low) values indicating either the degree of importance (unimportance), or the extent of agreement (disagreement) with specific statements. In Appendix A, Tables A5 and A6, the variables are described. In the main text, the variables were recalculated to a 0-100 scale, using the formula 100*(INDEX-1)/4.						
Variable	% share of responses for each value of the index					N
	1	2	3	4	5	
Contact with customers and marketing:						
FAIRS	19	30	21	16	14	80
IMPORTERS	9	18	36	23	15	80
PERSONAL	2	2	7	31	57	81
TRAVEL	15	9	21	26	29	78
ADVERTISE	84	7	9	0	0	81
SALEINFO	33	20	19	20	9	80
EFFINFO	37	29	22	9	3	78
EXCOUNCIL	46	26	16	9	3	80
BRANDING	29	10	11	26	24	80
Relationship to customers:						
LONGTERM	0	1	8	25	66	80
PRICEVAR	13	15	15	22	35	79
SHPRICE	38	21	15	11	15	81
NOSMALL	5	5	9	20	61	80
NEWIMP	4	8	18	33	39	80
COSTLONG	0	3	8	23	67	79
NETPROD	27	18	14	21	20	66
RELIABLE	0	1	5	23	70	81
QUALITY	5	6	20	23	46	80
CONFLICT	6	15	27	23	28	81
Choice of markets and costs/time use related to sales in different markets:						
REGION	28	21	16	21	16	58
CUSTLEARN	5	4	35	31	24	74
LEARNING	9	14	28	21	28	81
COUNTRYP	4	3	10	51	32	69
NORWEXP	4	8	21	37	29	75
TARIFFS	12	12	5	15	56	78
EFFADV	13	13	24	34	18	80
BIGMARKET	11	12	25	30	22	73
CULTURE	7	7	10	37	37	67
EXPERIENCE	14	12	12	30	32	76
NETWORKS	12	4	19	32	33	78

ACCIDENT	19	19	27	20	15	79
EXCLUSIV	53	18	16	9	4	76
ANALYSIS	25	14	30	17	14	77

Appendix B, continued...

| Variable | % share of responses for each value of the index | | | | | N |
	1	2	3	4	5	
LOWPRICE	53	22	17	5	2	81
CORRUPTION	17	14	14	23	31	64
Risk related to exports:						
FOREX	17	3	8	19	53	64
INSURANC	5	4	4	25	63	81
PAYMENT	1	4	17	32	46	81
PAYDELAY	11	19	26	30	14	80
CULTRISK	11	14	24	30	20	70
EXCREDIT	31	12	9	15	33	78
GIEK	26	10	13	17	35	72
Transportation:						
EXPTRANS	5	5	25	22	43	81
TRANSPRO	5	14	35	27	20	81
TRANSGEO	41	37	15	6	1	81
STANDARD	6	11	6	29	47	79
STANHARM	5	1	6	17	71	78
DEMAND	14	16	21	25	24	76
Market information:						
IMPINFO	8	13	29	22	29	79
EFFTRADE	15	13	25	24	24	80
EFFANAL	43	5	27	12	13	60
NORINFO	12	16	36	21	16	77

Appendix C: Auxiliary variables constructed from the data set					
Description	**Variable name**	**Unit**	**Median**	**Mean**	**N**
Number of markets and sales per market					
Number of export markets for each firm	MARKETS	Number	5	7.96	69
Total seafood exports for firms that reported the distribution of sales across markets (equal to FISHEXP for firms with non-missing values for MARKETS)	EXPTOT	1000 NOK	30000	141747	69
Average sales per export market (total seafood exports, EXPTOT, divided by number of markets COUNTRIES)	AVGSALE	1000 NOK	7000	12946	69
Fish species/ product types (share of each firm's exports)					
Dried or salted white fish	KLIPFISH	%	0	16.66	70
White fish, except dried or salted	WHITE	%	0	26.38	68
Fish from aquaculture	SALMON	%	0	27.70	76
Pelagic fish (mackerel, herring etc.)	PELAGIC	%	0	12.86	76
Crustaceans etc. (shrimps, shells etc.)	SHRIMPS	%	0	5.54	76
Industrially manufactured seafood and raw materials	INDUSTR	%	0	10	78
Product type according to preservation/ transportation (share of each firm's exports)					
Fresh seafood	FRESH	%	0	24.81	70
Frozen seafood	FROZEN	%	0	33.56	70
Dried or salted white fish (same as above)	KLIPFISH	%	0	16.66	70
Other	OTHER	%	0	24.24	68
Degree of processing:					
Index for the degree of processing, from 1 through 3	PROCESS	Index 1-3	1.5	1.63	80
Entry and exit from markets					
Dummy for firms planning to enter new markets	IN	1/0	0	0.46	81
Dummy for firms having exited from markets	OUT	1/0	0	0.42	81
Shares of exports to different continents (definition of continents according to the classification of Statistic Norway)[25] :					
North-West Europe:	NWESTEUR	%	34	38.97	76
Eastern Europe	EASTEUR	%	0	11.53	76
Southern Europe	SOUTHEUR	%	10	20.71	76

[25] North West Europe is defined as: Sweden, Finland, Denmark, Germany, Austria, Be-Ne-Lux, France, UK, Ireland, Switzerland, Iceland, Faeroe Islands. Eastern Europe is defined as: the former Soviet Union and the Balkan. South Europe is defined as: Frenace, Portugal, Spain, Italy, Greece, Malta, Turkey

Appendix C continued...					
Description		**Variable name**	**Unit**	**Median**	**Mean**	**N**
Asia		ASIA	%	0	13.84	76
Africa		AFRICA	%	0	1.19	76
South America		SOUTHAM	%	0	4.41	76
North America		NORTHAM	%	0	7.5	76
Oceania		OCEANIA	%	0	0.26	76
Dummies for exports to different regions:						
Note: In some cases, the presence in a region is more relevant than the share of exports going there, so in parts of the analysis, regional dummies were used, taking the value of 1 if a region had a share of more than 25% of a firm's exports						
Fixed costs of market entry, expressed as a fraction of AVGSALE above						
Fixed costs on establishing sales channels	Low estimate	SALELOW	%			
	High estimate	SALEHIGH	%			
Fixed costs on obtaining market information	Low estimate	INFOLOW	%		See Table 17 in main text	
	High estimate	INFOHIGH	%			
Fixed costs on adjusting products	Low estimate	ADJLOW	%			
	High estimate	ADJHIGH	%			
Total fixed costs, lower bound (see Table A7 in Appendix A)	Low estimate	TOTLOW	%			
	High estimate	TOTHIGH	%			
Relative costs on handling shipments:						
Low, high and average time use per shipment in hours (SHTIMELO, SHTIMEHI, SHTIME), multiplied by 400 NOK/hour, divided by reported average value of a shipment (SHVAL)		COSTLOW	%	0.06	1.05	28
		COSTHIGH	%	0.4	3.94	27
		COSTAVG	%	0.1	0.92	51

HS number	Description	Price 2000	Brazil	Mexico[1]	USA[2]	Canada	Japan[3]	China[4]	Korea	Poland	EU[5]	Taiwan[6]	Russia
	Appendix E: Tariff levels for Norwegian seafood exports, for selected products in selected markets.												
3021201	Fresh salmon (bred), not fillet	31.53	11.5	30/0	26.1	0	5	14/10	n.a.	0	2/12	15/10	10
3025000	Fresh cod	21.27	11.5	30/0	0	0	10	18/12	n.a.	0	0/12	15/12.5	10
3032101	Frozen trout	35.05	11.5	30/0	0	0	5	14/12	10	0	3.6/12	20/15	10
3032201	Frozen salmon, with head	36.56	11.5	30/0	0	0	5	18/10	10	0	2/2	15/10	10
3035009	Frozen herring	3.46	11.5	30/0	0	0	6	18/10	10	0	15/15	70/60	10
3037401	Frozen mackerel below 0.6kg	6.62	11.5	30/0	0	0	7	18/10	n.a.	0	20/20	101/86	10
3041011	Fresh salmon fillet	54.57	11.5	30/0	0	0	5	27/12	n.a.	0	2/2	24/24	10
3042010	Salmon fillet, frozen	64.16	11.5	30/0	0	0	5	27/10	n.a.	0	2/2	20/17	10
3042033	Frozen cod fillet	37.77	11.5	30/0	0	0	10	27/10	n.a.	0	0.9/7.5	24/20	10
3054100	Smoked salmon	91.32	11.5	30/0	5	0	15	27/14	n.a.	0	13/13	20/10	10
3055103	Stockfish of cod	144.06	0	30/0	0	0	15	27/16	20	0	0/13	20/18	20
3055107	Klipfish of cod	55.31	0	30/0	0	0	15	28/16	20	0	3.9/13	20/18	10
3055903	Klipfish of saithe	21.36	11.5	30/0	0	0	15	28/16	n.a.	0	3.6/12	30/25	10
3056200	Salted cod	35.17	0	30/0	0	0	15	28/16	20	0	0/13	20/18	10
16052003	Frozen shrimps, packets > 2kg	47.93	11.5	23/0	0	0	4.8	21/5	20	0	7.5/20	20/20	20

Notes: The 2000 price is calculated from value/quantity for total Norwegian exports in 2000 (data source: EXPDATA).

- For Mexico, the figure to the left is the MFN rate, while the figure to the right is the final rate to be applied in the EFTA-Mexico free trade agreement. The transition periods vary across products, from immediate elimination to 10 years.

- The tariff for fresh salmon is a combination of an anti-dumping duty of 23% and a countervailing duty of 3% currently in place for Norway, and not an MFN tariff.

- For Japan, the tariffs given here are currently applied rates above the MFN rates. We have not been given an explanation of this.

- For China, the figure to the left is before WTO accession, and the figure to the right will apply after WTO accession, with transition periods varying across products, but generally below 5 years.

- For the EU, figures to the left are tariffs applying to Norway under the current free trade agreements, and figures to the right are MFN rates.

    For Taiwan, the figure to the left is before WTO accession, and the figure to the right will apply after WTO accession, with transition periods varying across products.

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