# Danish subsidiaries in Poland, 2003

by

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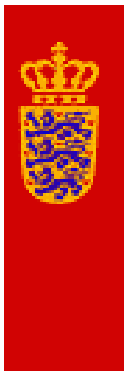
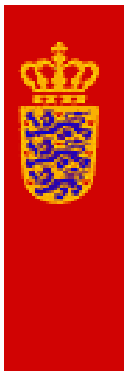


## *Purpose of the study*

This working paper aims to explain the main results of a survey as send out in the summer of 2003 by the Royal Danish Embassy in Warsaw (the Danish Embassy) and Copenhagen Business School (CBS) in cooperation. The Confederation of Danish Industries and the Dept. for International Economics and Management kindly allowed us to adopt and adapt their questionnaire that has been tested among Danish companies many times before (DI, 2003a).

The immediate target group for our paper is the group of firms that responded to the survey. We extend our gratitude to the firms that so kindly and generously have shared with us valuable information making us capable to better understand the internationalisation of Danish companies in Eastern Europe. We hope you will find the report of interest and relevance to your company.

THANK YOU!



***Main conclusions***

- Services are represented with up to 40% of all Danish investments in Poland

- The main motive of Danish investors when entering Poland is to improve market access and establish local production networks

- Danish subsidiaries currently re-export around 15% of their production to Denmark

- Some relocation of activities is taking place but mainly within the more traditional manufacturing activities where Denmark has been losing comparative advantage during the last two decades

- Efficiency levels in Polish subsidiaries are only slightly lower than Danish levels - around 70 percent of Danish levels according to surveyed firms

- Orientation towards home and host government and non-government networks can be important to subsidiary performance when investing in countries such as Poland

- Major changes in investors strategies because of Poland's accession to the EU appear not to be likely within an immediate future according to the already established subsidiaries that were surveyed

## *Methodology*

The survey was send out in July 2003 to all 220 Danish parent companies with subsidiaries operating in Poland according to the official subsidiary list of the Danish Embassy (Danmarks Eksportråd) at that time. Other sources such as PAIZ[1] estimate that more than 300 Danish subsidiaries are currently active in Poland. Our immediate aim with the survey is the target group of ***companies with some de facto value added activities in Poland.***

According to the information collected from the potential respondents to the survey it is estimated that approximately 160 of the companies on the Danish Embassy's list belong to this target group[2]. Among these companies we received a total of 43 replies to the survey. This renders a real effective response rate of almost 25%.

The appendix to the paper address whether these 25% are representative of the overall population of Danish subsidiaries in Poland assuming that the Danish Embassy's list contain all the relevant firms[3]. To the extent this is possible to verify it is shown that the sample is a fairly good mirror of its population. Hence the present survey results may be taken as an indicator of the overall activities of all Danish firms with some foreign direct investment (FDI) in Poland.

Comparing the sample to the population shows that the sample is fairly balanced in terms of major activities even though there is a positive bias in the sample for hi-tech manufacturing firms. Where the sampled firms represent the following industries: chemicals, machinery, electronics and transport equipment. Oppositely is there a negative bias for firms in trade. Finally, is the sample almost exactly representative for firms in traditional manufacturing (including the following industries: food, textiles, paper, non-metallic minerals and furniture) and service industries (represented are: construction, transport, banking and consulting).

[1] PAIZ stands for the Polish Agency for Foreign Direct Investment.
[2] Since close to every 4th company we contacted stated that the survey was not relevant to their current operations in Poland involving no or highly marginal value added activities, for example, a sales subsidiary with just 1 employee.
[3] Besides this group there is also a relatively large group of firms organised under the Danish Textile Branch organisation (DTB). DTB estimates that more than 20 Danish textile firms have had or still have value added activities in Poland. However, most of these firms are currently divesting and moving their production to Ukraine.

The paper is organised as follows. ***Section 1*** introduces survey results with respect to the motives and entry modes of Danish investors in Poland. We try to analyse whether there is any systematic relationship between subsidiary activities and motives and entry modes respectively. ***Section 2*** analyses the information given by the subsidiaries on their integration with global (European) activities. In section 2 we also estimate to which extent Danish subsidiaries in Poland are mainly production or sales oriented when looking at the employment and trade data and investigate whether this is connected to their industry or the product life cycle.

***Section 3*** focuses on the location strategy of all Danish investors and it is investigated with the sample data which factors matter the most when choosing between different production sites in Poland. In ***Section 4*** we evaluate the experiences of Danish investors with respect to investment barriers in local institutions and markets including investors' ratings of labour productivity in Poland. In ***Section 5*** we briefly present the performance of the Danish subsidiaries and analyse the correlation with other firm-specific characteristics. The likely strategic response of the respondent companies when Poland accedes to the EU is also discussed in Section 5.

## *Results*

### 1. SIZE, MOTIVES AND ENTRY MODES

The average subsidiary size, measured by number of employees is almost 400, however, this number covers over a lot of heterogeneity in the sample. There is no apparent correlation between subsidiary size and subsidiary age, the subsidiaries established in the beginning of the 1990s and the more recently established subsidiaries are those of smallest size, whereas some large investments especially into service activities take place during the mid 1990s.

Table 1 shows the size of firms by type of activity. We distinguish between traditional manufacturing activities (typically material and/or labour intensive), hi-tech manufacturing activities (that are knowledge and R&D intensive), services and trade. The exact classification of industries from the NACE 2-digit level into these four activity categories is given in the Appendix.

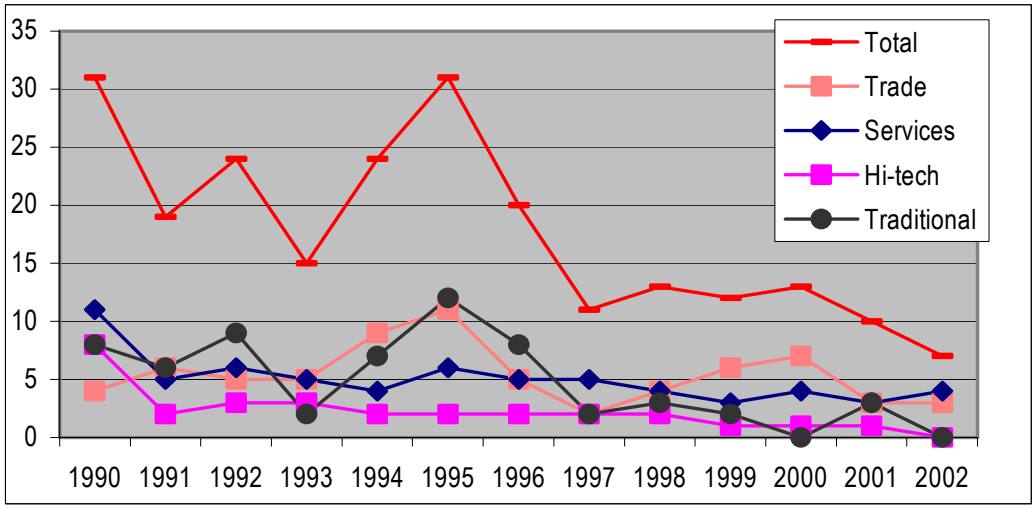
TABLE 1: SUBSIDIARY SIZE BY TYPE OF ACTIVITY, EMPLOYMENT DATA

| *43 respondents* | Traditional Manufacturing | Hi-tech manufacturing | Services | Trade |
|---|---|---|---|---|
| Number of firms | 9 | 10 | 15 | 9 |
| Average size | **231** | **126** | **773** | **196** |
| Standard dev. | 296 | 211 | 2282 | 376 |

As can be verified from Table 1 the service activities appear to vary the most in terms of size, but this is also because of one very large investor. The larger investments into services take place typically later in the 1990s and take over in importance compared to all other types of investment projects by 1998-99. Traditional manufacturing activities are larger (and older) and involve creation of a higher number of jobs in Poland, whereas the hi-tech activities are typically of a somewhat smaller size. Investments in trade (retail and wholesale) are of similar size to those in traditional manufacturing albeit the statistics reflect much larger heterogeneity in terms of size in this activity group.

Figure 1 shows the evolution of new subsidiaries taken from the Danish Embassy's list (total population). Figures for 1990 refer to the stock up to that date as some Danish subsidiaries were active prior to 1989. The total number of established projects peaks in 1995, which is also the year for the largest number of new projects into traditional industries. The frequency with which new subsidiaries are established declines after 1995, however, less so for projects in trade and services than in manufacturing.

FIGURE 1: NUMBER OF DANISH FDI PROJECTS BY MAJOR ACTIVITY, 1990-2002, population




Source: DE (2002): 'List of Danish Enterprises Established in Poland, Danmarks Eksportråd, Udenrigsministeriet.

Table 2 shows the underlying motive with establishing Polish subsidiaries. The results obtained with the survey confirm many earlier research results – namely that the market-seeking motive is dominant also in Eastern Europe (Holland et al., 2000). This is true no matter the type of activity. However, it is also found with this survey that of even slightly higher importance is the establishment of a local production network, e.g. establishing relations with new customers and suppliers in Poland. This motive is especially strong both in traditional manufacturing activities and in services. The search for lower production cost is only very important in traditional manufacturing activities.

TABLE 2: INVESTMENT MOTIVE BY TYPE OF ACTIVITY, AVERAGE SCORE

| *40 respondents* | Total | Trad. Manuf. | Hi-tech Manuf. | Services | Trade |
|---|---|---|---|---|---|
| Lower production cost | 2.56 | **3.66** | 2.00 | 2.85 | 1.37 |
| Lower trade cost[1/] | 2.55 | 2.94 | 2.37 | 2.50 | 2.36 |
| Improve market access[2/] | **3.48** | **3.41** | **3.63** | **3.31** | **3.36** |
| Local production network[3/] | **3.87** | **4.00** | **3.70** | **4.00** | **3.75** |
| Access to new knowledge | 2.41 | **3.00** | 2.11 | 2.07 | 2.62 |
| Access to natural resources | 1.41 | 1.77 | 1.12 | 1.58 | 1.00 |

*Notes*

1: A simple weighted average of scores for 'reduction of barriers to trade' and 'lower transportation cost'.

2: A simple weighted average of scores for 'strengthening the position on the local market', 'facilitate after-sales service' and 'show commitment on the local market'

3: The score for the category 'strengthen co-operation with local customers/suppliers'

Overall is it the traditional manufacturers that appear to have the highest number of rather different location advantages in Poland: market access, network access, lower production cost and access to new knowledge. All other activities are mostly focused on the advantages a subsidiary may have for their level of local sales and networks.

Table 3 shows how the subsidiaries were established including information about the firms' prior experience on the Polish market. We found that hi-tech firms are the most careful when entering the Polish market, e.g. their propensity to have accumulated some experiences through typically exporting activities is very high. Also traditional manufacturing typically has some prior export activity before venturing with a subsidiary in Poland. Oppositely are service firms less likely to have accumulated prior experiences, often for natural reasons since services in many cases can be almost impossible to export. Trade subsidiaries are closer in the establishment chain to exports and hence it is also found here that prior experience is more limited. These observations largely confirm the internationalisation theory stating that especially the less experienced multinational firms (from small countries) are more likely to enter a new type of market such as the Polish in a gradual manner (Johanson and Vahlne, 1977).

TABLE 3: ENTRY-MODE BY TYPE OF ACTIVITY, PERCENTAGE OF FIRMS

| *43 respondents* | Trad. Total | Hi-tech Manuf. | Manuf. | Services | Trade |
|---|---|---|---|---|---|
| Greenfield | 53% | 33% | 60% | 60% | 56% |
| Acquisition | 33% | 45% | 30% | 27% | 33% |
| Joint Venture | 14% | 22% | 10% | 13% | 11% |
| Total | 43 | 9 | 10 | 15 | 9 |
| Firms with prior market experience | 58% | 77% | 90% | 40% | 33% |

Concerning choice of entry-mode there is a large variation in the sample and also across activities. Overall, greenfield entries dominate followed by acquisitions and then joint ventures as the least likely entry-mode. Compared to the huge amount of privatisation opportunities in Eastern Europe it is not in general surprising to find that acquisitions count as a very important entry-mode even among firms from home countries that are relatively inexperienced on the Polish market. But most acquisitions in the present sample (86 percent) are taking place after the privatisation process has been completed.

The propensity to enter by cooperative modes is greater in manufacturing compared to other types of activities. This may relate both to transaction cost considerations by the parent company (e.g. in traditional manufacturing there is less concern over diffusion of frontier technology) and considerations about the nature of the resources transferred to Poland and how well these combine with the local knowledge base of Polish partners. The inherent resources from Poland's socialist system are strongest in the traditional manufacturing activities, whereas more modern industries including service activities were highly underdeveloped. This may make it both more difficult to encounter and also transfer technology to a local partner in activities that are largely underdeveloped in Poland prior to the arrival of foreign investors.

## 2. POLISH SUBSIDIARIES IN THE MULTINATIONAL NETWORK

This section seeks to understand the position of Polish subsidiaries in the context of the multinational network providing for a tighter or loser integration of the subsidiary into the total activities of the firm on a regional or global basis. First we simply look at the direction of turnover from Polish subsidiaries, distinguishing between local market sales, exports to Denmark and third countries (other countries). In good accordance with the data collected on motives it is found that subsidiaries no matter their activity are strongly focused on generating turnover in the local marketplace. Danish exports from Poland is so far a highly marginal activity for most subsidiaries, with on average 12 percent of turnover in Poland being re-exported to Denmark and 5 percent of turnover being exported to other countries.

TABLE 4: LOCAL MARKET VS. EXPORT ORIENTATION, PERCENTAGE OF TURNOVER

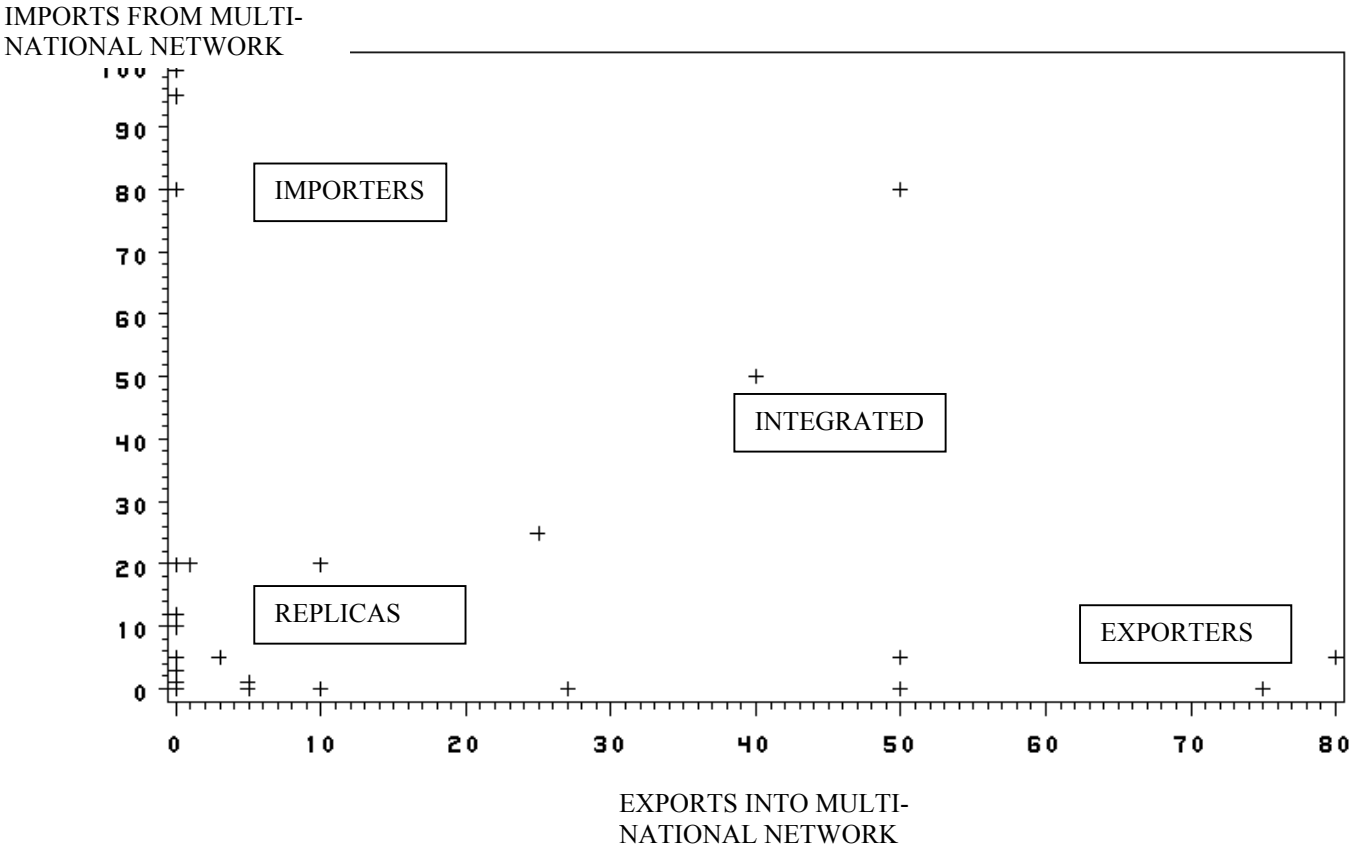
| *42 respondents* | Total | Trad. Manuf. | Hi-tech Manuf. | Services | Trade |
|---|---|---|---|---|---|
| Local market | 83 | 80 | 77 | 80 | 98 |
| Exports, DK | 12 | 15 | 18 | 14 | 0 |
| Exports, other countries | 5 | 5 | 5 | 6 | 2 |
| Total | 100 | 100 | 100 | 100 | 100 |

In combination herewith we also plotted the intra-firm exports and imports of the Polish subsidiary vis-à-vis its multinational network. While Table 4 shows how much of total turnover that is exported either intra-firm or extra-firm, the data in Figure 2 only shows export and import activities taking place within the network of companies that are governed by the same parent.

According to this data plot we find that most subsidiaries are of the 'replica' type, e.g. they are only loosely integrated into the multinational network and mainly serve to produce for the local market. However, the data on Polish subsidiaries also reflect other integration structures. Some firms, and typically those with activities concentrated in trade, serve more as a platform for imports from other production subsidiaries. Oppositely do some Polish subsidiaries also reflect the other extreme, of mainly serving as exporters or providers of some very specific input or value added activity to the multinational network. Finally, a few subsidiaries reflect a high level of integration, e.g. they fit into a tightly knit international division of labour as both importers and exporters of a significant amount of their turnover from and to other

subsidiaries. These observations show the multitude of roles that a subsidiary may play within its network. This is why a singular motive is not likely to dominate in a sample as this reflecting both high heterogeneity in terms of subsidiary activities but also in terms of integration between subsidiary and the multinational network.

FIGURE 2: INTEGRATION OF SUBSIDIARY INTO REGIONAL ACTIVITIES, PERCENTAGE OF TOTAL (*40 Respondents*)

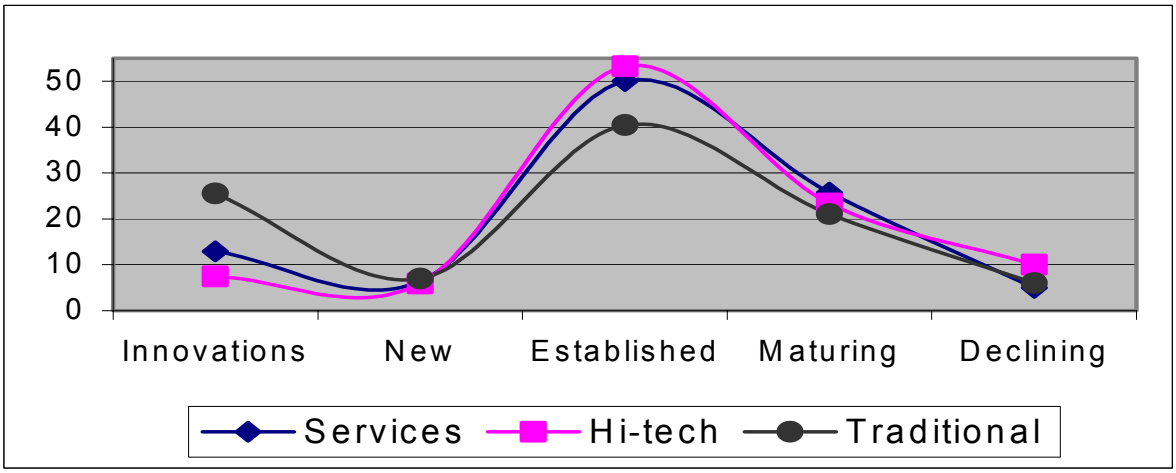



For this same reason and also because some of the questions in particular concerning the product life cycle (PLC) were ill-adopted with respect to trade and service firms, only a little less than 50% of the respondent firms could answer these questions.

The results are shown in Figure 3 and Table 5. Figure 3 simply shows the percentage distribution of products across the PLC for the three activities: traditional and hi-tech manufacturing and services. None of the trading firms were able to answer this part of the questionnaire. This figure conforms fairly well to PLC expectations, that it is mainly products at the established, maturing and declining stages that will be produced in Poland. However,

traditional manufacturing activities do not quite conform herewith and also the other activities show a rather high incident of introducing innovations[4] onto the Polish market. What is observed seems to be a combination of two effects: the conventional PLC approach to the Polish market together with a propensity to test entirely new products and perhaps products that reflect adaptation to local needs.

FIGURE 3: THE LIFE CYCLE OF PRODUCTS PRODUCED IN POLAND, PERCENTAGE OF TOTAL (*19 respondents*)




But since a multinational firm typically has a portfolio of products that are at very different stages of the PLC, different results may be obtained when attempting to benchmark the results in Figure 3. This is what we do in Table 5 using the same information for the parent company concerning both product and employment structure to weigh the subsidiary data with. Hence as a benchmark DK=100 for all the data shown in Table 5. The picture emerging here is rather different, where now the traditional manufacturing activities conform highly to the PLC conception of transferring the largest share of the product portfolio at the mature end of their life. In fact, both maturing and declining products are now highly over-represented on the Polish market compared to Denmark. The same trend is weakly confirmed in hi-tech activities with typically shorter life cycles where the established products are strongly represented on the Polish market. The pattern for service activities is highly different and does not conform to the PLC. In fact there is a stronger tendency for so-called leap-frogging in these service activities as all the first four stages of the PLC are overrepresented in Poland while only declining products are underrepresented. In part this may reflect the need for a much stronger

[4] With innovation defined in the survey as products that are new to the parent firm.

local market orientation concerning new product developments in service industries. However, it may also reflect that actual leap-frogging is taking place, partially made possible due to the very low level of prior experiences among Polish customers with modern service products.

TABLE 5: RELATIVE EMPLOYMENT AND PRODUCT STRUCTURE IN POLAND, DK=100

| *19 respondents* | Trad. Manuf. | Hi-tech Manuf. | Services |
|---|---|---|---|
| Innovations | 83 | 75 | 110 |
| New products | 100 | 67 | 110 |
| Established products | 100 | 116 | 117 |
| Maturing products | 150 | 79 | 120 |
| Declining products | 150 | 0 | 60 |

| *26 respondents* | Trad. Manuf. | Hi-tech Manuf. | Services | Trade |
|---|---|---|---|---|
| Management & Administration | 125 | 186 | 81 | 79 |
| Logistics & Purchases | 165 | 181 | 142 | 107 |
| Production of goods & services | 145 | 29 | 77 | 0 |
| Sales & Marketing | 146 | 363 | 145 | 172 |
| Research & Development | 50 | 23 | 59 | 20 |

The lower part of Table 5 shows in comparison the employment structure in various types of activities benchmarked again with DK=100. Services and trade activities are very similar with an overweight of employees in Poland in market-oriented activities. Services stand out with the overall structure closest to duplication of home country employment structure. This is not surprising due to the nature of services[5]. Hi-tech activities are not very production oriented either and mainly intensive in sales and marketing activities with the Polish subsidiary. Oppositely does the data for traditional manufacturing reflect a strong production orientation and somewhat surprisingly a strong overrepresentation of most activities in Poland except for Research & Development. This confirms that some relocation of activities is taking place but mainly within the more traditional manufacturing activities where Denmark has been losing comparative advantage.

[5] For example, services can rarely be produced for stock but must be consumed in the instance they are produced.

## 3. LOCATION STRATEGY

Figure 4 shows the location of Danish subsidiaries by major Polish regions (new voivods) of which there are 16. Half of all investors are located or have their headquarters in Warsaw or surrounding cities in the Mazowieckie region. However, this is not necessarily a reflection of the actual location of productive activities, especially in the case of services that are dispersed but have their headquarters in the Capital. Other important regions for Danish investors are the Wielkopolskie region around the other major Polish hub of Poznan. Asides the major hubs investors are concentrated in the North with port access to Denmark. Remaining investors are spread over the South and Eastern parts in Poland in very low number.

FIGURE 4 – Danish subsidiaries (headquarters) by Polish regions, population


Source: DE (2002): 'List of Danish Enterprises Established in Poland', Danmarks Eksportråd, Udenrigsministeriet.

The data evaluating investors' choice of production site are shown for the Danish investors in Table 6. Respondents are asked to attach importance to the various factors behind their location choice from 1 (not important) to 4 (very important). An important motive for choice of regional location in Poland is connected to the acquisition entry-mode where choice of location is part of the entry-mode strategy. Therefore most investors in the sample entering by acquisition did not attach much importance to other location aspects. Among the other respondents the dominant motive for choice of regional location is again market-related and decided by the proximity to the investors' main markets in Poland. Proximity to harbours and Denmark range score below average and is only very important to a few investors especially within transport. The second most important determinant is traditional clusters in Poland associated with the subsidiaries' activities also scoring above average. Finally, special incentives were only important to firms in traditional manufacturing when choosing among different investment sites.

TABLE 6: LOCATION OF DANISH SUBSIDIARIES INSIDE POLAND, AVERAGE SCORE

| *41 respondents* | Trad. Manuf. | Hi-tech Manuf. | Services | Trade |
|---|---|---|---|---|
| Traditional clusters | **2.55** | **2.44** | **2.35** | **2.22** |
| Proximity to harbours and DK | 1.78 | 1.55 | 1.92 | 1.55 |
| Proximity to main markets | **2.55** | **2.80** | **3.38** | **3.22** |
| Special incentives | **2.33** | 1.55 | 1.61 | 1.33 |

## 4. LOCAL EXPERIENCES OF DANISH INVESTORS

The remaining parts of the survey focus on the evaluation of investors in view to their experiences of operating and producing in Poland.

In this short section[6] focus is on experiences with respect to barriers that Danish subsidiaries encounter and in relation to employing Polish labour. In Table 7 an overview is given of the respondents' scores on three overall type of barriers associated with local conditions of: government, infrastructure and labour market. Scores on barriers are not on average high (above the average being 3 in this case). Overall investors experience mainly institutional barriers associated with the practices of local or national government in Poland. This is

[6] See also DI (2003b).

particularly true for investors in services and trade. Main barriers associated with governments and local institutions relate according to the specific scores in the survey to legislation, regulation and bureaucracy. These are still the most important barriers associated with operating in a transition environment according to the investors. Infrastructure barriers were perceived to be close to medium on average by all investors except those with operations in traditional manufacturing. Finally, service investors encounter the most barriers associated with the local labour market. But across all investors also language and cultural differences scored above average within this subcategory.

TABLE 7: BARRIERS IN POLAND, AVERAGE SCORES

| *41 respondents* | Total | Trad. Manuf. | Hi-tech Manuf. | Services | Trade |
|---|---|---|---|---|---|
| Government barriers[1/] | 2.89 | 2.55 | 2.64 | **3.15** | **3.07** |
| Infrastructure quality[2/] | 2.53 | 1.91 | 2.66 | 2.64 | 2.86 |
| Labour market barriers[3/] | 2.53 | 2.41 | 2.12 | 2.81 | 2.59 |

*Notes:*

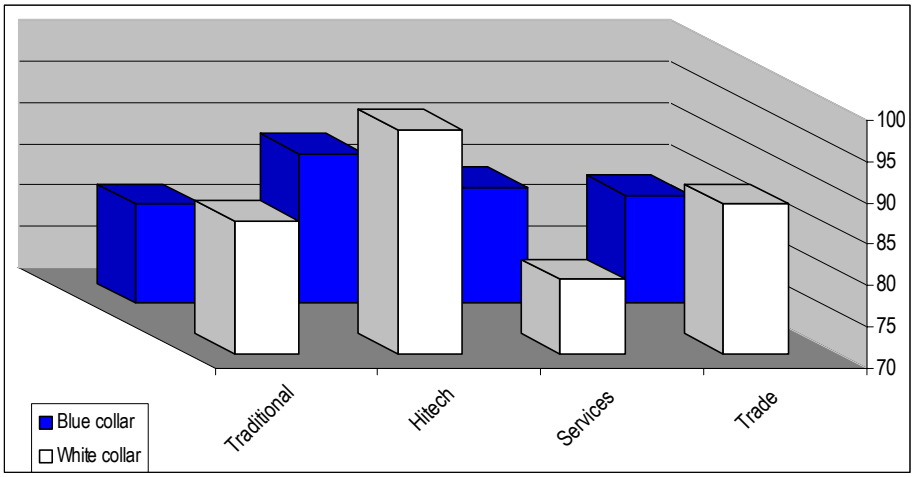
1: The simple average of scores for barriers associated with legislation, government regulation, bureaucracy, technical barriers and corruption. Of these both legislation, government regulation and bureaucracy score above 3 on average.

2: The simple average of scores for physical and financial infrastructure, trust among business partners and unfair business practices. None of the infrastructure barriers score above 3 on average.

3: The simple average of scores for suitably trained labour, sufficient supply of labour and language and cultural differences. Here only language and cultural differences score above 3 on average

Figure 5 shows the data provided by respondents with respect to their perceived efficiency of Polish labour. It should be noted that labour productivity in Poland is at 38-45% of the EU average (EUROSTAT, 2001). Hence the data collected with this survey confirms that investors through a concerted effort of investments in modern production methods, reorganisation, training and technology transfer are able to raise the efficiency of the labour they hire locally.

FIGURE 5: EFFICIENCY OF POLISH EMPLOYEES, DK=100 (*31 respondents*)




In many instance individual investors actually perceived few differences between efficiency levels obtained in Denmark and Poland. Figure 5 shows that on average efficiency levels are lower but rarely lower than around 70 percent of Danish levels. Investors in hi-tech activities have the best experiences, e.g. they are capable of obtaining the best results when transferring their firm-specific assets in terms of efficiency obtained. It is also found that blue-collar workers are perceived to be comparatively less efficient whereas white-collar workers are perceived to perform extremely well. One reason for this may also be lower capital intensity on the floor in Poland. In this respect, services stand out as an exception which may owe partly to the fact that white collar labour is hired for more 'production'-related types of activities in services, but may also very well reflect the lack of experience, education and training of Polish labour in these same activities.

## 5. PERFORMANCE & FUTURE STRATEGY

The only meaningful performance indicator collected with the survey (a qualitative indicator) is found not to vary systematically across the four types of major activities that are central to the analysis in this paper. Table 8 shows the score on the qualitative performance indicator by the respondents to the survey. Almost half of the subsidiaries covered are found to perform worse than the investors had originally expected while only a quarter have been positively surprised by the Polish subsidiary's performance.

A simple correlation analysis was undertaken across all firm-specific factors included in the survey to find if any systematic characteristics across the sample could be correlated with the

investor's perception of subsidiary performance (where respondents could choose between the following answers: better than expected, as expected or worse than expected). The results of this analysis are shown in the lower part of Table 8.

Only one factor was found to be systematically associated with poor subsidiary performance and that was the case when the subsidiary had been acquired as part of the privatisation process of the acquisition object. Oppositely could a large number of factors be found in isolation[7] to be associated with above average performance. These factors are in order of importance: location in traditional industry cluster, share of innovations introduced by the parent (e.g. strength of ownership advantages of the investor) and related hereto the ability to extract efficiency among Polish workers (which is strongly related to ability to efficiently transfer technology).

TABLE 8: PERFORMANCE AND CORRELATION WITH OTHER FACTORS

| *42 respondents* | Better *(3)* | As expected *(2)* | Worse *(1)* |
|---|---|---|---|
| Performance (*% of firms*) | 25 | 30 | 45 |

| Firm-specific characteristics which are correlated with performance in the sample[1/]: | |
|---|---|
| -Entry by acquisition in privatisation process | -0.31** |
| -Share of innovations introduced by parent | 0.44** |
| -Firms with a natural-resource seeking motive | 0.37** |
| -Location in traditional industry cluster | 0.45*** |
| -Efficiency of blue collar workers | 0.42** |
| -Number of contacts with PAIZ | 0.29* |
| -Network orientation in DK and Poland[2/] | 0.3-0.4** |

*Notes*

1: Simple Pearson correlation coefficients are reported

2: The more importance attached by the firm to institutions in DK and Poland such as the Foreign Ministry, The IØ Foundation, PAIZ, Effect and various aid programs the higher is the performance of the firm

*** The coefficient is significant at the 1 percent level,

** The coefficient is significant at the 5 percent level

* The coefficient is significant at the 10 percent level.

[7] Albeit there may be cross-correlations between these factors.

Then all the questions in the survey with respect to perceived importance of various home and host country institutions to the investor are found positively correlated with performance. This is shown in the last row of the table where the correlation varied somewhat across importance attached to different types of institutions. We interpret this as an indicator of the parent firm being orientated towards or included in networks in Denmark and Poland and the results suggest that being member of these government and non-government networks can be important to subsidiary performance. Closely related hereto it was also found that the actual number of contacts with the Polish investment agency (PAIZ) was positively correlated with the performance variable. Finally, firms investing with a natural-resource seeking motive are also found to systematically exhibit above average performance in Poland.

Table 9 shows the likely strategy response of the responding firms to Poland's EU accession. The dominant share of firms expect to sustain their present strategy, followed in a rather lower order by the strategic responses of increasingly local production (e.g. increase FDI), relocating production further Eastwards and finally reducing local production (e.g. increasing trade relations instead).

TABLE 9: CHANGE IN STRATEGY DUE TO POLAND'S EU ACCESSION? (*39 respondents*)

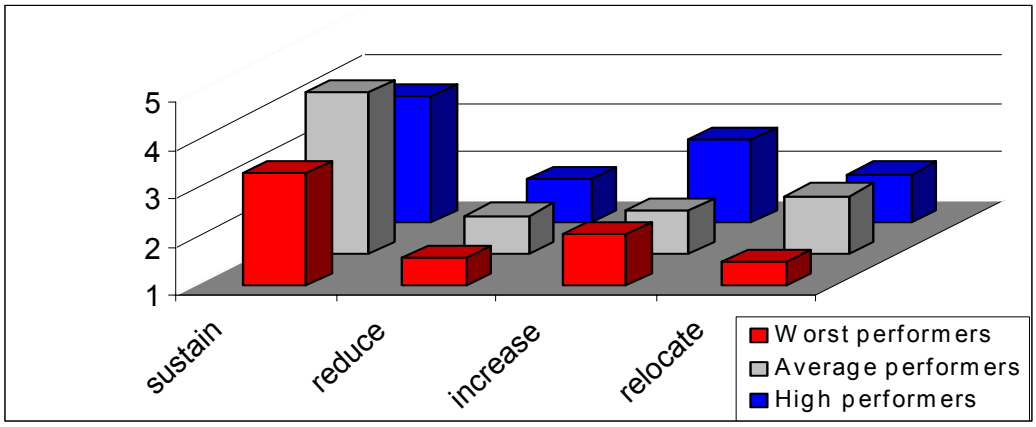
| Potential strategic responses: | Average score |
|---|---|
| To sustain the present strategy | **3.82** |
| To reduce local production and import more | 1.71 |
| To increase local production and import less | 2.17 |
| To relocate production to other countries or regions | 1.83 |

Hence major changes in investors strategies because of Poland's accession to the EU appear not to be likely within an immediate future according to the data collected with the survey. A major change could perhaps instead be expected through a renewed increase in number of new subsidaries over the next few years. In comparison a recent survey of the largest investors in Central and Eastern Europe showed that 68% of investors plan to implement a more regional strategy once the countries come into the Union, e.g. responding at the individual country level either by increasing FDI or reverting to trade (PWC, 2003).

Figure 6 shows that strategy orientation may vary somewhat depending on the investor's own perception of subsidiary performance. The best performers (performance has been better than

expected) are also those that are most likely to either sustain their present strategy or increase their production in Poland. Whereas the average performers (stating performance has been as expected) are those more likely after sustaining their present strategy instead to relocate their production to other countries. Finally, the worst performers (experiencing worse performance than expected) are those with the overall least pronounced strategic responses because of Poland's EU membership.

FIGURE 6: STRATEGY CHANGE AND PEFORMANCE (*39 respondents*)



## *REFERENCES*

DE (2002): 'List of Danish Enterprises Established in Poland, Danmarks Eksportråd, Udenrigsministeriet.

DI (2003a): *Danske virksomheders etableringer i udlandet – Etableringsundersøgelsen 2003*, Dansk Industri.

DI (2003b): *En slagkraftig og barrierefri Østersø region? – Spræng murbrokkerne væk*! Dansk Industri.

DS (2003): *Dansk Branchekode 2003*, Danmarks Statistik.

EUROSTAT (2001): 'Candidate Countries – Labour productivity and remuneration levels just over 40% of EU average', *EUROSTAT News Release*, no. 55/2001, 22 May 2001, The Statistical Office of the European Union, Bruxelles.

Holland, Dawy, Magdolna Sass, Vladimir Benacek and Miroslaw Gronicki (2000): 'The determinants and impact of FDI in Central and Eastern Europe: a comparison of survey and econometric evidence', *Transnational Corporations*, Vol. 9, no. 3.

Johanson, J. and J.-E. Vahlne (1977): 'The internationalisation process of the firm – a model of knowledge development and increasing foreign market commitments', *Journal of International Business Studies*, vol. 8., no. 1.

OECD (1995): *Industry and Technology – Scoreboard of Indicators 1995*, Organisation for Economic Co-operation and Development, Paris.

PWC (2003): 'The Impact of EU Enlargement', Price Waterhouse Coopers, Bruxelles.

Vernon (1966): 'International Investment and International Trade in the Product Cycle', *Quarterly Journal of Economics*, no. 80, pp 190-207.

## *APPENDIX*

A1. SAMPLING

This appendix demonstrates the biases in the sample of firms compared to the population of Danish subsidiaries active in Poland according to the Danish Embassy's subsidiary list. Sample and population is compared in terms of main characteristics of major activity, year of investment and regional location in Poland.

TABLE A1: SAMPLE AND POPULATION BY INDUSTRY

| | Total | Trad. Manuf. | Hi-tech Manuf. | Services | Trade |
|---|---|---|---|---|---|
| Population | 236[1/] | 62 | 31 | 69 | 70 |
| Sample | 43 | 9 | 10 | 15 | 9 |
| Sample/Population | 19 | 15 | 32 | 21 | 12 |

*Notes*

1 The figures do not sum to 236 as there are 4 projects in primary production in addition to the activities mentioned in the table.

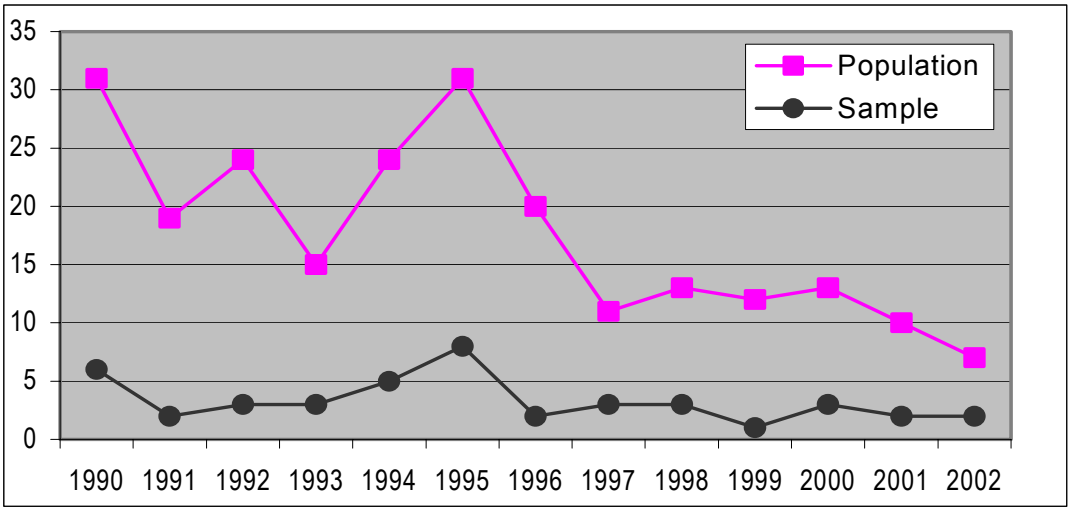
Source: DE (2002): 'List of Danish Enterprises Established in Poland, Danmarks Eksportråd, Udenrigsministeriet.

Table A1 shows the distribution of population and sample according to the major activities reported for the Danish subsidiaries in Poland. Comparing the sample to the population in the last row shows that the sample is fairly balanced in terms of major activities even though there is a positive bias in the sample for hi-tech manufacturing firms and a negative bias for firms in trade. Oppositely is the sample almost exactly representative for firms in traditional manufacturing and service industries. It is not clear why hi-tech manufacturing firms have had higher propensity to answer the survey while those in trade have had lower propensity. This may be entirely random. However, there may be a bias in the construction of the survey to lead to de-selection of firms in trade. Many of the smallest trading subsidiaries explained that the survey was in many aspects not relevant to their current operations in Poland.

Figure A1 below show the comparison between population and sample in terms of year of establishment for the projects. Unfortunately there are no size indicators (employment or sales) available for the population as a whole and hence it is only possible just to compare in

terms of project counting. The Figure shows that the sample matches the population quite well with respect to year of establishment and that the de-selection among respondents with older projects is weak and less than one could have feared since older investors have difficulty answering some of the questions such as those relating to entry-mode and especially if the staff involved in the establishment of the subsidiary no longer with the firm or have changed to other assignments. Some firms noted this problem and could not answer all questions especially related to all aspects of entry-mode.

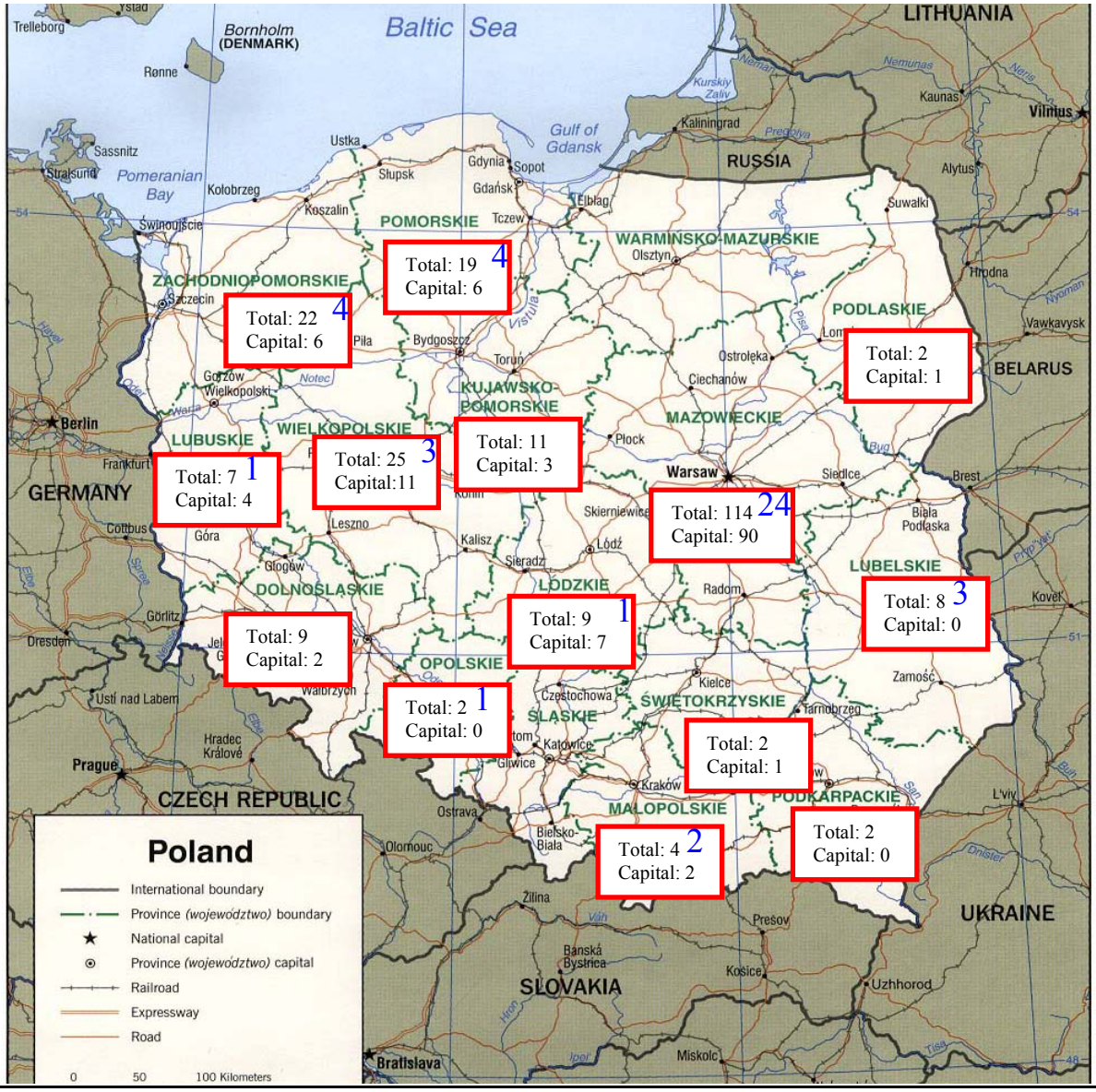
FIGURE A1: POPULATION AND SAMPLE BY YEAR OF ESTABLISHMENT, NO. OF PROJECTS




Source: DE (2002): 'List of Danish Enterprises Established in Poland, Danmarks Eksportråd, Udenrigsministeriet.

Finally Figure A2 shows the distribution of the sample among Polish regions compared to the distribution of the population. In case of decentralised service investments with many local outlets the location reported is that of the Polish headquarters as indicated on the Danish Embassy's subsidiary list. The sample reflects fairly well the population especially among the more important regions in Poland – the Pomorskie, Zachodnopomorskie, Wielkopolskie and Mazowieckie regions. The sample is overrepresented for the region Lubelskie and oppositely underrepresented for the Lubuskie region and other less important regions in the South, South-East and North-East of Poland where on average the population of Danish Subsidiaries to draw from is very small.

FIGURE A2: SAMPLE AND POPULATION BY POLISH REGIONS




Source: DE (2002): 'List of Danish Enterprises Established in Poland', Danmarks Eksportråd, Udenrigsministeriet.

## A2. INDUSTRY CONCORDANCE

TABLE A: CONCORDANCE BETWEEN NACE 2-DIGIT AND MAJOR ACTIVITIES

| DESCRIPTION | NACE | ACTIVITY GROUPS |
|---|---|---|
| Manufacturing: | | |
| Food and beverages | 15 | Traditional |
| Tobacco | 16 | Traditional |
| Clothing | 18 | Traditional |
| Paper | 21 | Traditional |
| Printing | 22 | Traditional |
| Chemical | 24 | Hi-tech |
| Non-metallic minerals | 26 | Traditional |
| Machinery | 29 | Hi-tech |
| Electronics | 30-33 | Hi-tech |
| Transport equipment | 34-35 | Hi-tech |
| Furniture and other misc. | 36-37 | Traditional |
| Services and trade: | | |
| Building and construction | 45 | Services |
| Trade and repair | 50 | Trade |
| Transport | 60 | Services |
| Bank, finance and insurance | 65 | Services |
| Business services | 70 | Services |
| Public services | 75 | Services |

Source: DS (2003): *Dansk Branchekode 2003*, Danmarks Statistik and OECD (1995): *Industry and Technology – Scoreboard of Indicators 1995*, Organisation for Economic Co-operation and Development, Paris.