

Geographic diversification, country distance and export performance

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Abstract

Two alternative diversification strategies, geographic diversification of export sales and concentration on key markets, have been extensively discussed in the extant literature, but the literature has offered no conclusive evidence as to how either of these strategies affects the growth of international sales. The key objective of this paper is to explore diversification patterns through cluster analysis of a population of 2,430 exporters in the Polish manufacturing sector during 2003-2006 with the aim of contributing to a better understanding of geographic diversification as a key dimension of the internationalization process. Based on the cluster analysis, we formulate six propositions in the course of demonstrating that there are significant differences in the diversification between close, integrated groupings, such as the EU, and more distant markets. We also identify a “balanced concentration” strategy as an alternative to the spreading and concentration strategies.

Keywords: Geographic diversification of exports, Market concentration, Country distance, High-growth exporters, Transition economies, EU enlargement.

1. Introduction

The scope of geographic diversification of international operations has been considered in the extant literature to be one of the key dimensions of the internationalization process. It has been argued that, by increasing the number of export markets, a company's internationalization effort becomes more intense because, in addition to its depth, which is typically measured by the foreign sales/total sales ratio (FSTS), increasing the number of export markets also reflects the breadth of internationalization (Thomas & Eden, 2004; Pangankar, 2008). Other dimensions of internationalization intensity addressed in the extant literature include involvement in advanced forms of international operations through international production (Thomas & Eden, 2004; Jones & Coviello, 2005) and product diversification (Chang, 2007).

Two alternative strategies for diversification—widespread diversification across a number of countries and concentration on key destination markets—have been discussed in the extant literature as they apply to large multinational companies and to smaller firms engaged in international operations primarily through exports and imports. However, thus far, no conclusive evidence has been offered as to how these alternative strategies or their combination affect growth of international sales. Moreover, there is little evidence or understanding of patterns in international diversification or of the ways that concentration and broad diversification interact in the internationalization process—particularly in terms of how these strategies affect the dynamics of that process. This insufficient empirical base impedes the advancement of research that could lead to meaningful recommendations for managers and policymakers.

The key objective of this paper is to explore patterns with respect to the geographic diversification of export sales in order to augment the empirical base for advanced research. For that purpose, we compiled a database of 15,426 exporters that were active in Poland during 2003-2006, out of which 2,430 firms were systematically selected for a subsequent cluster analysis. Our research focused on export operations because only a handful of Polish firms have established foreign subsidiaries or branch offices, with the latter performing predominantly marketing and sales activities. In fact, in 2006, only 214 Polish companies reported being involved in foreign direct investment (FDI) (GUS, 2007).

The rest of the paper is organized as follows. In the next section, we review the literature on geographic diversification and its role in the internationalization process. Then we describe our procedure for compiling a large dataset of Polish exporters and the methodology

of cluster analysis. Next, we discuss the results of the cluster analysis and formulate six propositions to be validated in future research. In the concluding comments, we describe the limitations of our research and discuss the relevance of empirical analysis that uses large datasets in the IB field.

2. Literature review

Geographic (international) diversification and its impact on company performance has been actively debated in the key research streams of the IB field, particularly those that focus on multinational enterprises, internationalization of SMEs, and born-global companies. In the following analysis, we concentrate on the last two of the three streams of literature because of the nature of Poland's transitional economy, where indigenous firms expand internationally mostly through exports and imports and the number of firms that engage in advanced forms of internationalization, like FDI, licensing and collaboration agreements, remains small.

The literature includes two broad directions of research with respect to the geographic diversification of export sales: The first one investigates the impact of such diversification within the broader framework of the internationalization process, and the second approach focuses on the relationship between international diversification and concentration on key destination markets, viewing it either as a trade-off (a concentration versus diversification debate) or an effective combination of the two (an ambidexterity strategy).

1.1. The role of diversification in the internationalization process

In the incremental process model, firms add new export markets gradually as they move from markets in close proximity to more distant ones and gain experience. Within this theoretical framework, the use of a large number of export markets and a significant number of distant markets reflects a high degree of exporting maturity in a firm engaged in the internationalization process. The number of markets served is also positively correlated with the age of the firm, as is its size (McNaughton, 2003).

The literature on new international ventures and the born-global phenomenon views geographic diversification not only as the key dimension of the internationalization process (Oviatt & McDougall, 2005), but also as a constituting factor for a newly internationalized firm to qualify as an international new venture ("born global"). We refer specifically to an early definition that stipulates that such a venture ". . . from its inception, derives resources from multiple countries and is geographically unlimited in its creator's vision and its

potential” (Oviatt, McDougall, Simon, & Shrader, 1991); a similar definition can be found in Madsen and Servais (1997). Since early-internationalizing firms do not possess established operating routines geared toward domestic markets, they are quicker to absorb required knowledge about dealing with foreign markets and to change their processes to accommodate the needs of these markets more efficiently (Autio, Sapienza, & Almeida, 2000). As a result, early internationalization has a positive impact on the level of geographic diversification (McNaughton, 2003).

The arguments in the extant literature are somewhat at odds with regard to the combined effects of differences in the language, culture, consumer behavior, legal framework, and so on which impede the flow of information and result in uncertainty on the foreign markets. These differences are termed “psychic distance” or by the somewhat broader term “country distance” (Jones & Coviello, 2005). Some authors have argued that such distance is less important for firms that expand the geographic scope of their operations and that it gives way in importance to selecting the most promising export markets (Morgan-Thomas & Jones, 2009). Firms operating in the high-tech, knowledge-based industries are particularly inclined to focus from their very inception on “lead markets,” with their home markets being just one of them. Consequently, it may happen that exports precede domestic sales during the initial stage (Bell, McNaughton, Young, & Crick, 2003). On the other hand, Preece, Miles and Baets (1998) pointed to a difference between operating internationally and operating truly globally. In the case of young technology-based firms, “going international” is typically a must because of their small domestic markets within narrowly defined industry segments (Kudina, Yip, & Barkema, 2008), while “going global” is a deliberate strategy based on a careful examination of potential benefits and risks involved. Typically, global diversity occurs over a longer period of time, requires building necessary capacities, and is usually associated with companies of a certain size and age. Achieving truly global exposure tends to be possible only for sizable, mature companies.

The criterion for diversification used by Kuivalainen, Sundqvist and Servais (2007), serving distant markets, is used in order to distinguish true born-global firms. Similarly, Luostarinen and Gabrielsson (2004) suggested that a truly born-global firm must have business activities in at least two geographic regions.

A number of factors underlie a direct, positive relationship between international diversification and performance (Zahra, Ireland, & Hitt, 2000). Entering new markets naturally enables a company to exploit new market opportunities, but the company may also gain access to various key resources as well as benefits from extended business networks.

The learning-from-exporting argument advanced by Salomon and Shaver (2005) is particularly relevant here: exporters receive valuable marketing and technological knowledge while operating in an international environment.

Lu and Beamish (2006), who investigated the impact of internationalization on a firm's growth and financial performance, also pointed to the learning-from-exporting effect as a factor that facilitates building, on the basis of initial experiences, strong capabilities that enable implementation of comprehensive strategies and thereby contribute to accelerated growth. The learning process accelerates with the number and diversity of foreign markets being served, particularly when previous experiences in some of the export markets have been positive, thus increasing the company's commitment to internationalization (Lages, Lages, & Lages, 2006). Additional advantages stem from the fact that a broadly diversified market scope stabilizes the company's earnings as a result of uncorrelated economic cycles in different countries.

2.2. Diversification versus concentration

The apparent trade-off between a wider geographic diversification and a concentration on the key destination markets has been subject to substantial debate, particularly in the export management literature and has been coined as the concentration versus spreading debate (Crick, Chaudry, & Batstone, 2000; Katsikea, Theodosiou, Morgan, & Papavassiliou, 2005). A number of arguments have been formulated that point to the rationales behind pursuing one approach or the other, although the debate has resulted in no conclusive findings other than that various situational factors play an important role in the choice (e.g., Piercy, 1982). Katsikea et al. (2005) pointed to the long-term advantages of the spreading strategy in terms of the effectiveness of sales management and personal selling activities. The key argument, in line with the learning-from-exporting concept, is that spreading accelerates the process of accumulating diversified knowledge and experience, thus improving the skills and competencies of staff involved in the international operations.

In the spreading-versus-concentration debate, the negative relationship between the number of markets served and the percentage of them that are key markets seems obvious since, the larger the proportion of goods that is channeled to a smaller number of key export markets (in the extreme case, to a single destination), the less is left for sale in other destinations. In reality, however, exporters may pursue both strategies simultaneously; exports can be highly concentrated (e.g., 80% of exports go to one destination) and also serve

a large number of markets at the same time (the remaining 20% are thinly spread among a large number of distant markets).

The decision between international diversification and concentration on key markets has been addressed in the born-global literature, but the simultaneous implementation of both the concentration and the diversification strategies is particularly relevant here. After conducting a survey of studies on international marketing strategies, Aspelund, Madsen, and Moyen (2007) argued that the apparent success of some new international ventures lies in their effective implementation of both concentration and geographic spreading. A similar conclusion was derived from the research conducted by Crick and Jones (2000), who found that born-global firms tend to employ a market-spreading strategy because they actively search for opportunities globally while also focusing their resource commitment on their most important markets. In addition, research conducted by Morgan-Thomas and Jones (2009) demonstrated that firms that internationalize rapidly enter a larger number of foreign markets, while at the same time relying heavily on their key export markets, than do firms that follow less aggressive internationalization strategies.

A more refined formulation of the simultaneous use of the concentration and spreading strategies is to adopt the concept of ambidexterity (March, 1991) to international operations. Ambidexterity points to the need for a simultaneous pursuit of exploratory strategies in new markets and efforts to exploit opportunities in established markets (Barkema & Drogendijk, 2007; Cellard & Prange, 2008).

However, widespread geographic diversification is not without risks, particularly for SMEs that internationalize early. Pangarkar (2008) argued that SMEs are not simply smaller versions of larger companies but, because of their characteristics, are confronted with numerous constraints in the internationalization process that are particularly relevant to the pace of geographic diversification. For example, SMEs do not regularly scan information on a global scale, so they frequently overlook vital opportunities in international markets. They also lack management resources that can be freed from day-to-day management and assigned to special projects related to opening new markets. Once an SME's presence in the overseas markets has been established, a limitation to its further expansion stems from a scarcity of managerial capacity and the lack of a material infrastructure for effective communication and coordination of an extended network. For SMEs at this stage, a proactive and well planned geographic expansion strategy is preferable (Eusebio, Andreu, & Belbeze, 2007) to the SMEs' early experiences with initiating exports without prior plans, for example, by responding to unsolicited orders (Bilkey & Tesar, 1977). The proactive adaptation and

creative replication of operating patterns from the early markets to new ones also depends on the fungibility (Autio, 2005) and “scalability” of resources, which generally reflect the firm's preparedness to expand internationally (Zhou & de Wit, 2009). Therefore, we conclude that, despite a generally positive connotation of the global diversity strategy, such a strategy involves significant risks, particularly for young firms with human resource constraints and limited operational experiences.

3. Data collection and analysis

The extant literature has generally concluded that geographic diversification, an important dimension of the internationalization process, is a positive strategy, particularly when it encompasses both “close” and distant markets. However, findings related to a more detailed investigation of the impact of the geographic diversification are more ambiguous, particularly with regard to the impact of serving close versus distant markets and the comparative value of the spreading alternative versus the concentration alternatives. These areas are under-researched, particularly with regard to the internationalization of SMEs, and there is no empirical base sufficient for testing the existing concepts and eliminating the apparent inconsistencies.

Therefore, the aim of this exploratory research is to augment the empirical base by identifying general patterns in the geographic diversification of exports sales, using Polish domestic firms during 2003-2006 as an example. Based on that augmentation, we will formulate relevant propositions that can be addressed in future research.

3.1. Data collection

Our analysis of export sales, with a particular reference to geographic diversification, was conducted on a large micro data set containing export sales of all Polish exporters engaged in the commodity trade during 2003-2006. The input data was provided by the Foreign Trade Data Centre (FTDC) and the Analytical Centre of Customs Administration (ACCA), public agencies responsible for compiling and processing customs documentation and statistics on Poland's export/import commodity turnover. Until 2003, all exporters were obliged to submit relevant data but, after 2003, with Poland's accession to the EU, this requirement was waived for exporters that exported less than 800,000 PLN annually (approximately USD 230,000). To ensure reasonable consistency, we initially selected from the entire population of exporters 15,426 that were exporters during every year in the 2003-2006 period and that

exceeded a minimum threshold of 800,000 PLN in their sales volume in 2006. These 15,426 exporters became a core population for our analysis, referred to as the FTDC-ACCA database.

Next, we excluded from this core population all subsidiaries of multinational companies because their operations and geographic diversification of export sales are largely dependent on their links with their parent companies and other firms within their international production and sales networks. Among the remaining 12,108 exporters, 7,237 (60%) were manufacturing firms. We decided to focus on the manufacturing sector because the second largest category of exporters was trading companies, which operate merely as intermediaries in the export process. We also excluded service firms because customs procedures focus only on the commodity trade, and the available data on service firms were not useful for the analysis of their export performance.

Unfortunately, we did not have access to economic and financial company data for 2003-2006, other than exports sales and their composition, so we were not able to use the most popular measure in the internationalization literature—the FSTS ratio—nor were we able to apply revenue and employment figures that reflect the overall size of the company operations.

3.2. Analysis

In order to capture fully the diversity of the firms in the population of exporters, we divided the population into four groups based on two criteria: (i) export growth ratio during 2003-2006 and (ii) psychic or country distance, as reflected in the concentration of export activity on “close” versus “distant” markets.

Export growth ratio. The growth-of-sales variable is one of the most frequently used performance measures in the internationalization literature, exceeded only by the FSTS ratio. An important argument in favor of initially categorizing the population of manufacturing exporters by the growth rate of export sales came from the initial analysis, which identified a great diversity in export growth ratios during 2003-2006 (Table 1). Taking into account that this period was very prosperous for the Polish manufacturing sector, with an annual growth rate (at current prices) exceeding 14%, the declining trend in the case of some 25% of the sample is unusually pronounced and probably reflects certain divers circumstances that are not necessarily related to export operations but to the functioning of the company in general. To address this issue, we would need to investigate the overall performance of the firms in question, not just their export operations. Because key economic and financial data are

unavailable to facilitate such analysis, we have excluded from the base population firms that experienced declining export sales during 2003-2006.

Because of the lack of commonly agreed measurements related specifically to the growth of exports, we adopted recent definitions and conventions advanced by the OECD (OECD, 2008) in order to identify high-growth firms. The proposed format stipulates that annualized growth rates be measured over a minimum period of three years. High-growth firms are those that achieve over 20% annualized growth of sales and/or employment; to eliminate cases where high growth is exclusively the result of very low base values and to allow for meaningful comparative analyses, the proposed methodology introduced a minimum threshold level of 10 employees in the base year. Consequently, the firms below such a threshold in the base year were eliminated from the growth analysis. Since we did not have access to employment data, we adopted, as a surrogate, the minimum threshold for the small exporter category used in the customs data processing (800,000 PLN annually ~ 230,000 USD). Thus, the remaining 2,430 exporting firms eventually included in the cluster analysis all achieved positive growth rates during the period 2003-2006 and reached the minimum threshold of 800,000 PLN in export sales in the base year (2003).

Country distance. Two key arguments can be made for using country distance as the second measure for the initial categorization of the population of exporters. First, this measure has been advocated (Pangarkar, 2008) as a way to alleviate some important weaknesses of number of markets, the more popular measure for geographic diversification. Second, we wanted to assess the initial impact of Poland's accession to the European Union in May 2004. The EU market, the most important export destination for Polish firms (see the data on export distribution in Table 1) and generally close in terms of location, culture, legal framework, and so on, has become even closer since May 2004. Although certain trade barriers were removed long before this date, some cumbersome obstacles (e.g., border and customs controls) disappeared only on the accession date. Also important is that the widespread promotional campaign on the EU accession affected the perception of market closeness with respect to the EU regional market by the Polish society in general and the business community in particular.

The initial categorization procedure of the population of 2,430 manufacturing exporters produced four groups of firms:

- (A) high-growth exporters with at least 50% of exports directed to the EU market (950 firms)
- (B) slow-growing exporters with at least 50% of exports directed to the EU market (981 firms)

- (C) high-growth exporters with over 50% of exports directed outside the EU (281 firms)
- (D) slow-growing exporters with over 50% of exports directed outside the EU (218 firms).

Subsequently, we clustered the firms in each sub-group based on two key measures of geographic diversification: (i) the number of export markets and (ii) the percentage of exports going to key markets. To reveal natural groupings (clusters) within each of the four data sets, we used the Two-Step cluster analysis, which groups cases into pre-clusters that are then treated as single cases (Zhang, Ramakrishnon, & Livny, 1997). In the second step, standard hierarchical clustering is applied to the pre-clusters.

Since the Two-Step clustering requires neither a proximity table (like hierarchical classification) nor an iterative process (like K-means clustering), but is a one-pass-through-the-dataset method, it is recommended for very large datasets, such as ours. The algorithm assumes that the continuous variables are independent and follow a normal distribution, and that the categorical variables are independent and follow a multinomial distribution. However, the algorithm is fairly robust to violations of both the independence assumptions and the distributional assumptions (Chiu, Fang, Chen, Wang, & Jeris, 2001). It automatically determines the number of clusters on the basis of either the Schwarz Bayesian Criterion (BIC) or the Akaike Information Criterion (AIC). In our analysis, we used BIC because it is more appropriate than AIC when the goal is exploration, rather than prediction (Kuha, 2004). A researcher may also determine the number of clusters “manually” by examining the Ratio of Distance Measures (Chiu et al., 2001). Based on the changes both in BIC and in the Ratio of Distance Measures, we arrived at four clusters for Group (A), five clusters for Group (B), two clusters for Group (C), and three clusters for Group (D). These clusters’ key characteristics are presented in Table 2 and are depicted graphically in Figures 1a-1d.

4. Discussion

We conducted the Two-Step cluster analysis in order to identify key patterns in the geographic diversification of export sales among domestic manufacturing exporters in Poland during 2003-2006. Based on this analysis, we identify country distance as the most crucial factor affecting the geographic diversification of exports sales. We observe very similar patterns of diversification among manufacturing firms that were focused on the internal EU market, irrespective of their export dynamics; the only real difference is that slow-growing exporters are smaller (in terms of their export volume) than their high-growth counterparts. This finding suggests that the expansion within “close” and integrated regional markets can

be accomplished in a much smoother way than can expansion into new markets that are “distant” not only from the exporting country but also from each other. Based on these insights, we put forward the following proposition:

Proposition 1. *Export diversification patterns within closely integrated markets are different from export diversification patterns in distant markets.*

The cluster analysis demonstrated that concentration versus spreading remains the key strategic choice and can be identified in the case of 74.4% of exporters that provided 81% of the volume of Polish manufacturing exports in 2006. In particular, firms in clusters 1, 5, 6, 10, and 12 choose the concentration strategy (43.7% of exporters), whereas firms in clusters 3, 4, 8, 9, 11, and 14 opt for spreading (30.7%). At the same time, the choice between concentration and spreading is very much affected by the size of the export operation. Large exporters tend to serve large numbers of markets and to have a lower percentage of their exports in key markets, whereas smaller exporters rely strongly on their key export market. (In Figures 1a-1d, for each cluster, the mean value of the export sales in 2006 is depicted by the size of the corresponding circle). These findings generally conform to those reported in the extant literature (McNaughton, 2003). However, the extant literature incorrectly uses overall company size (measured by the total revenues and/or employment) and the volume of export sales interchangeably. The distinction may not be relevant for exporters with high FSTS ratios but, when these proportions are relatively small, there may be a weak relationship between the overall size and the geographic diversification of export sales because the latter may remain at a relatively low level. Thus, we suggest the following proposition:

Proposition 2. *The choice between the concentration strategy and the spreading strategy is primarily dependent on the overall volume of export sales.*

Our cluster analysis helped also to identify a group of manufacturing exporters (clusters 2, 7, and 13) that follow an export diversification strategy that we label a “balanced concentration” strategy. On one hand, these exporters serve a close-to or below-average number of markets in terms of the entire population (10.0 - Table 2). On the other hand, they are able to lower their dependence on the key export market significantly; the average percent share of their key market is below that for the entire population (63.5% - Table 2). Such a

strategy has not been identified in the extant literature although, according to our analysis, it has been followed by almost 26% of Polish manufacturing exporters—both high-growth and slow-growing firms.

At the same time, none of the 14 clusters fell within the “ambidexterity quadrant,” where both the number of markets served and the percentage of exports sent to the lead market are above the mean value for the entire population (the upper-right quadrants in Figures 1a-1d). Nevertheless, we identified 100 firms (approximately 2.5% of the number of firms under study) that did meet the ambidexterity criteria. These “ambidextrous” firms are scattered across all 14 clusters, but 40% of them are in Cluster 2. This group of exporters is highly diversified, with a slightly higher (62%) representation of high-growth exporters than in the entire population (51%).

These findings contradict some of the research results and arguments raised in the extant literature, particularly those that point to the ability of born-global firms to follow the ambidexterity strategy, that is, to exploit existing opportunities in key markets while also undertaking exploratory actions on a range of new markets in order to preparing for future growth (Aspelund, Madsen, and Moyen, 2007). The explanation for this apparent contradiction lies in a shortage of international experiences and a scarcity of managerial capacity and material infrastructure necessary for effective communication and coordination of the geographically diversified operations. Therefore, young, internationalized firms attempt first to expand cautiously, so they diversify into a small number of export markets in order to utilize their scarce managerial, financial and infrastructural resources efficiently. Since large, established exporters have the necessary resources, they can pursue both opportunistic and exploratory export destinations. However, once they have reached such a mature stage, they typically rely on a strong, well diffused base of key markets. While spreading widely across a large number of international markets (including distant ones) can be a tempting option, a more pragmatic route—seeking revenues from a limited number of key markets—can be more effective. Therefore, we offer the following proposition:

Proposition 3. *The “balanced concentration” strategy can be a more viable option for new international ventures than can the strategy of spreading on a broad range of export markets.*

During the course of our analysis, we also investigated two other key firm characteristics that have frequently been identified in the internationalization and born-global research: the age of the exporting firm and the time taken to internationalize (the time between the

company's foundation and the initiation of exporting operations) (McNaughton, 2003). Our findings do not demonstrate the significance of these variables in the context of geographic diversification. Multiple discriminant analysis was used to test the differences among the variables across the clusters within each of the four groups A, B, C, and D. In each case, both firm age and time to internationalization turned out to be statistically insignificant (p -value $> .05$) discriminators among the clusters. The other three variables were found to be statistically significant in differentiating among the clusters. The percentage of cases correctly classified was very high, ranging from 89.9% (for Group D) to 97.8% (for Group A).

The mean values for firm age for all clusters are within the range of 9-11 years (Table 2), so the "learning advantage of newness" argument (Autio et al., 2000) may hold true during the very early stage of export activities. Later, while operating within the rapidly changing international environment, both older and younger SMEs need to adapt quickly and to follow similar strategies and operational routines. Most recent studies (Cieslik and Kaciak, 2008; and Cabrol and Nlemvo, 2009) have shown that, although only a small percentage of internationalized firms become exporters, those that do embark upon internationalization do it relatively quickly after foundation. This conclusion leads to two propositions:

Proposition 4. *Except in the early stages of export activity, company age does not have a strong impact on the diversification of export sales.*

and

Proposition 5. *The time between founding and internationalization does not have a strong impact on the future diversification of export sales.*

Although the initial analysis revealed a significant heterogeneity of exporters in terms of growth rates achieved, the cluster analysis did not reveal strong links between the number of markets served and performance, as measured by growth in export sales; based on the extant literature, such a relationship would be expected but, at this stage, we may only speculate that there are other important variables that moderate the export diversification process. Thus, we suggest the following proposition:

Proposition 6. *There are significant unexplored factors that moderate the relationship between geographic diversification and export performance.*

5. Limitations and conclusions

One limitation of our study stems from our analysis' having been based on a single country. Comparative studies involving a broader spectrum of countries are necessary to validate our findings and separate the impact of country-specific factors, particularly transition-specific conditions that have resulted in the more modest international experiences of Polish exporters compared to their western counterparts. These conditions included restrictions imposed on the private sector under communism and the effective ban on direct export involvements before 1989. As a result, an overwhelming majority of Polish companies engage in export/import operations only, and their involvement in more advanced forms of international involvement is minimal.

We were fortunate to gain access to the entire population of Polish manufacturing exporters (15,426 firms in total), which population was subsequently reduced to 2,430 firms for the cluster analysis through an elimination process. However, the analysis was limited in scope because of the availability of only a narrow set of information on each company, which information lacked basic economic and financial data such as revenues and employment.

Even with these limitations, the cluster analysis helped identify patterns in geographic diversifications of export sales, which we then converted into several propositions worth further testing through alternative methods like mail surveys and case studies. In this under-researched field, introducing an alternative method of analysis based on a large micro data set that represents the entire population of exporters proved to be useful for two reasons. First, in view of the generally weak empirical base for researching export diversification, any opportunity for triangulation of the research results may significantly improve their reliability. The second reason is that certain patterns identified on the basis of large data sets can prompt or inspire the development of new concepts within the mainstream of internationalization research. The "balanced concentration" strategy identified in our cluster analysis calls for a thorough examination, and there is a need to expand the research on the relationship between diversification and export performance. The cluster analysis indicated that this relationship is much more complex than the research carried out thus far would suggest.

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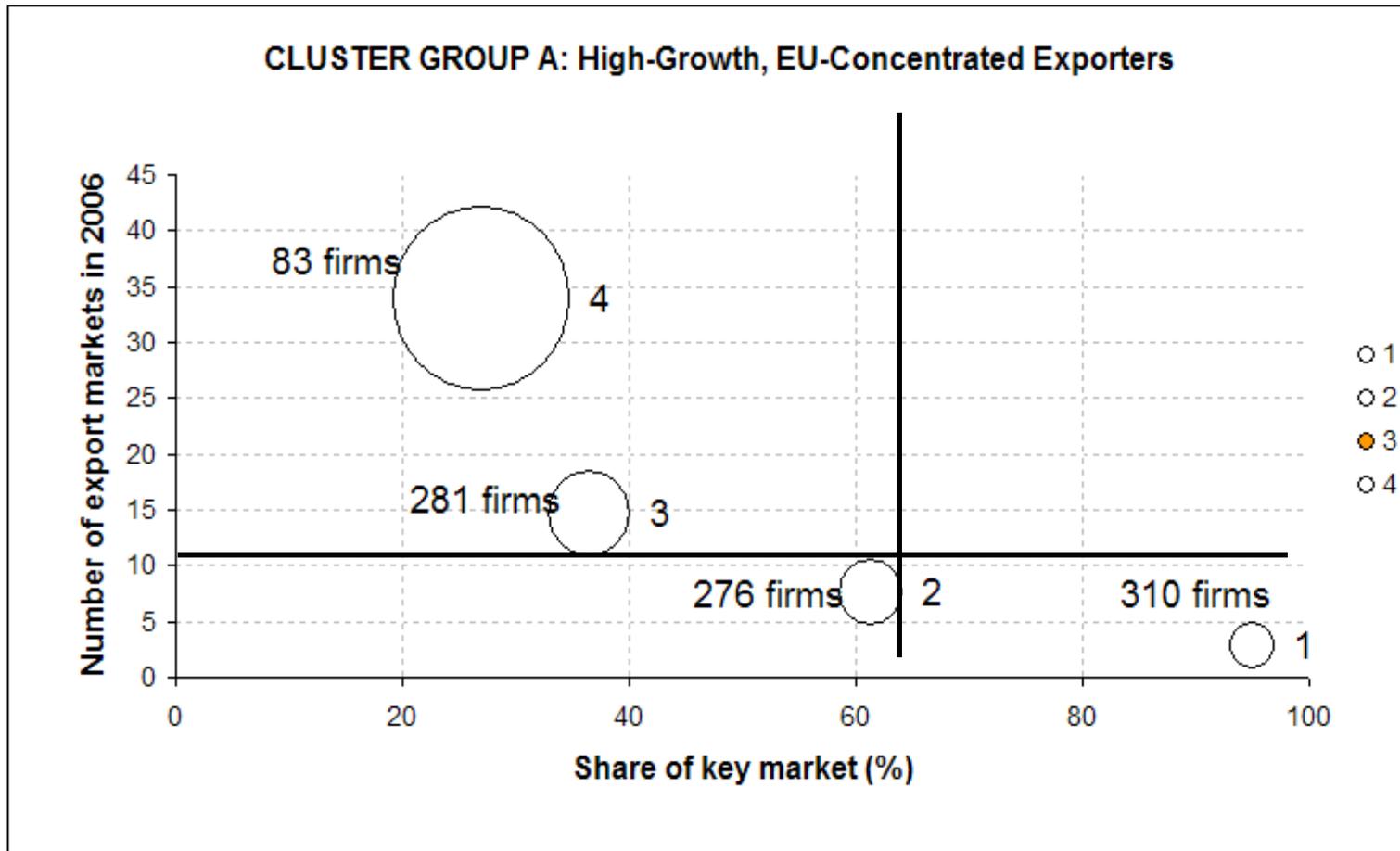


Figure 1a: Polish Manufacturing Sector 2003-2006; Graphical Depiction of Clusters in Group A

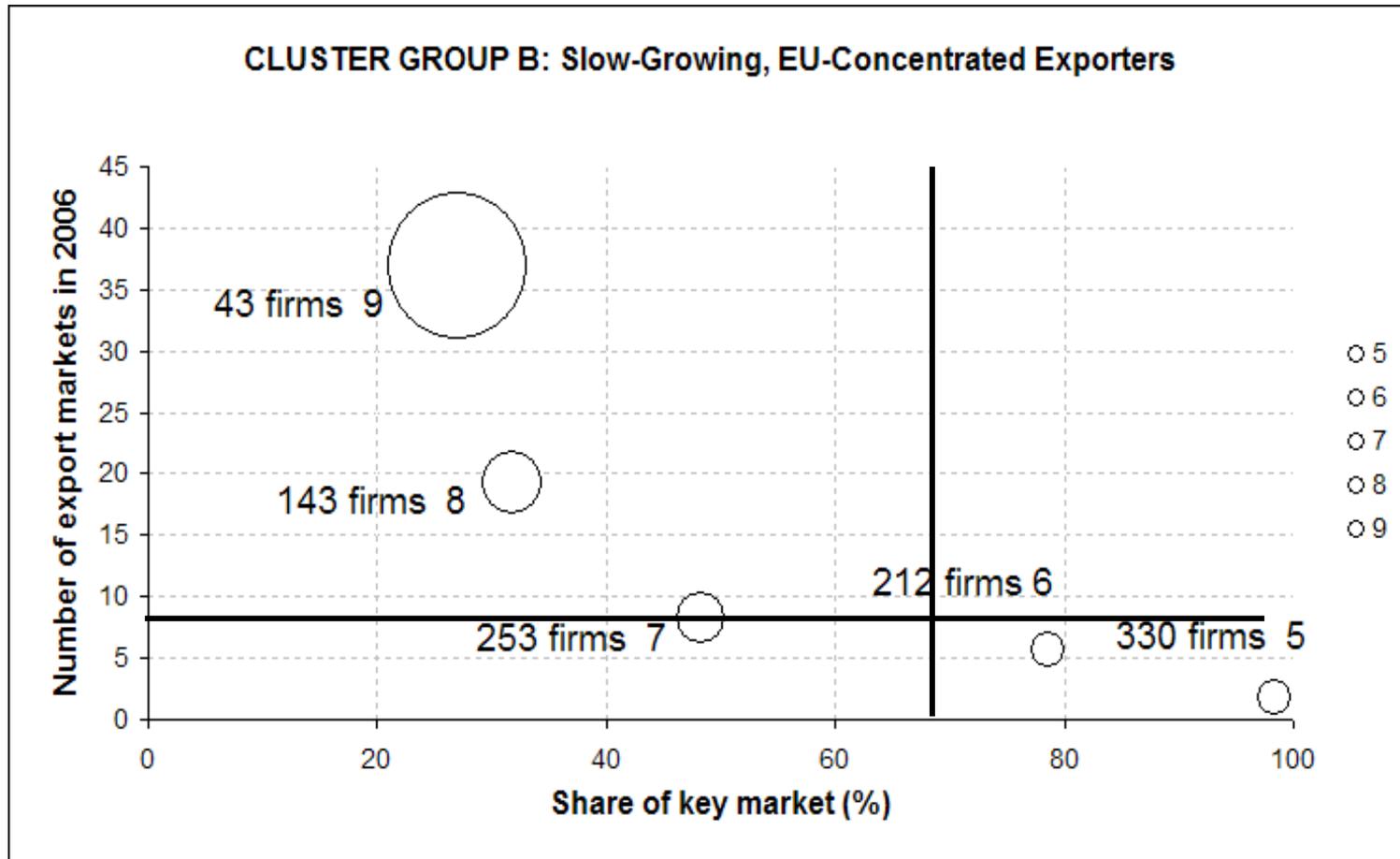


Figure 1b: Polish Manufacturing Sector 2003-2006; Graphical Depiction of Clusters in Group B

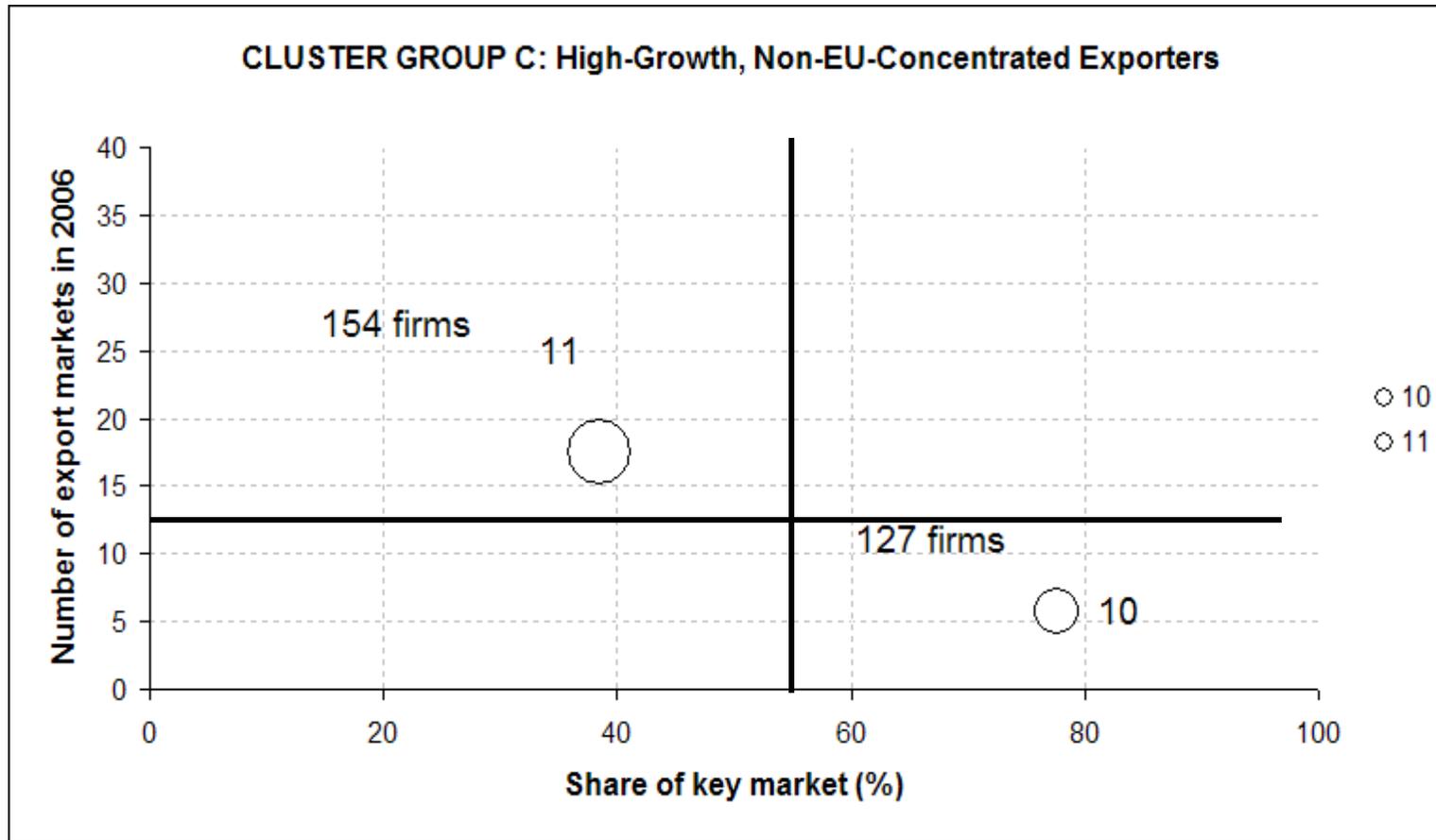


Figure 1c: Polish Manufacturing Sector 2003-2006; Graphical Depiction of Clusters in Group C

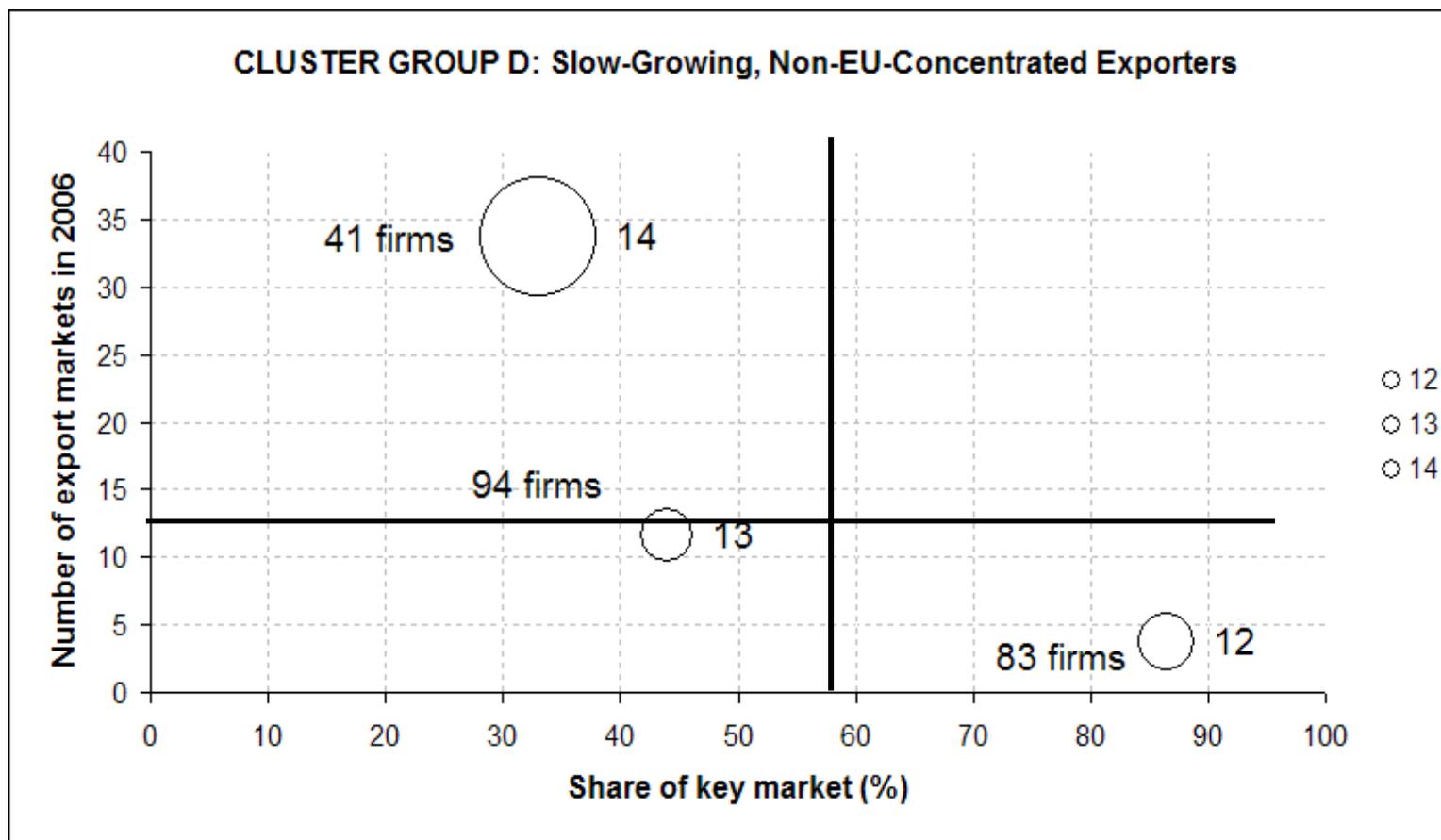


Figure 1d: Polish Manufacturing Sector 2003-2006; Graphical Depiction of Clusters in Group D

Note 1: The mean value of export sales in 2006 for all firms in each cluster is depicted by the area of the corresponding circle.

Note 2: The two horizontal and vertical axes represent the mean % share of the key market and the mean value of the number of markets, respectively, for the entire population of 2,430 firms

Source: Own calculations based on the FTDC-ACCA Database.

Table 1: Distribution of Domestic Exporters in the Polish Manufacturing Sector by the Export Growth Rate 2003-2006

Exporters by growth rate and export value	TOTAL				EU-concentrated*		Non-EU concentrated	
	Number of exporters	% of the total number	Value of exports (billion PLN) in 2006	% of the exports value	Number of exporters	Value of exports (billion PLN) in 2006	Number of exporters	Value of exports (billion PLN) in 2006
High-growth exporters $r > 20\%$	1,231	17.0%	39.2	47.3%	950	34.2	281	5.0
Low-growth exporters	2,989	41.3%	39.6	47.8%	2,243	28.9	746	10.7
of which								
Slow growing $0\% \leq r \leq 20\%$	1,199	16.6%	23.2	28.0%	981	16.7	218	4.5
Declining $r < 0\%$	1,790	24.7%	16.4	19.8%	1,262	10.2	528	6.2
Sub-total	4,220	58.3%	78.8	95.1%	3,193	63.1	1,027	15.7
Base 2003 below 800,000 PLN (not included in the growth analysis)	3,017	41.7%	4.1	4.9%				
TOTAL	7,237	100.0%	82.9	100.0%				

*EU-concentrated (% share of exports to the EU in 2006 $\geq 50\%$)

Source: Own calculations based on the FTDC-ACCA Database

Table 2: Geographic Diversification of Exports in the Polish Manufacturing Sector 2003-2006: Cluster Characteristics

Key characteristics of 14 clusters (mean values)		EU-Concentrated Exporters											Total (EU)	TOTAL
		High-growth exporters (Group A)					Slow-growing exporters (Group B)							
		1	2	3	4	Total (A)	5	6	7	8	9	Total (B)		
Cluster no.		1	2	3	4	Total (A)	5	6	7	8	9	Total (B)		
No. of exporters		310	276	281	83	950	330	212	253	143	43	981	1,931	
Firm age as of 2003		9.2	9.5	9.2	10.4	9.4	9.4	10.0	10.4	10.7	9.9	10.0	9.7	
Time to internationalization		2.7	2.8	2.6	2.0	2.6	2.2	2.6	2.8	2.6	1.3	2.5	2.5	
Export volume 2006 (PLN mln)		11.5	23.3	37.0	166.1	36.0	8.3	9.4	17.6	26.7	132.5	19.1	27.4	
No. of export markets in 2006*		2.8	7.6	14.6	34.0	10.4	1.8	5.7	8.3	19.2	36.9	8.4	9.4	
% share of key market*		95.0	61.4	36.6	27.0	62.0	98.3	78.7	48.3	31.7	27.1	68.3	65.2	
Key characteristics of 14 clusters (mean values)		Non-EU-Concentrated Exporters											Total (Non- EU)	TOTAL
		High-growth exporters (Group C)					Slow-growing exporters (Group D)							
				10	11	Total (C)			12	13	14	Total (D)		
Cluster no.				10	11	Total (C)			12	13	14	Total (D)		
No. of exporters				127	154	281			83	94	41	218	499	2,430
Firm age as of 2003				9.3	9.6	9.5			9.4	10.7	11.5	10.3	9.9	9.7
Time to internationalization				3.1	2.7	2.8			3.0	2.5	3.7	2.9	2.9	2.6
Export volume 2006 (PLN mln)				11.3	23.3	17.9			14.1	11.2	56.0	20.8	19.1	25.7
No. of export markets in 2006*				5.7	17.5	12.2			3.7	11.6	33.7	12.7	12.4	10.0
% share of key market*				77.6	38.4	56.1			86.4	43.9	33.1	58.1	57.0	63.5

*) Clustering variables

Source: Own calculations based on the FTDC-ACCA Database