WORKING PAPER

Are New German Postal Providers Successful? Empirical Evidence Based on Unique Survey Data

by

Toufic M. El Masri

University of Lüneburg
Working Paper Series in Economics

No. 285

October 2013

www.leuphana.de/institute/ivwl/publikationen/working-papers.html

ISSN 1860 - 5508

Are New German Postal Providers Successful?
Empirical Evidence Based on Unique Survey Data

Toufic M. El Masri†

[This version: October 01, 2013]

Abstract: In order to investigate firm survival and the potential for competition in the German postal market, I analyzed key success determinants of market leader competitors. The analysis is based on eight 2011 case studies, in which I conducted in-depth interviews during on-site visits to various postal firms. The analysis is further supported by unique data stemming from a survey I conducted in 2010 for the German postal market. In general, I find that there are possibilities for smaller private firms to succeed and survive in the market despite the natural monopoly occurring within the postal industry. The success of these firms is often based on specialization, cooperation and combining the postal business with another business, such as publishing.

Keywords: Competition, Firm Survival, Germany, Postal Sector, Success

JEL-Classification: D24, L51, L97, L22

This paper is part of the research project "*Wettbewerbspotenziale im niedersächsichen Postmarkt"* which is funded by the Ministry of Education and Culture of the Land of Lower Saxony. The analyses are primarily based on data collected within the research project. Questionnaire, interview guideline and further insight into the reported data are available from the author on request.

† **Toufic M. El Masri**, Leuphana University Lueneburg - Institute of Economics, Scharnhorststr. 1, 21335 Lueneburg, Germany; phone: +49-4131-677-7801; E-Mail: elmasri@leuphana.de

1 Introduction

Since the first EU Postal Directive in 1997, several European countries have completely opened their postal markets to competition. Despite the 2008 abolishment of an exclusive license to the leading postal services provider in Germany, Deutsche Post AG (DPAG), the revenue and postal volume distributions within the German postal sector still indicate a rigorous dominance of the former monopolist regardless of their loss of market share to the open market. DPAG still has a market share of more than 90 percent. Moreover, recent statistics of the German Federal Network Agency confirm a striking number of market exits compared to previous periods,[1] which may mean the market is still undergoing the first stages of development toward a more competitive environment, and that the original objective to stimulate competition within the German postal market has not yet actualized.

Numerous studies show the postal sector lends itself naturally toward monopoly, even in open markets. Nonetheless, empirical studies were not completely uniform and some researchers concluded, from a regulatory point of view, that some operations within the postal network would be more efficient if opened to competition. However, if even one of these operations is a natural monopoly, it is likely the postal network as a whole is a natural monopoly, based on its vertical structure (Panzar 1993). Currently there are no studies shedding light on these issues within the German postal market. The lack of data and empirical evidence is the motivation behind my research. Through the analysis of the success and survival of entrant firms within the German postal market, this paper provides the first evidence of natural characteristics of success within that market.

The main objective of this paper is to identify the major success determinants within the German postal sector. The objective is based on hypotheses derived from review of applicable scientific literature. I provide evidence from case studies that examine in-depth interviews with German postal providers. The results of the case studies are supported by descriptive and econometric evidence from self-elevated data. The remainder of this paper is structured as follows. In Section 2, I present the literature related to this issue and derive hypotheses in Section 3. In Section 4, I introduce the survey and data used for analysis. In Section 5, I

[1] This information is provided by the German Federal Network Agency in market analyses regularly published on the website (http://www.bundesnetzagentur.de).

present the case studies, descriptive and econometric analyses, and the results. The main conclusions are presented in the last section of this paper.

2 Related Literature

In contrast to previous studies, I do not concentrate on the market leader in this analysis but rather assume that the market is split into two parts in the sense of a dominant firm model. I focus the analysis on the competitors of the market leader. There is a wide range of empirical studies dealing with the natural monopoly feature of the postal industry, which highlights important implications for the success of firms, especially for small and medium-sized firms. In fact, several studies show scale and scope economies play a major role in the postal industry. After Gupta et al. (1985) detected the existence of scale economies using published postal data for the US, several other authors—for example Norsworthy et al. (1991), Rogerson et al. (1993), and Cohen et al. (1997)—also confirmed the existence of scale economics using data from the US postal market. Other researches detected similar economic situations using data from various countries, such as, for example, a study conducted on the Japanese postal market by Wada et al. (1997). Cazals et al. (1997), Cazals et al. (2001a), and Cazals et al. (2001b) focused their analysis on studies of the French and EU market and proved a similar scale economic environment within these markets. Moreover, Gazzei et al. (2002) also detected scale economies using data for the Italian postal market and Farsi et al. (2006) verified these effects on the basis of data on the Swiss postal market.

The role of scope economies in postal industries is another important condition for the existence of natural monopolies, analyzed in several studies. Bradley et al. (1994) found significant scope economies using US data; Wada et al. (1997) found scope economics in addition to the detected scale economies in the Japanese postal market; Bradley et al. (2006) detected scope economics for the US postal market; and Farsi et al. (2006) found scope economics in their study of the Swiss postal market. Some authors focused their studies on examining whether economies of density were also present in the postal sector. Cohen et al. (1997), for example, detected the existence of economies of density using US and UK data. Bernard et al. (2002) did the same on the basis of data for France and the US.

As pointed out by Christmann (2004) and Schoelermann (2005) the network characteristic of the postal sector typically requires a vertical integration so that postal providers

ensure a sequence of intermediate services (collection, sortation, transportation, and local delivery). The liberalization of the postal market and the multiple entries of new postal organizations introduced numerous business models. Included in these models were firms that concentrated on providing single postal operations; in these cases, they obtain the rest of the services through their local market. One consequence of specialization may be the loss of synergy, which is present between various postal operations within the more traditional model. The necessity for coordination between postal operations is associated with costs. As discussed above, researchers found the delivery function of German postal providers has predominant features of a natural monopoly. As Panzar (1991) and Rogerson et al. (1993) stated, the vertical integration of the postal network, and the scale economies within the delivery function, provides sufficient enough connection to assume the postal network as a whole exhibits scale economies. Despite the plausibility to suppose that there are substantial scope economies between postal operations (Panzar, 1993), specialization could be one possibility for small firms' to succeed and survive in the German postal market, because specialty firms are not bound by natural monopoly disadvantages.

In sum, it can be derived from these studies that there are scale, scope, and density economies in the postal market, primarily in the delivery function. Because scale, scope, and density economies vary by country, it can also be concluded that the postal business itself is characterized by these effects regardless the location of the firm. Thus, it can be stated with certainty that the German postal market very likely has the same characteristics as the previously analyzed markets. Unfortunately, there were no empirical studies for the German postal market, until now, which accounts for the lack of data. Since the German postal market was completely opened to competition in 2008, it must be possible to observe whether scale, scope, and density economies really are decisive for the success of new market entrants and small firms.

Until now, it could be observed that, despite a significant number of market exits, both small and medium-sized firms are able to survive in the open market. Thus, beyond the natural monopoly conditions discussed above, which certainly determine the potential for success of alternative postal service providers on the market, there must be further postal-specific success determinants. However, as stated above, there is still a strong need for analyses dealing with firm survival and success in the German postal market. In this respect, this

paper provides first evidence of characteristics of survival and success of entrants into the German postal market.

3 Derivation of Hypotheses

The study of literature creates the impression that firm survival or success in postal markets is not possible, if firms do not unlock the benefits of scale, scope, and density economies. Based on the literature survey and general knowledge about the postal business, four major hypotheses regarding the success potential of new postal providers can be derived, which are presented in the following:

- **H1**: Postal providers are more successful if they exploit scale economies. In concrete terms and with regard to the postal sector, this means that postal providers are more successful if they operate on a higher volume level. Because of the regional characteristic of the service provided, this furthermore implies that firms must cover an adequate geographical area.
- **H2**: Firms are more successful if they benefit from scope economies existing between different postal items. The postal sector is characterized by the different services provided (e.g. mail, parcel, etc.). Exploiting, scope economies between these different items implies an adequate capacity utilization, which is true for all postal operations.
- **H3**: Firms operating in densely populated regions are more successful, because they benefit from economies of density. This is especially true because they benefit more from scale, scope, and density advantages in regions with a larger population density.
- **H4**: Firms concentrating their activities on single postal operations may overcome the difficulties of a natural monopoly and hence have a better chance to be successful and survive on the market despite working on a small scale.

The hypotheses derived from the literature review shall be analyzed more closely in the following. This is done on the basis of the results of the in-depth interviews and the data elevated within the framework of the written questionnaire. The following section looks first at the survey and then provides a brief data description.

4 Survey and Data Description

There is hardly any data available concerning the German postal market. Data used for the analysis in this paper stems from a survey which I conducted in 2010 in order to analyze the competitive potentials in the German postal market. The first step of the survey involved the identification of postal providers. To do this, I used a list of all license holders provided by the German Federal Network Agency in January 2010. Despite the information provided on license holders, defining the market is challenging due to two major reasons. First, firms operating within the postal market do not necessarily provide homogeneous services. Many firms provide a wide range of services ranging from direct postal services to postal-related services and in some cases even non-postal services. Additionally, I found that firms differ with respect to the postal operations on which their entrepreneurial activity is concentrated. While some firms cover all functions of the postal network, others operate only selected postal functions. As a result, some firms are comparable only to a limited extent. Nonetheless, because the firms I considered do all have the same license, a general comparability is principally ensured. Furthermore, I control for heterogeneity within the interviews as well as in the econometric analysis.[2]

A further challenge with dealing with the postal market is that the number of licenses issued does not adequately reflect the number of active firms. Doubts about the suitability of the number of licensees as an indicator for the number of active firms in the postal market were confirmed by survey responses. Indeed, it turned out that only a part of the listed firms actively use their license and generate turnover in the postal sector. The disparity between license holders and active firms was discussed in a study conducted in January 2010 by the Association of the German Postal Providers (*Bundesverband Deutscher Postdienstleister* (BvDp)) in cooperation with TellSell Consulting.[3] More precisely, they proved in their study that in 2008 only about 700 firms were active on the German postal market, even though a total of 1,461 licenses were in circulation. The list provided to me by the Federal Network Agency contains 1,475 licensees. Since it is difficult to identify the firms actually operating in the market, the questionnaire was sent to almost all firms on the list. Moreover, this procedure also enables a better characterization of the market because in a sense, the non-active

[2] In this paper, I use the term “postal provider“ or in general “firm“ for the licensees.

[3] BvDP and TellSell Consulting 2010.

firms belong to the market as well. The non-active firms may particularly be of interest because the focus of this paper is on firm success and survival.

In sum, a total of 1,459 questionnaires were sent nationwide.[4] In a second elevation a few months later, the questionnaire was again sent to 169 firms, which did not answer to the first sending. Thereby, the second elevation was restricted to the three German states Hamburg, Bremen, and Lower Saxony.[5] Altogether, a total of 179 firms answered the survey and 133 of the returned surveys were completed.[6] The other 46 responses contained general information that the firm is not currently active.[7] About 133 were returned undeliverable. It is very likely these firms already exited the market.

Subsequent to the written questionnaire, in 2011 I conducted in-depth interviews with postal providers who participated in the written questionnaire and volunteered for an interview. Resulting from the interviews were eight cases that proved helpful in obtaining better insight into the industry, particularly because interviews were conducted in combination with my visiting the interviewees' locations. One of the most important criteria for case selection was controlling for the heterogeneity discussed in the previous section. The interviews were recorded, transcribed, and evaluated through multiple rounds of independent assessments in order to ensure reliability of findings. Moreover, a pilot test was conducted in order to ensure construct validity. The face-to-face interviews were conducted with firm representatives at the interviewees' locations. All interviews followed the same semi-structured interview protocol and provided enough time for the interviewee to give their own statements and to add further relevant information. The results of the questionnaire and interviews are presented in the following section.

[4] There were some doublets in the list of the Federal Network Agency.

[5] I choose these states because they are in our immediate surrounding and we planned to conduct in-depth interviews in a next step.

[6] If we fully agree that only a fraction, say 48 percent, is actually active on the market then 133 answers represent a quite acceptable response rate.

[7] They informed us per e-Mail, phone, or with a notation on the questionnaire, which they returned to us.

5 Evidence of Firm Success

5.1 Descriptive Statistics

Completed questionnaires were returned from all German states. Because the answering firms are widely distributed across the country, the firms' heterogeneity with respect to population density of their served area is comprised in the dataset. Figure 1 displays the regional distribution of the answering firms.

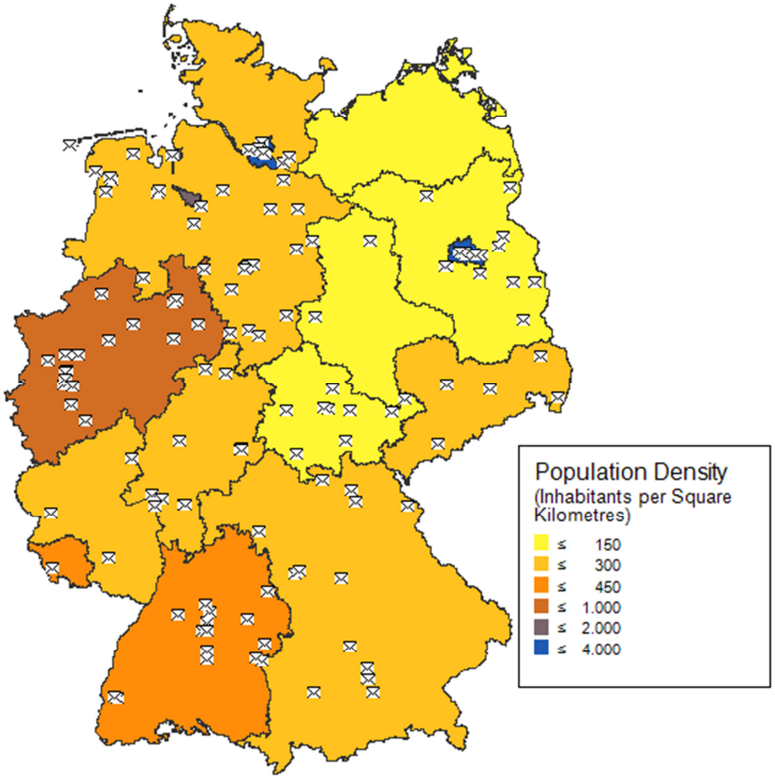

Figure 1: Distribution of Answering Firms

Source: Own survey data; figure generated using the software RegioGraph. 12

Overall, 94 of 133 observations were included in the econometric estimations. Table 1 includes the major descriptive statistics of the estimation sample and, furthermore, for comparative purposes, the mean values of the whole data.

Table 1: Descriptive Statistics

Variable	Description	Nature	Obs. (Estimation-Sample)	Mean (Estimation-Sample)	Std. Dev. (Estimation-Sample)	Min (Estimation-Sample)	Max (Estimation-Sample)	Obs. (Whole Data)	Mean (Whole Data)
Age	Age of the firm at the time the data were collected	Metric	94	10.24	6.65	1	37	129	9.38
Size	Average number of employees in the last three years	Metric	94	28.24	51.91	1	323	97	181.52
Size squared*	Squared average number of employees in the last three years	Metric	94	3,463.41	12,443.05	1	104,329	97	2,322,898
Delivery radius 1	Delivery radius (incl. Cooperation partners): local/regional	Dichotomous	94	0.40	0.49	0	1	109	0.39
Delivery radius 2	Delivery radius (incl. Cooperation partners): (German) state	Dichotomous	94	0.10	0.30	0	1	109	0.09
Delivery radius 3	Delivery radius (incl. Cooperation partners): Germany	Dichotomous	94	0.28	0.45	0	1	109	0.26
Delivery radius 4	Delivery radius (incl. Cooperation partners): international	Dichotomous	94	0.19	0.40	0	1	109	0.23
Collection	Firm provides the collection of postal items	Dichotomous	94	0.71	0.45	0	1	133	0.75
Sortation (in)	Firm provides the sorting of incoming postal items	Dichotomous	94	0.52	0.50	0	1	133	0.55
Sortation (out)	Firm provides the sorting of outgoing postal items	Dichotomous	94	0.54	0.50	0	1	133	0.60
Transportation	Firm provides the transportation of postal items	Dichotomous	94	0.69	0.46	0	1	133	0.68
Delivery	Firm provides the delivery of postal items	Dichotomous	94	0.71	0.45	0	1	133	0.73
Mail Market	Firm operates primarily in the mail market	Dichotomous	94	0.73	0.44	0	1	133	0.74
Parcel Market	Firm operates primarily in the parcel market	Dichotomous	94	0.16	0.37	0	1	133	0.15
Other Market	Firm operates primarily in another market	Dichotomous	94	0.31	0.46	0	1	133	0.29
Cooperation	Firm cooperates with other postal services providers	Dichotomous	94	0.49	0.50	0	1	133	0.54
Founder	Firm is still under the leadership of the original founder	Dichotomous	94	0.83	0.38	0	1	130	0.81
Access to PO Boxes	Firm has access to the PO boxes of the market leader DPAG	Dichotomous	94	0.26	0.44	0	1	133	0.26

Displayed values are rounded

Table 1 reveals some very interesting facts about the estimation sample. The firms in the sample have a mean value of 10.24 years and a standard deviation of 6.65 years, which is relatively young. Moreover, most of them are rather small, which was determined by the average number of their employees over the last three years. With about 90 percent, a large proportion of the firms have 50 or fewer employees, which appropriately describes the current firm landscape of the German postal market. This could be attributed to the fact that there are no significant barriers to receiving a license from the German Federal Network Agency.

The average size of the firms is about 28 employees. This smallness is also reflected in their delivery radius with cooperation partners. About 40 percent of the firms are active on a local/regional level and only 19 percent are active on an international level. Only about a half of the firms provide sortation of incoming or outgoing postal items, respectively. Collection at the customers' locations and delivery of postal items is provided by about 71 percent of surveyed firms, 69 percent transport postal items by themselves. With a share of 73 percent, most firms operate primarily in the mail market while only 16 percent operate primarily in the parcel market. Surprisingly, a fairly large proportion of about 31 percent operates primarily in another market. The latter includes other postal services such as advertising mail, for example.[8] About 83 percent of the firms are still owned by their original founder, which also fits the young age of the firms. Of the firms surveyed, 49 percent cooperate with other postal services providers and 26 percent have access to the P.O. boxes of the market leader DPAG.

In the survey, the CEOs of the firms were asked to assess their current profit situation measured on a scale from 1, which represented "very good," to 5, which represented "unsatisfactory." It turned out that among all answering firms, the average profit situation decreased from 2.99 to 3.18 grades between 2007 and the time of the survey (2010), which makes sense with the high number of market exits observed recently. Table 2 summarizes this finding.

[8] Multiple entries were possible in this question.

Table 2: Profit Situation

Variable	Observations	Mean	Std. dev.
Profit Situation 2007	110	2.99	1.12
Current Profit Situation (2010)	110	3.18	1.09
Missing values are dropped from both variables			

5.2 Evidence from Case Studies

The eight firms that were selected for in-depth interviews are all license holders operating in the German postal market. Nonetheless, as discussed earlier, there is a certain heterogeneity particularly regarding their main business area. Moreover, these firms also significantly differ with regard to other aspects as, for example, their size or extra-services they provide. The firms' profiles are summarized in Table 3.

Table 3: Sample Firm Characteristics

Case	Age[b)]	Size[c)]	Main Business Area	Business Area Description	Success[d)]	Δ Success[e)]
A	22	Size > 250	Other Market	Letter and parcel services in the medical sector	2	=
B	4	Size < 5	Letter Market	Firm has mainly business customers; cooperates with consolidators	3	=
C[9]	11	Size > 250	Letter Market	Private customers and key accounts; covers all operations of the postal network	5	↓
D	5	Size < 5	Letter Market	Originally active in the publishing industry; covers all operations of the postal network	5	↓
E	1	10 ≤ Size < 50	Letter &Parcel Market	Originally active as a service provider in the banking sector; only reception of postal items	4	-
F	2	5 ≤ Size < 10	Other Market	mainly active in the newspaper business; processes all logistics tasks of the entire company group; covers whole postal network	4	-
G	34	Size > 250	Parcel Market	Covers all operations of the postal network; very well established infrastructure of transportation devices, sorting and delivery centers	2	↑
H	3	Size < 5	Other Market	Postal and courier services mainly for public institutions; mainly active on local level	4	=

Answers from the written questionnaire and in-depth interviews

b) In years at the time of the survey; c) Measured by the number of employees at the time of the survey; d) Measured on a scale from 1 (=very good) to 5 (=unsatisfactory); e) Difference between 2007 and time of the survey

The ages of the selected firms range from 1 to 34 years with an average age of 10.25 years and a standard deviation of 11.80 years. Five of these firms have less than ten employees, while two of them have more than 250 employees.[10] The firms' sizes did not change noticeably over the last three years. In regards to the business area, four of the eight firms stated

[9] This firm did not provide information on its number of employees, but from the plant visit and interview resulted that this firm has more than 250 employees.

[10] One of the selected firms did not provide information on its number of employees.

that they operate primarily in the mail market, while two of them stated that they operate primarily in the parcel market, and three of them in another market.[11] Despite these results, it can be concluded that most firms combine the supply of the above services. Moreover, five of the eight firms stated that they operate on all functions of the postal network: collection, sortation of in-coming postal items, sortation of out-going postal items, transportation, and delivery. One of the remaining three firms combines collection with transportation services, one of them combines sortation of in-coming mail with transportation and the last firm provides only collection services. This brief overview about the sample demonstrates the heterogeneity of the selected firms and appropriately reflects heterogeneity existing within the German postal sector.

The objective of the case-based analysis was to identify crucial success determinants in order to assess success and survival of alternative private postal providers in Germany. During the in-depth interviews, the firms were asked to list the major success determinants they face in the market. The main results of these interviews are summarized in Table 4 and Table 5. The major success determinants denominated by the interviewees can be categorized in general success determinants and postal business specific success determinants. In some cases, a clear classification of the success determinant into one of the categories is not unequivocally possible.

Prior to the market opening in 2008, the German postal market was traditionally serviced by one large firm. Despite the market opening, the original monopolistic structures are still present and demonstrating the rigidity of the market. Thus, in order to be successful, it is all the more important that firms consider all general success determinants valid for any industry. This assertion was confirmed in the in-depth interviews. The most frequently general success determinants mentioned by the interviewees are listed in Table 4.

[11] One of these firms gave a multiple answer.

Table 4: General Success Determinants

No.	Success Determinant
(a)	Supply of extra services (free of charge)
(b)	Maintain close contact with customers
(c)	Know-how
(d)	A number of "soft skills" are mentioned to be important (e.g. friendly appearance of the deliverer)
(e)	Providing a high-quality service

This table includes the most frequent answers given in the in-depth interviews.

There are not many opportunities to compete in the postal market, which primarily results from the fact that the supplied service is rather simple. One possibility for firms to increase their competitiveness is to provide extra-services, though the range of possible extra-services in the industry is limited. The most common extra-service identified in the interviews was the collection of postal items at the customers' locations, free of charge or tracking services. Moreover, a number of other general success determinants were mentioned in the interviews as, for example, maintaining close contact with customers and providing high-quality service. The latter refers essentially to the delivery time. Beyond these general success determinants, the interviewees denominated a number of other success determinants, which are especially crucial in the postal industry. These postal-specific success determinants are of primary interest in this paper. Here, again, Table 5 includes the most frequent determinants mentioned by the interviewees.

Table 5: Postal Specific Success Determinants

No.	Success Determinant
(f)	A **quick** delivery
(g)	A **safe** process
(h)	**Cooperation** with other postal services providers
(i)	Already **existing structures**
(j)	Exploiting **scope economies**
(k)	It is crucial that the firm achieves a high volume as quick as possible (large region, cooperation; densely populated region)
(l)	**Regional coverage** (with or without cooperation)
(m)	Possibility to **subsidize** the starting time (solid financial background)
(n)	A **second business area** (here: postal specific; also results from (h) and (j))
(o)	Specialization (on region, customer groups or postal operations)

This table includes the most frequent answers given in the in-depth interviews.

The postal sector is strongly characterized by the confidence nature of the supplied service. Several success determinants identified in the case studies are linked to this issue. Because postal items contain, in many cases, sensitive information, a quick and safe delivery process is a firm necessity in this market (success determinants f and g). Based on this issue, it can also be assumed that the customers' willingness to change postal providers seems to be rather inelastic once a customer has found a suitable provider. If these success determinants are violated, it gets harder for firms to acquire new customers, even if they had the possibility to provide their service at a lower price. The service quality of predominantly fast and secure processes is thus among the most crucial success determinants in the postal business. The consequences of this inelasticity is further aggravated by the fact that alternative suppliers have little possibilities to provide extra-services or to lower prices in this industry, which is even more pronounced for the supply of business clients.

The ability to cover a specific geographical area is also among the most crucial success determinants (success determinant l). Although a high number of postal items are transported within the same region, customers generally expect postal providers to cover a wide area. It can be assumed that customers tend to choose a supplier who provides a wide range of services and large network coverage. As well, it seems unlikely that customers demand the services of multiple parallel firms, e.g. one firm for local sending and another for supra-regional sending. Cooperation as a further success determinant is directly linked to determi-

nant l (success determinant h). However, it must be noted that in some cases cooperation is also a consequence of the fact that a firm has chosen to specialize in regions or single postal operations. From this results an obligation to cooperate with other postal providers so that the whole service can be ensured. While operational specialization always requires cooperation, regional specialization only requires cooperation in case of supra-regional sending. Lastly, it is important that new market participants are able to subsidize the starting time of their business. Establishing a business is a costly matter and the fact that firms generally do not have the necessary volumes at the beginning of their activity (see regional coverage) makes it hard for them to survive their beginning.

The interview results confirm that firms significantly differ in regards to their major business area, further additional business areas, extra-services provided and the specific postal operations in which the firm is active. Scope economies play an essential role in the postal business. This applies to scope economies between different products as well as to scope economies between different business areas. In particular, combining the postal business with another business area yields noticeable synergies and represents a crucial success determinant in the German postal market. The joint supply allows firms not only to exploit scope economies between the different business areas, but also to cross-subsidize between them. More precisely, the results yielded that firms which built their business on existing structures of an already existing business area are likely more successful. Building the postal business on existing structures helps to subsidize the start-up time and also allows starting the entrepreneurial activity on a higher volume level. Other possibilities to start the business on a high volume level could be achieved through cooperation or through operating in a densely populated region.

At this point, it is time to analyze how much evidence the in-depth interviews provided on the hypotheses derived in Section 3. In hypothesis H1, it was stated that scale economies are of prime importance in the postal sector and that operating at a high volume level and supplying a large region constitute decisive success determinants. In fact, the interviews showed that a lot of firms in the postal sector must, due to their size and own statements regarding their regional coverage, necessarily be active on a low scale level. Consequently, this finding creates the impression that scale economies are not pronounced enough in this industry for firms to survive.

A closer look at the firms and their activities reveals that specialization and cooperation are the essential ways out of the small-size disadvantage. While cooperation enables firms to be active on a supra-regional level, specialization generally ensures firm success through operating in a niche market. Moreover, the interviews revealed three major types of specialization. Some firms specialize in supplying selected customer groups, e.g. business clients, some specialize on specific regions, and some firms specialize on selected postal operations, e.g. transportation of postal items. Hypothesis H4, which implied that specialization on selected postal operations promotes the success in the postal sector, is automatically affirmed through confirmation of the types of specialization. The in-depth interviews confirmed Hypothesis H2, which states that exploiting scope economies also promotes the success of the postal business. Firms not only benefit from scope economies existing between different services, e.g. between mail and parcel services, but also from scope economies existing between the postal business and other business areas.

It is very striking in the postal industry that many firms are active in different business areas. While Panzar (1993) assumed that the vertical structure of postal networks implies scope economies between different postal operations, the empirical evidence in this paper rather indicates that operating on single operations promotes firm success. Lastly, hypothesis H3 states that density economies are decisive in the postal business. Figure 1 precludes that the higher the population density is in a region, the more firms are represented. Of course it must be noted that this could be due to a higher market entry rate, or to better firm survival in these more densely populated regions. The question of why firms survive in highly populated areas is not pursued further in this paper.

5.3 Econometric Methodology and Results

Using data elevated within the framework of the written questionnaire, I develop three models in order to analyze the success determinants of the German postal market. The firms' profit situation was chosen as an indicator for economic success in all three models. As mentioned in Section 5.1, the CEO's assessment of the firms' 2007 profit situation, which was collected at that time, was chosen as a variable indicator of each firm's economic success. This period was chosen because 2007 was the last year before the liberalization of the German postal market. For the econometric investigation, a variable representing the change of

the profit situation was generated, which in this case is the difference between the current profit situation (2010) and the profit situation in 2007. This variable is used as the dependent variable in all three estimation models.

$$(6) \quad \Delta \text{Profit} = \text{Current Profit Situation} - \text{Profit Situation 2007}$$

In total, 18 explanatory variables included in the dataset are used for the estimations. Those variables were selected which were assumed to have a significant economic effect on the firms' success. To test for collinearity, I analyze the correlation between the predictor variables. The results of the collinearity test are summarized in the correlation matrix in Table 7 in the appendix of this paper. The only conspicuous values are the correlation coefficient of the variables "Sortation of in-coming mail" and "Sortation of out-going mail" with a value of 0.7016 and the correlation coefficient of the variables "Mail Market" and "Other Market" with a value of 0.6698. While the latter value emphasizes the widespread joint supply of postal and non-postal services in the industry, the high linear correlation between the two sorting functions probably indicates the joint sharing of the same human and/or technical resources for sorting tasks.

In all regressions, I try to find out which effects the different predictors had on the firms' success in the past.[12] Model one is an Ordinary Least Squares (OLS) Estimation where β is a $px1$ vector of unknown parameters and:

$$(7) \quad \text{Model } 1: \Delta \text{Profit} = \beta x_i + \varepsilon_i \quad \text{with} \quad x \in \{\text{Age, Size, ..., Access to PO Boxes}\}$$

As the results of this OLS regression are limited, I again calculated the effect of various explanatory variables on success based on probit regression models respectively, in order to account for the qualitative character of the dependent variable. Although an ordered probit estimation would better fit the character of the dependent variable in this model, a binary probit regression model is chosen for the estimations in order to account for the limited number of the observations in the dataset. Thus, for the estimations conducted in models 2 and 3, a dichotomous dependent variable is required. For this reason, the original success variable representing the change of the firms' profitability used in OLS estimation is recoded in order to meet this requirement. This is done in two ways. In model 2, it is assumed that firms are successful if the profitability has improved (difference > 0) or has remained the same (differ-

[12] The dependent variables are described in Table 1 in Section 5.1.

ence = 0) between the two time periods. Thus, the binary variable generated representing the success takes the value of 1, if the change in profit situation is equal to or larger than zero.

$$(8) \quad Model\ 2: Success = \begin{cases} 1 & if \quad \Delta \Pr ofit \geq 0 \\ 0 & if \quad \Delta \Pr ofit < 0 \end{cases}$$

This model, however, suffers a major weakness in classifying firms with a constantly poor profit situation as successful, because their profit situation has not changed. This is why I estimate a further model, again binary probit regressions, in which only those firms are regarded as successful which had improved their profit situation (difference > 0).

$$(9) \quad Model\ 3: Success = \begin{cases} 1 & if \quad \Delta \Pr ofit > 0 \\ 0 & if \quad \Delta \Pr ofit \leq 0 \end{cases}$$

These estimations also suffer a similar weakness: firms with a good profit situation, but whose profitability has not improved are not assumed as being successful in this model. Consequently, both ways to measure the firms' success are interconnected and complement each other. Both models use the following binary response model:

$$(10) \quad \Pr(Success \mid x) = F(\alpha + \beta x_i) \quad with\ x \in \{Age, Size, ..., Access\ to\ PO\ Boxes\}$$

and again with β as a *px1* vector of unknown parameters. F is a function such that $F: x \mapsto [0,1], \forall x \in \Re$. The estimated probit regression is a specific function suggested to F:

$$(11) \quad \Pr obit\ Model: F(x) = \Phi(x) = \int_{-\infty}^{x} \phi(z)\, dz$$

with $\phi(z)$ as a normal density such that $\phi(z) = \dfrac{\exp\left(-\dfrac{z^2}{2}\right)}{\sqrt{2\pi}}$.

The probit estimations yield more statistical significant coefficients than the OLS regression. The estimation results of all models are summed up in Table 6.[13]

[13] For comparative purposes, I also computed logit estimates for Model 1 and 2. The results are very similar and thus are not included in this paper.

Table 6: Econometric Results

		Model 1 (OLS)	Model 2 (Probit)	Model 3 (Probit)
Variable	**Exp. sign**	**Coef.**	**Coef.**	**Coef**
Age	Pos.	0.803e-2 (0.38)	-0.0117 (-0.51)	0.0171 (0.68)
Size	Pos.	0.699e-2 (1.07)	0.0125 (1.37)	0.0122 (1.02)
Size squared	Neg.	-3.70e-5 (-1.41)	-5.60e-5* (-1.81)	-7.98e-5 (-1.17)
Delivery radius 1	Pos.	-0.0119 (-0.01)	1.975* (1.91)	0.0442 (0.06)
Delivery radius 2	Pos.	0.339 (0.37)	1.415 (1.36)	0.201 (0.21)
Delivery radius 3	Pos.	0.573 (0.69)	1.910* (1.85)	0.204 (0.25)
Delivery radius 4	Pos.	0.320 (0.39)	2.772*** (2.80)	0.258 (0.32)
Collection	Neg./Pos.	-0.650* (-1-93)	-1.704** (-2.47)	-0.343 (-0.83)
Sorting (in)	Neg./Pos.	0.0376 (0.10)	0.125 (0.24)	0.0626 (0.14)
Sorting (out)	Neg./Pos.	0.235 (0.58)	-0.0426 (-0.07)	0.204 (0.41)
Transportation	Neg./Pos.	-0.256 (-0.84)	1.186*** (2.69)	-0.803** (-2.18)
Delivery	Neg./Pos.	0.607* (1.68)	1.149** (2.14)	0.698 (1.53)
Mail Market	Neg./Pos.	0.302 (0.72)	0.742 (1.05)	0.618 (1.34)
Parcel Market	Neg./Pos.	-0.508 (-1.43)	-0.608 (-1.44)	-0.388 (-0.94)
Other Market	Neg./Pos.	1.082** (2.55)	2.052** (2.44)	1.303*** (2.92)
Cooperation	Pos.	-0.996e-2 (-0.03)	-1.033*** (-2.72)	0.0400 (0.11)
Founder	Pos.	0.877** (2.52)	1.228*** (2.67)	1.114** (2.28)
Access to PO Boxes	Pos.	-0.200 (-0.65)	-1.640*** (-3.74)	0.401 (1.06)
Const.	0	-1.271 (-1.40)	-2.485** (-2.33)	-2.766*** (-2.62)
N		94	94	94
R^2		0.315		
Adjusted R^2		0.151		
Pseudo R^2			0.387	0.189

t statistics in parentheses

* p<0.1, ** p<0.05, ***p<0.01

The OLS estimation in Model 1 yields only four statistically significant effects. According to these results, the supply of collection services reduces the change in profit situation by 0.65 grades, while by the supply of delivery services it is increased by 0.61 grades compared to firms that do not provide these postal operations. A further positive effect detected stems from the firms' activity within another market. Such firms benefit from a positive profitability change amounting to 1.08 grades an effect, which could be attributed to

scope economies between different business areas. Finally, firms, which are still under the leadership of their original founder, also improve their profitability by 0.88 grades. This, inter alia, could indicate the existence of learning curve effects in this industry.

The estimations conducted in Model 2 yield more statistically significant effects, while Model 3 yields even less significant effects than the OLS estimation in Model 1. Due to the well-known limitations of probit regression models, only the signs of the estimated coefficients can reasonably be interpreted in the estimated model results. The binary probit estimations yielded very similar results within both models. In the following, only the major results of the regression models shall be discussed. As already mentioned, the estimated models yielded different results primarily in terms of statistical significance. However, there are also uniform results. The clearest result is the estimated coefficient for the variable "founder." The estimation above all models yielded a statistically significant positive influence of this variable on the firms' success. Based on this, the proven effect specifies that it is more likely that a firm is successful if the firm is still under the leadership of its original founder.

This intuitive finding, also found in the OLS estimation, could be explained by the fact that the founder has the necessary know-how, having established the business. Thus, the positive sign of the estimated coefficient confirms the expectation, which I had at the beginning of the analysis. Moreover, the econometric investigation indicates that the activity in "other markets," as defined in Section 5.1 of this paper, is also beneficial for postal services providers. The coefficient of this measure is statistically significant in all three models. As already determined from the expert interviews, firms combine the supply of postal services with other services, e.g. the delivery of laboratory samples in the medical sector.[14]

The second area of activity could serve as an important earnings pillar for the firm and thus promote economic success and firm survival. The combination of different business areas makes it possible for firms to exploit scope economies existing between different business areas and to cross-subsidize businesses. Three of the four variables representing the delivery radius (with cooperation) have a statistical significant positive effect on the firms' success in Model 2. While activity on a regional, Germany-wide, and international level increase profitability, a similar effect is not detected on German Federal State level.

[14] See Case A in Section 5.2.

Among the five postal operations included in the estimations, only the coefficients of the variables collection, transportation and delivery of postal items are statistically significant. While the effect detected for collection, which was also found in the OLS estimation, is clearly negative, and the effect for delivery is clearly positive, the effect for the transportation function is positive in Model 2 but negative in Model 3. The negative effect for the collection in this case could be explained by the fact that the collection of postal items from the customer's location is an extra service usually offered by the postal services provider free of charge.[15] Although the delivery function is the most costly of all the operations, the positive effect is reasonable because of the importance of delivery in the postal market. Due to regional and operational specialization, firms must cooperate to ensure complete service. The ambivalent result for the transportation function cannot be explained reasonably. According to the estimation results of Model 2, access to DPAG P.O. boxes has a statistically significant negative impact on firms' profitability. This is interesting because it was assumed a positive effect would result from access to the market leader's facilities. A plausible explanation for a negative result could be that access to the P.O. boxes of the market leader is not costless, and thus probably lowers the firms' margin noticeably, especially because the outside firms are mostly small.

The expected positive effect of the explanatory variable "size" on the firms' profitability could not be proven in all models. In the case of the postal sector, a positive effect of the firms' size could indicate that a larger size simultaneously represents a larger regional network coverage, which in turn positively contributes to the firms' profitability. Moreover, this could also be an indicator for the existence of scale economics in the industry, which has already been proven in numerous studies (see Section 2). This consensus within firm survival literature is the reason a positive effect was expected in this case (Agarwal and Gort 1996.).

Moreover, there is not a statistically significant positive effect of firms' age on success, which is another effect already proven in numerous studies with other non-postal industries (Agarwal and Gort 1996.). However, the fact that the liberalization of the German postal market does not date back far could provide the answer for the counterintuitive finding. The average firm age in the dataset is 10.24 years, thus we are in fact dealing with a group of relatively young firms. The last point worth mentioning is the negative coefficient of the variable "Cooperation" detected in Model 2, which contradicts the results of the in-depth interviews,

[15] Evidence on this is provided in Section 5.2.

in which I concluded that cooperation promotes success because firms cover larger regions through cooperation. The negative effect could stem from the fact that the firms' cooperation partners are also their competitors, which entails negative counter effects.

Finally, in reference to the hypotheses, the conducted estimations confirm the findings of the in-depth interviews that there are scope economies between different business areas (hypothesis H2), and that firms in fact exploit them. Moreover, no significant effect of the variable "size" on economic success was detected, which again contradicts the findings in the literature and indicates that small and medium-sized firms also may survive on the postal market (tendency to refuse hypothesis H1). Unfortunately, the estimations did not provide reasonable evidence for hypotheses H3 and H4. Instead, the econometric investigation provided additional evidence.

6 Concluding Remarks

In order to analyze success and survival of entrant firms operating in the German postal sector, I focused on finding the key success determinants. The in-depth interviews provided insight into success determinants and challenges currently faced in the German postal market. The interviews revealed that a confident nature of the service in the postal sector is crucial for the firms' success. Moreover, firms must be able to cover a specific geographical area from the beginning and start their entrepreneurial activity on a high volume level. Because most firms in the German postal market are small, active cooperation was a further success determinant identified in the interviews. Cooperation is, especially in this case, a consequence of the regional and operational specialization of firms, which is quite common in the German postal market. Being active in a niche market, specialization, and cooperation are all possible determinants of firm survival on the market, despite that the industry has features of a natural monopoly. A further very decisive success determinant identified was activity in a second business area, which also allows small firms and new market entrants to subsidize start-up time. Consequently, firms may exploit scope economies, which are existent not only between different services, but also between different business areas. In fact, the following question must also be asked: Do successful firms owe their success primarily to a second non-postal business area, which allows them to cross-subsidize a weak postal business?

In sum, the econometric analyses confirmed that additional activity in a non-postal business area and the leadership of the firm by its original founder significantly contribute to the firms' success in the German postal market. The estimation results for the explanatory variables "founder" and "other market" were the most robust across all estimations. Thus, the econometric analysis largely confirmed the results of in-depth interviews; however, it must be noted that there were partial differences between the results of the different models estimated. In both the econometric analysis and the expert interviews, I found that firms succeed precisely because they combine the supply of postal services with additional activity on another market. These "other markets" are in most instances non-postal, but postal-related. The combination yields synergistic effects especially because firms have the opportunity to establish postal services within existing structures.

Consequently, it can be concluded that the German postal sector still seems not to provide the necessary framework for a competitive environment. Moreover, in order to be competitive, firms need not only meet the customers' needs, but also provide the service at a lower price, regardless of assuming they are facing natural monopoly disadvantages. Referring to the hypotheses proposed in Section 3 of this paper, it must be said that hypothesis H1 (scale economics are crucial for firm success) could not be confirmed in both the interviews and the econometric investigation. Hypothesis H2 (scope economies) was confirmed in the interviews, and I moreover found out that firms exploit scope economies existing between different business areas. The latter was also confirmed in the econometric investigation. The interviews provided first indications that confirm the intuitive proposition of hypothesis H3 (existence of density economics) and also H4 (specialization on selected postal operations as a success determinant). The econometric investigation, however, did not provide evidence on the last two hypotheses H3 and H4.

Despite the satisfying results obtained from the econometric investigation, the underlying dataset suffers from weaknesses. The small number of observations is one of the major weaknesses. Although the number of observations in the dataset was limited, econometric investigations were conducted in order to draw from them first evidence of the analyzed issue. The adequacy can be justified by the fact that the relevant population, the number of licensees, is small as well. If we account for the lower number of active licensees as the relevant population, then the adequacy becomes much better. Another major weakness is manifested in the dependent variable used in the estimation models. The variable "success" is

based on the assessment of the interviewees regarding their profit situation and is, moreover, of a qualitative nature.

Based on the results of this work, the next step recommended is to make a distinction between firm-specific, industry-specific, and perhaps also geographical success determinants. The distinction between specific success determinants could be helpful in addressing policy implications in order to create the necessary framework for competition in the German postal market. Another recommended aspect for further research is cooperative behavior and strategies adopted among postal service providers and the suitability of cooperation in order to increase regional coverage.

Bibliography

Agarwal, R., Gort, M. (1996): The Evolution of Markets and Entry, Exit and Survival of Firms; in: The Review of Economics and Statistics, Vol. 78, No. 3, pp. 489-498.

Bernard, S., Cohen, R., Robinson, M., Roy, B., Toledano, J., Waller, J., Xenakis, S. (2002): Delivery Cost Heterogeneity and Vulnerability to Entry; in: Crew, M.A., Kleindorfer, P.R. (eds.): Postal and Delivery Services: Delivering on competition, Boston, Mass. (Kluwer), pp. 93-118.

Bradley, M.D., Colvin, J. (1994): An Econometric Model of Delivery; in: Crew, M.A., Kleindorfer, P.R. (eds.): Commercialization of the Postal and Delivery Services, Boston, Mass. (Kluwer), pp. 137-153.

Bradley, M.D., Colvin, J., Perkins, M.K. (2006): Measuring Scale and Scope Economies with a Structural Model of Delivery; in: Crew, M.A., Kleindorfer, P.R. (eds.): Liberalization of the Postal and Delivery Sector, Boston, Mass. (Kluwer), pp. 103-119.

BvDP, TellSell Consulting (2010): Eigentümerstrukturen & Netzwerke im deutschen Briefmarkt - Ein neues Wachstumsfeld für den Mittelstand?; Bonn, Frankfurt.

Cazals, C., Florens, J.P., Rouzaud, S. (1997): Scale Economies and Natural Monopoly in the Postal Delivery: Comparison Between Parametric and Non Parametric Specifications; in: Crew, M.A., Kleindorfer, P.R. (eds.): Managing Change in the Postal and delivery Industries, Boston, Mass. (Kluwer), pp. 65-80.

Cazals, C., Florens, J.P., Roy, B. (2001a): An Analysis of Some Specific Cost Drivers in the Delivery Activity; in: Crew, M.A., Kleindorfer, P.R. (eds.): Future Directions in Postal Reform, Boston, Mass. (Kluwer), pp. 197-211.

Cazals, C., Duchemin, P., Florens, J.P., Roy, B., Vialaneix, O. (2001b): An Econometric Study of Cost Elasticity in the Activities of Post Office Counters; in: Crew, M.A., Kleindorfer, P.R. (eds.): Postal and Delivery Services: Pricing, Productivity, Regulation and Strategy, Boston, Mass. (Kluwer), pp. 161-171.

Christmann, C. (2004): Liberalisierung von Monopolmärkten; Berlin (Peter Lang-Verlag).

Cohen, R.H., Chu, E.H. (1997): A Measure of Scale Economies for Postal Systems; in: Crew, M.A., Kleindorfer, P.R. (eds.): Managing Change in the Postal Delivery Industries, Boston, Mass. (Kluwer), pp. 115-132.

Farsi, M., Filippini, M., Trinkner, U. (2006): Economies of Scale, Density and Scope in Swiss Post's Mail Delivery; in: Crew, M.A., Kleindorfer, P.R. (eds.): Liberalization of the Postal and Delivery Sector, Boston, Mass. (Kluwer), pp. 91-101.

Gazzei, D.S., Pace, C., Scarfiglieri, G. (2002): On the Output Elasticity of the Activities of Post Office Counters in Italy; in: Crew, M.A., Kleindorfer, P.R. (eds.): Postal and Delivery Services: Delivering on Competition, Boston, Mass. (Kluwer), pp. 157-167.

Gupta, S., Gupta, J. (1985): Economies of Scale and Economies of Scope in the U.S. Postal Service; in: Engineering Costs and Production Economics, Vol. 8, Amsterdam, pp. 269-280.

Norsworthy, J.R., Yang, S.L., Shi, W.M. (1991): Productivity and Cost Measurement for the United States Postal Service: Variations among Regions; in: Crew, M.A., Kleindorfer, P.R. (eds.): Future Directions in Postal Reform, Norwell, Mass. (Kluwer), pp. 141-168.

Panzar, J. C. (1991): Is Postal Service a Natural Monopoly?; in: Crew, M.A., Kleindorfer, P.R. (eds.): Competition and Innovation in Postal Services, Volume 8, 1991, pp. 219-231.

Panzar, J. C., Sherman, R. (1993): Competition, Efficiency, and the Vertical Structure of Postal Services; in: Crew, M.A., Kleindorfer, P.R. (eds.): Regulation and the Nature of Postal and Delivery Services, Volume 12, pp. 91-108.

Rogerson, C.M., Takis, W.M. (1993): Economies of Scale and Scope and Competition in Postal Services; in: Crew, M.A., Kleindorfer, P.R. (eds.): Regulation and the Nature of Postal and Delivery Services, Boston, Mass. (Kluwer), pp. 109-132.

Schoelermann, S. (2005): Vertikale Integration bei Postnetzbetreibern - Geschäftsstrategien und Wettbewerbsrisiken; in: Diskussionsbeitrag des wik Nr. 271, Bad Honnef.

Wada, T., Tsunoda, C., Nemoto, J. (1997): Empirical Analysis of Economies of Scale, Economies of Scope, and Cost Subadditivity in Japanese Mail Service; Discussion Paper No. 1997-08, IPTP Discussion Paper Series.

Acknowledgements

I am grateful to Thomas Wein, participants of The 31st Annual Eastern Conference of the Center for Research in Regulated Industries, and participants of the Research Seminar of the Institute of Economics at the Leuphana University of Lueneburg for constructive comments.

Appendix

Table 7: Correlation Matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1) Age	1.0000																	
(2) Size	0.0745	1.0000																
(3) Size Squared	0.0035	0.9506	1.0000															
(4) Delivery Radius 1	0.0862	-0.2545	-0.2404	1.0000														
(5) Delivery Radius 2	-0.0133	0.0597	0.0161	-0.2631	1.0000													
(6) Delivery Radius 3	-0.0770	0.0298	-0.0039	-0.5241	-0.1992	1.0000												
(7) Delivery Radius 4	0.0301	0.2894	0.3309	-0.3922	-0.1491	-0.2970	1.0000											
(8) Collection	-0.1341	0.1114	0.0866	0.0322	0.0315	0.0213	0.0470	1.0000										
(9) Sortation (in)	-0.2290	0.2735	0.2475	-0.2152	0.2093	0.1196	0.0161	0.4093	1.0000									
(10) Sortation (out)	-0.2940	0.2009	0.1638	-0.1417	0.2025	0.0548	0.0054	0.5253	0.7016	1.0000								
(11) Transportation	-0.0328	0.1473	0.1219	0.0023	0.1247	0.0913	-0.1336	0.3253	0.3824	0.3985	1.0000							
(12) Delivery	-0.2610	-0.0259	-0.0259	0.0629	0.1116	0.2292	-0.2910	0.3100	0.2852	0.3003	0.1273	1.0000						
(13) Mail Market	-0.1704	-0.1292	-0.1198	0.0741	0.0981	-0.0267	-0.1219	0.2950	0.1842	0.4064	-0.0032	0.3135	1.0000					
(14) Parcel Market	0.1208	-0.0097	-0.0014	-0.1510	0.0911	0.0218	0.1359	-0.0112	-0.0058	-0.0154	-0.0702	-0.0218	-0.0439	1.0000				
(15) Other Market	0.2114	0.1966	0.2137	-0.1025	-0.2104	0.1273	0.0697	-0.2713	-0.2834	-0.3985	0.0152	-0.2912	-0.6698	-0.1381	1.0000			
(16) Cooperation	-0.1051	0.1530	0.1340	-0.2311	0.0791	0.2268	0.0589	0.2491	0.2739	0.2516	0.1232	0.3780	0.1293	-0.0961	-0.0246	1.0000		
(17) Founder	-0.2346	-0.1124	-0.0752	0.0327	-0.0559	0.0356	-0.0069	0.0822	0.1022	0.1725	0.0058	0.0950	0.1219	-0.0528	-0.1336	-0.0589	1.0000	
(18) Access to PO Boxes	0.1146	0.2547	0.1943	0.0311	0.0818	-0.0880	0.0549	0.2152	0.1794	0.2183	0.2275	0.0880	0.0595	0.0439	-0.0593	0.0776	0.0792	1.0000

Working Paper Series in Economics

(recent issues)

No.284: *Andree Ehlert, Dirk Oberschachtsiek,* and *Stefan Prawda*: Cost Containment and Managed Care: Evidence from German Macro Data, October 2013

No.283: *Joachim Wagner* and *John P. Weche Gelübcke*: Credit Constraints, Foreign Ownership, and Foreign Takeovers in Germany, September 2013

No.282: *Joachim Wagner*: Extensive margins of imports in The Great Import Recovery in Germany, 2009/2010, September 2013

No.281: *Stefan Baumgärtner, Alexandra M. Klein, Denise Thiel,* and *Klara Winkler*: Ramsey discounting of ecosystem services, August 2013

No.280: *Antonia Arsova* and *Deniz Dilan Karamen Örsal*: Likelihood-based panel cointegration test in the presence of a linear time trend and cross-sectional dependence, August 2013

No.279: *Thomas Huth*: Georg von Charasoff's Theory of Value, Capital and Prices of Production, June 2013

No.278: *Yama Temouri and Joachim Wagner*: Do outliers and unobserved heterogeneity explain the exporter productivity premium? Evidence from France, Germany and the United Kingdom, June 2013 [published in: Economics Bulletin, 33 (2013), 3, 1931-1940]

No.277: *Horst Raff and Joachim Wagner*: Foreign Ownership and the Extensive Margins of Exports: Evidence for Manufacturing Enterprises in Germany, June 2013

No.276: *Stephan Humpert*: Gender Differences in Life Satisfaction and Social Participation, May 2013

No.275: *Sören Enkelmann and Markus Leibrecht*: Political Expenditure Cycles and Election Outcomes Evidence from Disaggregation of Public Expenditures by Economic Functions, May 2013

No.274: *Sören Enkelmann*: Government Popularity and the Economy First Evidence from German Micro Data, May 2013

No.273: *Michael Berlemann, Soeren Enkelmann,* and *Torben Kuhlenkasper*: Unraveling the Relationship between Presidential Approval and the Economy – A Multi-Dimensional Semi-Parametric Approach, May 2013

No.272: *Michael Berlemann* and *Sören Enkelmann*: The Economic Determinants of U.S. Presidential Approval – A Survey, May 2013

No.271: *Soeren Enkelmann*: Obama and the Macroeconomy Estimating Social Preferences Between Unemployment and Inflation, May 2013

No.270: *Anja Köbrich León*: Does Cultural Heritage affect Employment decisions – Empirical Evidence for Second Generation Immigrants in Germany, April 2013

No.269: *Anja Köbrich León* and *Christian Pfeifer*: Religious Activity, Risk Taking Preferences, and Financial Bahavior, April 2013

No.268: *Anja Köbrich León*: Religion and Economic Outcomes – Household Savings Bahavior in the USA, April 2013

No.267: *John P. Weche Gelübcke* and *Isabella Wedl*: Environmental Protection of Foreign Firms in Germany: Does the country of origin matter?, April 2013

No.266: *Joachim Wagner*: The Role of extensive margins of exports in *The Great Export Recovery* in Germany, 2009/2010, March 2013

No.265: *John-Oliver Engler* and *Stefan Baumgärtner*: Model choice and size distribution: a Bayequentist approach, February 2013

No.264: *Chiara Franco* and *John P. Weche Gelübcke*: The death of German firms: What role for foreign direct investment?, February 2013

No.263: *Joachim Wagner*: Are low-productive exporters marginal exporters? Evidence from Germany, February 2013 [published in Economics Bulletin 33 (2013), 1, 467-481]

No.262: *Sanne Hiller, Philipp J. H. Schröder,* and *Allan Sørensen*: Export market exit and firm survival: theory and first evidence, January 2013

No.261: *Institut für Volkswirtschaftslehre*: Forschungsbericht 2012, Januar 2013

No.260: *Alexander Vogel* and *Joachim Wagner*: The Impact of R&D Activities on Exports of German Business Services Enterprises : First Evidence from a continuous treatment approach, December 2012

No.259: *Christian Pfeifer*: Base Salaries, Bonus Payments, and Work Absence among Managers in a German Company, December 2012

No.258: *Daniel Fackler, Claus Schnabel,* and *Joachim Wagner*: Lingering illness or sudden death? Pre-exit employment developments in German establishments, December 2012

No.257: *Horst Raff* and *Joachim Wagner*: Productivity and the Product Scope of Multi-product Firms: A Test of Feenstra-Ma, December 2012 [published in: Economics Bulletin, 33 (2013), 1, 415-419]

No.256: *Christian Pfeifer* and *Joachim Wagner*: Is innovative firm behavior correlated with age and gender composition of the workforce? Evidence from a new type of data for German enterprises, December 2012

No.255: *Maximilian Benner*: Cluster Policy as a Development Strategy. Case Studies from the Middle East and North Africa, December 2012

No.254: *Joachim Wagner* und *John P. Weche Gelübcke*: Firmendatenbasiertes Benchmarking der Industrie und des Dienstleistungssektors in Niedersachsen – Methodisches Konzept und Anwendungen (Projektbericht), Dezember 2012

No.253: *Joachim Wagner*: The Great Export Recovery in German Manufacturing Industries, 2009/2010, November 2012

No.252: *Joachim Wagner*: Daten des IAB-Betriebspanels und Firmenpaneldaten aus Erhebungen der Amtlichen Statistik – substitutive oder komplementäre Inputs für die Empirische Wirtschaftsforschung?, Oktober 2012

No.251: *Joachim Wagner*: Credit constraints and exports: Evidence for German manufacturing enterprises, October 2012

No.250: *Joachim Wagner*: Productivity and the extensive margins of trade in German manufacturing firms: Evidence from a non-parametric test, September 2012 [published in: Economics Bulletin 32 (2012), 4, 3061-3070]

No.249: *John P. Weche Gelübcke*: Foreign and Domestic Takeovers in Germany: First Comparative Evidence on the Post-acquisition Target Performance using new Data, September 2012

No.248: *Roland Olbrich, Martin Quaas,* and *Stefan Baumgärtner*: Characterizing commercial cattle farms in Namibia: risk, management and sustainability, August 2012

No.247: *Alexander Vogel* and *Joachim Wagner*: Exports, R&D and Productivity in German Business Services Firms: A test of the Bustos-model, August 2012 [published in Empirical Economics Letters 12 (2013), 1]

No.246: *Alexander Vogel* and *Joachim Wagner*: Innovations and Exports of German Business Services Enterprises: First evidence from a new type of firm data, August 2012

No.245: *Stephan Humpert*: Somewhere over the Rainbow: Sexual Orientation Discrimination in Germany, July 2012

No.244: *Joachim Wagner*: Exports, R&D and Productivity: A test of the Bustos-model with German enterprise data, June 2012 [published in: Economics Bulletin, 32 (2012), 3, 1942-1948]

No.243: *Joachim Wagner*: Trading many goods with many countries: Exporters and importers from German manufacturing industries, June 2012 [published in: Jahrbuch für Wirtschaftswissenschaften/Review of Economics, 63 (2012), 2, 170-186]

No.242: *Joachim Wagner*: German multiple-product, multiple-destination exporters: Bernard-Redding-Schott under test, June 2012 [published in: Economics Bulletin, 32 (2012), 2, 1708-1714]

No.241: *Joachim Fünfgelt* and *Stefan Baumgärtner*: Regulation of morally responsible agents with motivation crowding, June 2012

No.240: *John P. Weche Gelübcke*: Foreign and Domestic Takeovers: Cherry-picking and Lemon-grabbing, April 2012

No.239: *Markus Leibrecht* and *Aleksandra Riedl*: Modelling FDI based on a spatially augmented gravity model: Evidence for Central and Eastern European Countries, April 2012

No.238: *Norbert Olah, Thomas Huth* und *Dirk Löhr*: Monetarismus mit Liquiditätsprämie Von Friedmans optimaler Inflationsrate zur optimalen Liquidität, April 2012

No.237: *Markus Leibrecht* and *Johann Scharler*: Government Size and Business Cycle Volatility; How Important Are Credit Contraints?, April 2012

No.236: *Frank Schmielewski* and *Thomas Wein*: Are private banks the better banks? An insight into the principal-agent structure and risk-taking behavior of German banks, April 2012

No.235: *Stephan Humpert*: Age and Gender Differences in Job Opportunities, March 2012

No.234: *Joachim Fünfgelt* and *Stefan Baumgärtner*: A utilitarian notion of responsibility for sustainability, March 2012

No.233: *Joachim Wagner*: The Microstructure of the Great Export Collapse in German Manufacturing Industries, 2008/2009, February 2012 [published in: Economics - The Open-Access, Open-Assessment E-Journal, Vol. 7, 2013-5]

No.232: *Christian Pfeifer* and *Joachim Wagner*: Age and gender composition of the workforce, productivity and profits: Evidence from a new type of data for German enterprises, February 2012

No.231: *Daniel Fackler, Claus Schnabel,* and *Joachim Wagner*: Establishment exits in Germany: the role of size and age, February 2012 [published in Small Business Economics, 41 (2013), 3, 683-700]

No.230: *Institut für Volkswirtschaftslehre*: Forschungsbericht 2011, January 2012

No.229: *Frank Schmielewski*: Leveraging and risk taking within the German banking system: Evidence from the financial crisis in 2007 and 2008, January 2012

(see www.leuphana.de/institute/ivwl/publikationen/working-papers.html for a complete list)

Leuphana Universität Lüneburg
Institut für Volkswirtschaftslehre
Postfach 2440
D-21314 Lüneburg
Tel.: ++49 4131 677 2321
email: brodt@leuphana.de

www.leuphana.de/institute/ivwl/publikationen/working-papers.html