Thünen-Series of Applied Economic Theory

Thünen-Reihe Angewandter Volkswirtschaftstheorie

Working Paper No. 76

Does the Product Quality Hypothesis Hold True? – Service Quality Differences between Independent and Exclusive Insurance Agents

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2007

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April 2007

Abstract

Insurance products are distributed both by independent and dependent agents, although the use of independent agents is more costly. The product quality hypothesis states that independent agents provide both insurers and customers with higher service quality and therefore, remain on the market. On the contrary, according to the market imperfections hypothesis both intermediary types offer the same quality, and only coexist due to information asymmetries. Having conducted a written survey, we measure service quality differences by multivariate regression analysis. Our analysis shows that the higher level of service quality of independent agents supports the product quality hypothesis. The result is a separating equilibrium on the market.

Keywords: Insurance intermediation, service quality, distribution systems

JEL-Classification: G 22, L 15, L 22

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1   Introduction

The liberalisation of the European insurance markets in 1994 has led to major changes in the German insurance market which was highly regulated until that moment. Consumers now face a higher number of insurance products and providers. At the same time, private old-age and health provision is gaining importance due to the decline in public health and old-age provision. Both factors lead to an increasing need for counselling by private customers, as insurance products can be characterized as credence or trust goods which present high information asymmetries and consequently, a high need for counselling.

In most cases, insurance firms sell their products via agents which act as experts and help to overcome the information asymmetries between the insurance firm and the customers. Most insurance markets are characterized by the coexistence of different distribution systems. In many cases, insurance companies distribute their products at the same time via independent and exclusive intermediaries. Exclusive (dependent) agents act on behalf of one or more selected insurance companies, and are only allowed to sell the corresponding products. On the contrary, independent insurance agents (insurance brokers) act primarily on behalf of the insurance customer. They are free to choose the insurance products they sell and the companies they work with. Both exclusive and independent agents are paid for their services on a commission basis by the insurers. Independent agents are known to receive higher commissions for their services compared to exclusive agents, as the insurance company needs to ensure that the intermediary will act in its sense and not move the client to another insurer. But despite these potentially higher costs of the independent insurance agency system, both distribution systems prevail in the insurance industry. In the German market, exclusive agents were the dominant distribution channel until the liberalisation. Until then, independent agents have gained importance.

This study explains the coexistence of independent and exclusive agents on the German insurance market from a customer's point of view by analyzing the quality of service provided by independent and exclusive agents. It therefore offers an answer to the open questions how different distribution channels can coexist on insurance markets and how the liberalisation of the market has affected the importance of different distribution channels.

Thus, this study adds new results to the existing research on the coexistence of distribution channels in insurance markets, and is the first one to analyse the question for the German market. Two main explanations for the coexistence of different distribution channels are provided in the existing literature,the product quality hypothesis and the market imperfections hypothesis. The product quality hypothesis states that the two systems coexist because they differ in the services they offer and the clientele they attract. As a result, the higher costs of the

independent agency system are compensated by a higher level of service quality compared to exclusive agents (e.g. Barrese and Nelson, 1992). The result would be a separating equilibrium in the market where both types of intermediaries coexist. Independent insurance agents would rather focus on counselling-intensive, complex insurance products, whereas exclusive agents would specialize on standardised, less counselling-intensive insurance products.

Opposed to that, the market imperfections hypothesis states that the distribution via exclusive agents on the one hand and the independent agency-based distribution system on the other do not differ in the quality they offer to the customer. The explanation for the coexistence of both systems rather lies in prevailing information asymmetries, preventing market transparency and the comparability of both distribution channels. Thus, the more cost-intensive independent agent-based distribution channel continues to exist only due to the information asymmetries on the market (Joskow, 1973; Cummins and VanDerhei, 1979, and Weiss, 1990). Those asymmetries may be attributed to a slow diffusion of information on insurance markets (Berger, Kleindorfer and Kunreuther, 1989), or to high search costs, which prevent inefficient firms from being identified (e.g. Dahlby and West, 1986). The result would be that both intermediary types would coexist on the market in a pooling eqilibrium, although the higher costs of the independent agency system are not reflected by a higher level of service quality. In the long run, the information asymmetries should decrease which would lead to a declining market share of independent intermediaries. But due to the large information asymmetries in insurance markets, it has also been suggested that independent intermediaries should be subject to a stricter regulation.

This paper provides an empirical test of the product quality hypothesis against the market imperfections hypothesis. It represents the first test of these hypotheses on the German market for insurance intermediation. As in the German insurance market most insurers work at the same time with independent and exclusive insurance agents, hypotheses are directly tested by measuring the service quality provided by exclusive and independent insurance agents on the basis of selected quality indicators. There are only two studies which compare exclusive and independent agents on the German market: Eckardt (2002) employs mean differences parametric tests to identify differences in quantitative and qualitative variables describing the information and counselling behaviour of the agents. She shows that independent agents provide higher information quality. These results are confirmed in a second study using the same data (Eckardt 2007): multivariate estimations show that the information quality provided by insurance intermediaries increases with their independence from insurance companies. However, Eckardt does not center in the explanation of the coexistence of both distribution

channels, but in the working of signalling instruments in the market for insurance intermediation, among them the intermediary type. Thus, this study represents a completion to the previous work in this field.

Methodologically, an online survey among approximately 3,500 exclusive and independent German insurance intermediaries was carried out in Spring 2005. Different quality indicators have been chosen as proxy variables for quality of service. They can be split up in two groups: the first group includes indicators describing the input quality delivered by the insurance intermediary, whereas the second group contains indicators for the output quality of the intermediation services. The analysis of both the input activities of the intermediary,as well as the results of his counselling activities gives a more complete insight in the provided service quality as in case of only analsing one group of indicators.

Multivariate results indicate that the product quality hypothesis holds true for the German market: Compared to exclusive agents, independent agents show higher levels of service quality both in terms of the analysed input quality indicators and the output quality indicators.

This paper is organized as follows: In section 2, the theoretical background is presented and an overview of earlier studies is given. Section 3 illustrates the empirical design of this study, gives an overview about the applied variables, and presents the estimation approach. In section 4, the main descriptive results and the results of the multivariate estimations are presented. Conclusions are drawn in section 5.

2   Theoretical background and previous research

Compared to exclusive insurance agents, independent insurance brokers are known to have higher expense ratios (e.g. Zweifel and Ghermi, 1990).[1] The higher expenses of independent agents can be explained by the property rights structure of the relationship between insurer and agent: While dependent agents do not have the ownership of the client list, independent agents have the right to policy renewal. Independent agents directly contact the customer at the end of the contract period and decide which of the insurers represented will receive the renewal business. Therefore, typically independent agent renewal commissions are higher than the commission level in exclusive distribution systems, as the insurer must ensure that an independent agent acts in his sense and does not move the client to another insurer. Thus, insurers incur higher monitoring costs in case of dealing with independent agents (Barrese and Nelson, 1992).

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[1] As information about individual compensation levels of insurance intermediaries is usually not available, there are only few studies which analyse the renumeration of insurance intermediaries.

According to the product quality hypothesis, the higher costs of the independent agency system are justified by a higher level of service quality which is delivered by independent agents compared to exclusive agents. This supposed higher level of service quality can be analysed from a supply side-oriented view. In this case, it is the insurance company which receives a higher level of quality by the services of an independent agent (e.g. Regan (1997), Regan/Tennyson (1996), Anderson/Ross/Weitz (1998)). The higher level of service quality can also be analysed from a demand side-oriented view according to the information channelling-argument (Finsinger and Schmid 1994). According to this argument, insurance brokers provide a higher level of service quality to the customers. This higher service quality is perceived by the customers and leads to an increased demand for services by independent agents. This increased demand justifies the use of independent agents by insurance companies despite of the higher costs these agents incur. As in this study, the consequences of the liberalisation of the insurance market on the need for counselling of the customer are in the centre of interest, the service quality is tested from a demand-oriented view.

Several demand side-oriented arguments for a higher service quality of independent agents can be found in previous work: The central reason for the higher level of quality by independent agents can be found in the seminal paper by Grossman and Hart (1986): under the distribution by dependent agents, the insurance company owns the client list, and thus, controls the relevant assets to its clients and decides if policies are going to be renewed.[2] In case of an independent agency system, it is the agent who owns the client list. Grossman and Hart state that this difference in the ownership of the client list will lead to higher investments in the client list by independent agents compared to exclusive agents. These higher investments made by the independent agent are reflected in the effort with which the insurance policy is chosen and designed, and in the efficiency when dealing with claims settlement. The higher effort results in a higher level of service quality.

There are further arguments for a higher level of service quality by independent agents: In contrast to exclusive agents who only work for a single or few insurance firms, insurance brokers compare the products of different providers and give better informed advice to the customer, as they represent different insurers in their portfolio. By this, they reduce the search costs of the customer (Posey and Tennyson, 1998). From a customer's point of view, higher service quality could also consist in a better monitoring of the insurer by brokers (Regan, 1997). Important monitoring functions are, for example: screening different insurers for appropriate

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[2] The ownership of the client list can be seen as the relevant asset in this relationship.

coverages, low prices, and financial stability. Mayers and Smith (1981) and Barrese and Nelson (1992) also state that independent agents are more capable to deal with conflicts between insurers and policy holders, as they can threat with moving the customer to another insurer. As a compensation for this service, they receive higher renumeration compared to exclusive agents.

Summarizing, it can be stated that there are several arguments in the literature that support the product quality hypothesis. As a result, a separating equilibrium should result in the market for insurance intermediation with independent agents engaging in rather complex insurance lines where the need of information by the customer is comparatively high and thus, a high level of service quality is of great importance. In contrast to that, exclusive agents would rather focus on standardized insurance products. As information and counselling of the customer are of lower importance in these cases, insurance firms would mainly distribute these products by less cost-intensive exclusive agencies.

In the majority of previous studies dealing with this issue, service quality of insurance agents has not been measured directly. Instead, cost and revenue functions of insurers working exclusively with exclusive agents on the one hand, and those working solely with independent agents on the other hand were estimated to compare cost and revenue levels of either distribution system. The results are mixed: while in most cases, independent agents are found to deliver higher service quality (e.g. Cummins and Weisbart, 1977, Barrese and Nelson, 1992, Barrese et al., 1995, and Berger et al. 1997), some studies do not find significant differences in service quality by exclusive and independent agents (e.g Klumpes, 2004) or even evidence for higher quality of exclusive agents (Joskow, 1973, Etgar,1976).

3   Empirical design and estimation approach

The data used is obtained from an online survey which was carried out in Spring 2005. The online questionnaire was sent to some 3,500 German exclusive and independent insurance intermediaries. The e-mail addresses were randomly chosen from different sources like online directories, registers of members of professional organizations, and registers of members of chambers of commerce and industry.[3]

We asked for attributes of the interviewee like age, professional experience (in years), status (exclusive or independent agent), the professional qualification level (formation level and

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[3] There is no legal duty to register for insurance intermediaries in the German market until the year 2007 and thus, no central register is available to obtain adresses of insurance intermediaries.

additional skills), and the membership in a professional organization. Concerning the formation level, different formation levels available on the German market were classified from 1 to 6 with level 1 being the lowest and level 6 the highest qualification level.

Structural variables contain information about firm size (measured by the number of employees), product range (number of services provided besides the mediation of insurance products), degree of specialisation (measured by the percentage of insurance contracts signed in private customer insurance lines), and share of complex insurance products which are sold by the intermediary. The following insurance lines have been characterized as complex insurance lines: ageing provision, commercial insurance, industrial insurance, and private health insurance. Compared to more standardised insurance lines, for the more complex lines the conditions of insurance usually are formulated individually by the intermediary according to the customer's needs and preferences.

To test the product quality hypothesis, it is necessary to define and measure service quality. According to Eckardt (2007), intermediaries provide information, advisory, bargaining, and administrative services. According to the different service components, several indicators for the input quality of the intermediary's services have been selected in this study belonging to the categories of acquisition and transfer of information, as well as documentation activities. The second group of quality indicators contains indicators for the output quality. Eckardt (2007) uses two different measures for the performance of intermediaries: First, an information index is considered to measure the weight intermediaries attach to 27 different subjects about customer's need for insurance protection, insurance products and coverage, policy design and contract terms. Second, the contract conclusion rate is also considered as a proxy for economic success, and thus, also indirectly for service quality. The difference to the quality concept by Eckardt (2007) lies in the fact that in our case, service quality is not only measured by an information quality index, but by single variables which describe the quality of the intermediaries' input. Thus, this study does not only focus on the quality of information which is provided, but also on the intermediaries' activities. Further, as this study centres on the service quality from a customer's point of view, in case of the output quality, the lapse rate and the share of new customers in the intermediary's portfolio are considered besides the contract conclusion rate. The following table 1 describes all advisory service quality indicators which have been selected for multivariate analyses.[4]

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[4] The choice of the quality indicators for the multivariate estimations occurred on the basis of the results of mean differences parametric tests for all quality indicators which were included into the questionnaire.

The influence of the selected indicators on the level of advisory service quality can be explained as follows:

- *ASQ $_1$: Working time information acquisition:* The more time is spent on information acquisition, the better advise the intermediary is able to give ceteris paribus. If the product quality hypothesis holds true, independent agents should show a higher share of working time which is spent on information acquisition, as they have to collect and analyse information about a higher number of suppliers and products.

- *ASQ $_2$: Importance of rating agencies:* Rating agencies help to overcome information asymmetries on insurance markets by analyzing and comparing the performance of different insurance firms and products. As these rating agencies do not act on behalf of insurance firms or customer associations, their information can be seen as objective. Further, the information is of high quality as these rating agencies are specialized on insurance topics. Thus, the higher the value an intermediary attaches to information by rating agencies, the higher the service quality he is expected to deliver to the customer ceteris paribus.

- *ASQ $_3$: Risk analysis:* To determine the insurance demand of a customer, the intermediary has to analyse the risk profile of the customer as a first step. For this, information about personal characteristics, risk preferences, the financial and professional situation, as well as about existing insurance coverage of the customer have to be collected and processed. Due to the high number and complexity of the information, service quality is expected to increase from 1 (subjective classification of the client's risk profile) to 3 (computer-assisted determination of the customer's risk profile), as information about the customer's risk profile is processed more professionally.

- *ASQ $_4$: Documentation counselling interview:* A possible miscounselling by the intermediary can only be detected if a record of the counselling interview exists which could prove that the intermediary failed to inform the customer about relevant characteristics of the insurance product (e.g., high costs in case of an early cancellation of a life insurance contract). Until summer of 2007, there will be no legal duty for an insurance intermediary in the German market to deliver a record of the counselling interview. Thus, the voluntary delivery of a record can be seen as a signalling instrument to demonstrate a high level of service quality.

- *ASQ ₅: Contract conclusion rate:* The higher the share of counselling interviews which lead to the signing of an insurance contract, the more successful an intermediary is in analyzing the relevant information and choosing suitable contracts for the customers. Thus, it can be expected that insurance intermediaries who show a higher contract conclusion rate offer higher service quality to their customer.

- *ASQ ₆: Lapse rate automobile insurance:* The reason for a cancellation of an insurance contract during the first year after the signing of the contract demonstrates the dissatisfaction of the customer, and can be seen as an indicator for a low level of advisory quality by the intermediary. A lower lapse rate therefore indicates higher service quality ceteris paribus.

- *ASQ ₇: Share of turnover new customers:* A higher share of turnover by new customers indicates a faster growth of the agency. The higher growth can be explained by a higher perceived level of quality which leads to a higher demand by the customer. This relationship holds only true, if the rate of cancelled contracts in the intermediary's portfolio is simultaneously checked and does not show a positive influence on the share of turnover by new customers. Otherwise, the high share of turnover by new customers could also be generated by high lapse rates, i.e. by the loss of existing customers (see section 4 for details).

To estimate the influence of the intermediary's status on service quality, the selected quality indicators presented above have been used as dependent variables in the multivariate models presented in the following. As explanatory variables, the following variables are considered:

- *Intermediary type*: A dummy variable differentiates between exclusive (0) and independent insurance agents (1). Following the product quality hypothesis, we expected that independent agents supply better service quality, thus, the variable showing a positive sign.

- *Firm size:* This variable is measured on the basis of the number of employees, as data about turnover is not available. The expected influence on service quality is positive, as we assume increasing economies of scale to be realized during the acquisition and procession of information. This would make it possible to provide a given level of information at lower costs (see also Eckardt 2007).

- *Product range* describes the number of services the intermediary offers besides the mediation of insurance products. Services like investment counselling, financial advice, investment fund management, asset management, and real estate agency are considered.

The expected influence on service quality is positive, as economies of scope are expected to exist for the supply of different services. For example, information gained about the risk profile of a customer can be used for supplying the customer with different products. The costs for obtaining these information can thus be distributed among different services (see also Eckardt 2007).

– *Share of complex insurance products s*pecifies the ratio of complex insurance policies (policies belonging to the insurance lines ageing provision, private health insurance, commercial insurance, and industrial insurance) to the total number of policies. The variable ranges between 0 and 1, and the expected influence on advisory service quality is positive as intermediaries with a higher share of complex insurance products in their portfolio have to meet higher requirements considering the acquisition and transfer of information which leads to higher service quality.

– *Membership in a professional organization:* The dummy variable takes the value of 1 if the intermediary is member in a professional organization and 0, otherwise. Membership in a professional organization is often linked to the fulfilment of certain quality standards (e.g. minimum qualification level, rules of conduct, professional indemnity insurance). Therefore, it can be seen as an instrument to signal a high level of quality. Thus, a positive influence on advisory service quality is expected.

Summarizing, we formulate the following hypotheses:

H_1:   Independent agents show higher levels of service quality compared to exclusive agents measured by the presented service quality indicators.

H_2:   The service quality provided is positively influenced by firm size, product range, share of complex insurance products in the portfolio, and membership in a professional organization.

4   Results

The data set consists of 608 answered questionnaires, where exclusive (58.4 percent) and independent agents (41.6 percent) have nearly the same share. Tied or exclusive agents belonging to a single or several insurance companies or an insurance group, respectively, have

been classified as exclusive agents. Insurance brokers and financial consultants[5] have been classified as independent agents.[6]

Table 2 summarizes the main descriptive statistics comparing the mean values of the structural and exogenous variables for the groups of independent and exclusive agents.

[Table 2 about here]

The results for the structural variables show that exclusive agents have on average a larger client base: Tied agents act as agents for 1,565 customers, whereas independent brokers only act on behalf of 1,106 clients. The reason for this could lie in the lower commission levels of exclusive agents, and in less time-intensive services by exclusive agents which permit the consultancy of more clients. As to the qualification level and professional experience, both groups do not seem to differ: exclusive agents show an average formation level of 2.94. Concerning the professional experience, both groups show a mean value of nearly 17 years. Regarding the number of insurers which are represented by the agent, exclusive agents have less insurance companies they work for (6.98 on average) compared to independent agents who offer products of approx. 51 insurers to their customers on average.

Analyzing the explanatory variables which are considered in the multivariate estimations, the following can be found: The firm size clearly differs between both types of agents: exclusive agencies have 2.94 employees on average, while independent agencies are larger with 5.08 employees at the mean. Both groups offer a comparable range of products besides insurance products to their customers, but independent agents have a larger share of complex insurance products in their portfolio. The distribution of the intermediaries' portfolios into the single insurance lines is going to be analysed in detail at the end of this section. Independent intermediaries are also more often members in professional organizations.

Finally, the mean values of the presented advisory service quality indicators are also presented for both groups: In all cases, independent intermediaries represent higher values of service

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[5] Financial consultants are usually not tied to one or several companies and thus, they have been classified as independent agents, although the title is not linked to any requirements concerning the formation of these agents.

[6] As there is no legal duty to register for insurance intermediaries in Germany until 2007, the total population is unknown. There is also only limited information about the distribution of the different intermediary types in the total population: In 2004, the majority (320,000 of 405,000 intermediaries) acted as part-time intermediaries. As they only account for a small amount of the total premium income, only full-time intermediaries are considered in this study. In case of full-time intermediaries, the GDV (Gesamtverband der Deutschen Versicherungswirtschaft – German Insurance Association) estimates that 78,000 are dependent agents (exclusive or multiple agents which are linked to one or several insurance companies) and 7,000 are independent insurance agents (GDV 2004). But due to the non-existence of a registration duty until today, these figures are only rough estimates. Thus, it is not possible to detect a potential selection bias in the data.

quality compared to exclusive agents.[7] In a next step, multivariate estimations prove if the differences in service quality between both groups continue to exist when considering the chosen exogenous variables. Table 3 shows the results of the models analyzing the impact of the exogenous variables on the four selected input quality indicators (ASQ [1-4]). Table 4 presents the results for the three output quality indicators (ASQ [5-7]). Multicollinearity between the independent variables has been tested in the forefront of conducting the multivariate estimations, but no indication could be found. [8]

The dependent variables range between 0 and 1 for the models 1, and 5 to 7. As the variables are continously distributed between 0 and 1, Ordinary Least Squares Regressions (OLS) were estimated for these models. The dependent variables in models 2 and 3 are ordinal variables ranging from 1 to 5 (model 2), and 1 to 3 (model 3), respectively. Thus, we estimate a Maximum Likelihood estimator for ordered variables (Ordered Probit). Finally, model 4 was estimated with a Maximum Likelihood Binary Logit estimator, as the dependent variable is binary.[9]

As models 2 to 4 are limited dependent variable models, the estimated coefficients cannot be directly interpreted as the marginal effects of the associated exogenous variables. However, the direction of the effect of a change in an exogenous variable can be deduced from the sign of the coefficients: positive parameter values imply that an increase of the exogenous variable will increase the probability that the intermediary is independent ($y_i = 1$) in case of the Binary Logit model. In case of the Ordered Probit models, a positive coefficient is interpreted in the following way: In model 2, it implies that increasing the exogenous variable will increase the probability that the intermediary considers information by rating agencies as totally unimportant ($y_i = 5$), and decrease the probability that the intermediary attaches high importance to these information ($y_i = 1$), but the probabilities of being in the intermediate categories could move in either direction. In model 3, a positive parameter value increases the probability that the intermediary conduces a computer-assisted determinance of the customer's risk profile ($y_i = 3$) and decreases the probability that only a subjective classification of the costumer's risk

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[7] According to the conducted t-test, the differences between the mean values proved all to be significant.

[8] The use of self-reporting variables as considered in this study raises the problem of a possible response bias. Interviewees asked about their performance tend to exaggerate. However, it can be assumed that the response bias occurs for all interviewees similarly, i.e. that there is no systematic difference between the groups of exclusive and independent insurance agents.

[9] Detailed information about the Ordered Probit model can be found in Zavoina and McElvey (1975). The Binary Logit model is analysed in detail e.g. in Cox (1970). A general overview about limited dependent data analysis can be found in Agresti (1990).

profile is conducted ($y_i = 1$), but again, the probability of being in the intermediate category could move in either direction. In case of the OLS models, the coefficients can be interpreted as marginal effects.[10]

[Table 3 about here]

[Table 4 about here]

Model 1 analyses the influence of the independent variables on the *share of working time* which is spent *for information acquisition*. The results indicate that independent insurance brokers spent more of their working time on information gathering compared to exclusive intermediaries. This can be interpreted as that they show a higher level of service quality, as predicted by the product quality hypothesis. This result is highly significant on a 1 percent-level.

Model 2 shows the result for the second quality indicator, the *importance* intermediaries attach to the *information* delivered *by independent rating agencies*. Again, independent intermediaries attach higher importance to information of independent rating agencies than exclusive agents do.[11] The coefficient is significant on a 1 percent-level. As expected, the importance of independent information also increases with *membership in a professional organization*, the coefficient being significant on a 5 percent-level.

The third model analyses the *design of the risk analysis*. Here, independent intermediaries do not show a higher level of service quality. However, it can be stated that a larger *product range* increases the probability that a computer assisted risk analysis is conducted by the intermediary. *Firm size* does not show the expected sign: a growing firm size lowers the likelihood of a computer assisted risk analysis being conducted, although the size of the coefficient is very small. The results also show that an increasing share of complex insurance products in the intermediary's portfolio increases the probability that the risk analysis is carried out more professionally.

Model 4 measures the level of service quality on the basis of the question if a *record of the counselling interview* is prepared by the intermediary. Here, again, the fact of being an independent insurance broker increases the likelihood of a record being made after a

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[10] We further conducted tests to check for possible heteroscedasticity of the residuals (e.g. Greene, 2003). Insignificant variables were omitted, the reported model specifications showed the highest explanatory power of all specifications: this was proved by stepwise including the reported exogenous variables and comparing the results for the single coefficients and the overall test statistics.

[11] Note that according to the coding of the variable *Importance rating agencies* negative (positive) coefficients indicate a positive (negative) impact on service quality.

counselling interview. This relationship is highly significant on a 1 percent-level. Further, as expected, a larger *product range* in the intermediary's portfolio raises the likelihood of a record on a level of significance of 1 percent. Also, the *share of complex insurance products* in the intermediary's portfolio has a positive influence on the service quality, which is significant on a 5 percent-level.

In addition to the models 1-4 which seek to explain input quality indicators, models 5 to 7 use output quality indicators. Model 5 analyses the *contract conclusion rate* of counselling interviews. Independent insurance agents realize higher contract conclusion rates compared to exclusive agents (level of significance: 1 percent). Further, the contract conclusion rate increases with a growing *product range* in the intermediary's portfolio, as could be expected, although the marginal effect is much smaller in this case.

Model 6 uses the second output quality indicator, the *lapse rate* in the *automobile insurance line*. This insurance line is well suited for an analysis of the lapse rate, as automobile insurance contracts can be cancelled comparatively easily at low costs. Therefore, significant lapse rates can be found in this insurance line.[12] An additional exogenous variable which measures the share of private customers in the intermediary's portfolio (*"share of private customers"*[13]) was included into this model. The reason is that automobile insurance contracts are signed in most cases by private customers and thus, it should be tested for the influence of the intermediary's specialisation on private customers on the lapse rate in this insurance line.

The results show that the fact of being an independent insurance broker lowers the chance of automobile insurance policies being cancelled indicating a higher service quality of independent insurance agents compared to exclusive ones (level of significance: 1 percent).[14] Further, also a larger *share of complex insurance products* shows the expected influence on service quality: the lapse rate is reduced with the relationship being significant on a 1 percent-level. This result shows that a large share of complex insurance products has a positive

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[12] We also examined lapse rate in long-term, more complex insurance lines (e.g. private health insurance, long-term life insurance policies). In all cases, the lapse rates found were much smaller, and the models proved not to be overall significant. A reason could be that the cancellation of these insurance types incurs much higher costs for the customer. Further, these insurance types are rather credence goods which exhibit large information asymmetries which could also explain why the lapse rates are much smaller as in case of the rather standardized private automobile insurance.

[13] The variable ranges between 0 and 1 and measures the ratio of private customers to the total number of customers in the intermediary's portfolio.

[14] Note that according to the coding of the variable *Lapse rate auto insurance* negative (positive) coefficients indicate a positive (negative) impact on service quality.

influence on the service quality of the intermediary, and that the effect also results in a lower lapse rate in case of a rather standardized insurance line, like the private automobile insurance. The included variable *share of private customers* shows a negative coefficient (level of significance: 1 percent): i.e., intermediaries with a larger share of private customers show a lower lapse rate in the auto insurance line. This effect could be explained by learning effects which are realized with an increasing number of customers in a certain insurance line. This could also explain the result that a higher *product range* leads to a higher lapse rate: Intermediaries who focus on the distribution of insurance products are able to specialize on this service, whereas those intermediaries who offer a broad range of services do not realize this specialisation effects, and thus, deliver lower service quality in this case.

Model 7 finally analyses the dependent variable *share of turnover* which is generated *by new customers*. An additional exogenous variable which measures the professional experience of the intermediary in years (*"professional experience"*) was included into this model. It is important to test the influence of the intermediary`s professional experience in this case, as it can be hypothesised that intermediaries gain a larger share of their turnover by new customers at the beginning of their career due to the need of building up a customer base. Thus, intermediaries with a long working experience should obtain a smaller part of their turnover by new customers. Further, it is important to test for the influence of the share of contracts which were cancelled in the period (*"total lapse rate"*): If this variable showed a positive influence on the share of turnover which is generated by new customers, the high share of turnover by new customers would be, at least partly, generated by high lapse rates, i.e. by the loss of existing customers. In this case, the higher share of turnover by new customers would be attributed to a high lapse rate and thus, a low level of service quality. In that case, it would not indicate a higher growth due to higher quality of service, and the variable could not serve as an indicator for the output quality.

The results of the model demonstrate that the higher share of turnover does not result from the cancellation of contracts by existing cutomers, as the included variable *total lapse rate* has no influence on the share of turnover by new customers. Hence, the share of turnover by new customers serves as a indicator for higher growth and for higher output quality, as hypothezised. Analyzing the results, independent brokers show a higher share of new customers, i.e. independent agencies grow faster compared to dependent agencies. But the impact on the share of turnover by new customers is even stronger when the exogenous variables *share of complex insurance products*, and *membership in a professional organisation* are considered. A comparison of the coefficients' size shows that the effects are larger

compared to the influence of the *intermediary type*. The included variable "professional experience" also shows the expected negative sign: The share of turnover which is gained by new customers decreases with a larger professional experience, although the coefficient size is rather small.

Summarizing, our data give evidence that independent agents provide a higher level of service quality measured by the presented quality indicators, with only one exception. Six of seven models indicate that the product quality hypothesis holds true. In all these cases, independent insurance brokers show a higher level of service quality measured by the presented quality indicators. As to the remaining exogenous variables, the share of complex insurance products has a positive influence on the measured service quality. As in case of complex insurance products, intermediaries have to meet higher requirements considering the acquisition and transfer of information, service quality increases with an increasing share of complex insurance products. In case of the remaining exogenous variables, the membership in a professional organization also shows the expected influence on the level of service quality in two cases. This result shows that intermediaries who meet the requirements for a membership in a professional organization (e.g. minimum qualification level, rules of conduct, professional indemnity insurance), deliver higher service quality to their customers. The results are mixed in case of the product range: a larger product range rises the service quality offered in case of models 3 to 5 which may indicate economies of scope which are realized during the acquisition and processing of information. In case of model 6, a larger product range has a negative influence on the service quality, as it leads to a growing lapse rate. In that case, a larger product range seems to impede the realization of specialisation effects by the intermediary. Finally, the firm size does not seem to have a relevant influence on service quality. Thus, the expected increasing economies of scale during the acquisition and procession of information do not seem to be associated with a higher level of service quality.

The theoretical considerations in chapter 2 suggest that according to the product quality hypothesis there is a separating equilibrium on the market for insurance intermediation with independent agents mediating more complex and less standardised products, and exclusive insurance agents selling more standardised products. The descriptive results already showed that independent intermediaries have a larger share of complex insurance products in their portfolio (see table 2). This result is analysed in more detail in table 5 which shows the share of single insurance lines in the intermediary's portfolio. Ageing provision, commercial insurance, industrial insurance, and private health insurance are characterized as rather complex insurance

lines, whereas private property insurance, automobile insurance and private indemnity insurance are rather standardized insurance products.

[Table 5 about here]

The results of this survey partly confirm the hypothesis of a separating equilibrium: independent agents show higher shares of turnover in complex insurance lines like industrial insurance, ageing provision, and commercial insurance lines, as expected. In contrast to that, exclusive agents show higher shares of turnover in only one standardised line, the private property insurance.

Surprisingly, exclusive agents show a higher share of turnover in the private health insurance line compared to independent agents. This contrasts to our expectation that independent agents would dominate in this complex insurance line. In case of automobile insurance contracts, which are rather standardized, a predominance of exclusive agents could have been expected. However, there is hardly any difference between the share of turnover of both groups, which may be due to the fact that automobile insurance contracts are often used as first contact to future customers with the aim of building up a long-term relationship to the customer. Hence, both types of intermediaries are interested in selling this type of insurance.

The analysis of the share of turnovers in different insurance lines clearly shows that independent agents are represented above-average in some complex insurance lines. But according to our data set, exclusive agents do not seem to act primarily in standardized insurance lines.

5   Conclusions

The coexistance of different distribution systems in insurance markets has often been a subject of research in the past. In this study, the situation in the German market for insurance intermediation is analysed: Until the liberalisation of the European insurance markets in 1994, exclusive, firm-own agents were the dominant distribution channel in the German market, but since then, independent agents are gaining importance. There are two hypotheses which seek to explain the coexistence of both distribution systems: According to the market imperfections hypothesis, the more cost-intensive independent distribution channel only continues to exist due to persisting information asymmetries which prevent a market overview. Both distribution systems offer the same quality. The contrary product quality hypothesis accredits a higher service quality to independent agents compared to exclusive agents. The market for insurance intermediation would result in a separating equilibrium.

The aim of this study is to explain the coexistence of independent and exclusive agents on the German insurance market. For this, the quality of service provided by independent and exclusive agents is analysed from a customer's point of view and the product quality hypothesis is proved. By the obtained results, it is able to explain the coexistence of both distribution channels in the German market, as well as the increasing importance of independent intermediaries since the liberalisation of the German market.

The results of our analysis show that the product quality hypothesis seems to hold true in the German life insurance market, when exclusive and independent insurance intermediaries are compared with each other: In six of seven analysed models, independent agents show a higher level of service quality compared to exclusive agents. This holds true both for indicators of the input and output quality of the provided services. Besides the fact of being an independent intermediary, service quality also increases with a growing share of complex insurance products in the intermediary's portfolio and the membership in a professional organization. The analysis of the insurance portfolios further indicates that, at least partly, the existence of a separating equilibrium in the market can be confirmed: Independent agents show larger market shares in most complex insurance lines, whereas the dominance of exclusive agents in rather standardized lines is only proved for the private property insurance.

Thus, independent agents seem to be able to deliver higher service quality which is of special importance in case of complex, long-term insurance products. This higher level of service quality justifies the higher costs of this distribution channel and is able to explain the growing importance of this distribution channel since the liberalisation of the market. As a consequence of market liberalization and deregulation, the number of products and providers has increased. At the same time, private health and old-age provision is gaining importance, as the public health and pension coverage is declining. Both facts lead an increasing demand for intensive counselling and high-quality advisory services by independent intermediaries. As the importance of complex insurance products is expected to increase in the future (above all in the fields of private old-age and health provision), it can also be expected that the importance of independent insurance agents will continue to increase in the German market.

Thus, the results of our study do not only contribute to the explanation of the market structure in the German market for insurance intermediation, but are also of special interest for consumers, professional organizations of insurance intermediaries, and consumer associations, as they give an answer to the open question of differences in service quality levels in the market for insurance intermediation.

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Table 1:   Advisory Service Quality Indicators (ASQ)

Variable	Definition
ASQ_1: Working time information acquisition	Ratio of time budget spent on information acquisition to total time budget
ASQ_2: Importance of rating agencies	Importance assessed to the information by rating agencies on a five-point rating scale (with 1=very important, 5=completely unimportant)
ASQ_3: Risk analysis	Design of the analysis of the customer's risk profile (Measured on a 1 to 3 scale: 1: subjective classification of the client's risk profile; 2: grading of the client's risk profile in given risk categories; 3: computer-assisted determination of the customer's risk profile)
ASQ_4: Documentation counselling interview	Binary variable (No/Yes) which describes if the counselling interview is documented, and if the record is stored and handed out to the customer (Yes = 1)
ASQ_5: Contract conclusion rate	Ratio of counselling interviews which led to the signing of an insurance contract to total number of counselling interviews
ASQ_6: Lapse rate automobile insurance	Share of contracts in automobile insurance cancelled during the first 12 months after signing the contract
ASQ_7: Turnover new customers	Share of turnover which is gained by the conclusion of contracts with new customers

Source: own design

Table 2: Descriptive results

	Exclusive agents	Independent agents
Structural variables		
Number of customers	1565	1106
Qualification level (1-6)	2.7478	2.7480
Number of insurers in the portfolio	6.98	51.07
Professional experience (years)	16.93	16.59
Independent variables		
Firm size	2.94	5.08
Product range	3.80	3.37
Share of complex insurance products in portfolio (mean)	0.39	0.44
Membership in a professional organization	0.29	0.35
Advisory Service Quality Indicators		
ASQ_1: Working time information acquisition	0.21	0.35
ASQ_2: Importance of rating agencies	2.32	1.88
ASQ_3: Risk analysis	1.91	1.96
ASQ_4: Documentation counselling interview	0.28	0.57
ASQ_5: Contract conclusion rate	0.48	0.68
ASQ_6: Lapse rate automobile insurance	0.0385	0.0180
ASQ_7: Share of turnover by new customers	0.24	0.31

Source: own calculations ; All values are group mean values.

Table 3: Estimation results – Input quality indicators (ASQ $_{1-4}$)

	Model 1 **ASQ $_1$:** Share of working time information gathering	**Model 2** ASQ $_2$: Importance rating agencies[2]	**Model 3** ASQ $_3$: Design of risk analysis [3]	**Model 4** ASQ $_4$: Record of counselling interview (Yes/No)
Intermediary type (independent = 1)	0.140*** [1]	-0.427***	0.043	1.155***
	(7.746)	(-3.706)	(0.381)	(5.414)
Firm size	-0.011	0.001	-0.044**	-0.005
	(-0.005)	(0.103)	(-2.409)	(-0.384)
Product range	-0.006	-0.045	0.099***	0.127**
	(-1.349)	(-1.543)	(3.415)	(2.324)
Share of complex insurance products	0.001	-0.313	0.408*	1.187**
	(0.003)	(-1.290)	(1.746)	(2.630)
Member prof. organization (yes=1)	0.022	-0.281**	-0.160	0.347
	(1.219)	(-2.149)	(-1.363)	(1.5609)
Constant	0.233***			-1.933***
	(9.022)			(-6.054)
Estimation method	OLS	ML – Ordered Probit	ML – Ordered Probit	ML – Binary Logit
n	297	374	428	423
R^2 (adjusted)	0.1653			0.0839[4]
LR statistic	12.726[5]	25.646	22.894	47.961
(Prob (LR statistic))	(0.000)	(0.000)	(0.000)	(0.000)

[1]*Significant on 10 %-, 5 %-, and 1 %-level: *, **, and ***; z- values in parentheses (t-values in case of model 1).*

[2]*Measured on a five-point rating scale: 1 = very important...5 = totally unimportant*

[3] *Measured on a three-point rating scale: 1: subjective classification of the client's risk profile; 2: grading of the client's risk profile in given risk categories; 3: computer-assisted determination of the customer's risk profile*

[4] *Mc Fadden R^2*

[5]*F statistic and (Prob(F stat)*

Source: own estimations, estimated with "EViews 5.0".

Table 4:   Estimation results – Output quality indicators (ASQ $_{5-7}$)

	Model 5 ASQ $_5$: Contract conclusion rate	Model 6 ASQ $_6$: Lapse rate auto insurance	Model 7 ASQ $_7$: Share of turnover new customers
Intermediary type	0.207***[1]	-0.007***	0.069*
(independent = 1)	(7.229)	(-3.968)	(1.967)
Firm size	0.001	0.009	-0.018**
	(0.254)	(0.151)	(-3.328)
Product range	0.027***	0.001***	0.005
	(3.641)	(2.915)	(0.680)
Share of complex	0.072	-0.012***	0.200**
insurance products	(1.211)	(-3.312)	(2.780)
Member prof.	-0.025	0.001	0.107**
organization	(-0.890)	(0.272)	(2.636)
(yes = 1)			
Share of		-0.013***	
private customers		(-3.279)	
Professional experience			-0.004*
			(-1.947)
Total lapse rate			0.546
			(0.527)
Constant	0.362***	0.018***	0.217
	(8.854)	(4.787)	(3.549)***
Estimation method	OLS	OLS	
n	295	209	190
R^2 (adjusted)	0.1826	0.1327	0.1720
F statistic	14.1371	6.3035	6.6085
(Prob (F statistic))	(0.000)	(0.000)	(0.000)

[1]*Significant on 10 %-, 5 %-, and 1 %-level: *, **, and ***; t- values in parentheses.*
[2] *White-heteroscedasticity-consistent-OLS estimation*
Source: own estimations, estimated with "EViews 5.0".

Table 5:   Shares of turnover in different insurance lines

	Exclusive agents	Independent agents	Total
Industrial insurance			
mean	0.0136	0.0390	0.0221
(std. dev.)	0.0958	0.134	0.110
Ageing provision			
mean	0.2152	0.2423	0.2235
(std. dev.)	0.193	0.220	0.202
Commercial insurance			
mean	0.0702	0.1153	0.0836
(std. dev)	0.0976	0.141	0.1140
Private health insurance			
mean	0.0965	0.0619	0.0862
(std. dev.)	0.1702	0.0642	0.1475
Private property insurance			
mean	0.2330	0.1784	0.2170
(std. dev)	0.1403	0.1296	0.1392
Automobile insurance			
mean	0.2520	0.2502	0.2512
(std. dev)	0.1804	0.1829	0.1813
Private indemnity insurance			
mean	0.1337	0.1544	0.1398
(std. dev)	0.0869	0.1177	0.0971

Source: own calculations; Turnover is measured by the ratios of placed insurance policies in the different insurance lines to the total number of placed policies, as data about financial turnover is not available