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Agent and Broker Intermediaries in Insurance Markets –
An Empirical Analysis of Market Outcomes

von

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Agent and Broker Intermediaries in Insurance Markets – An Empirical Analysis of Market Outcomes¹

von

Martina Eckardt

Abstract:

Insurance markets are characterized by profound market imperfections. Insurance intermediaries reduce transaction costs and information asymmetries. From transaction cost economics, agency theory, and law and economics literature the hypothesis is derived that insurance brokers may provide more high-quality information and advisory services which are better suited for the needs of the consumers than insurance agents. Empirical tests for German insurance intermediaries confirm this thesis. But there are also findings that structural factors like firm size, employment structure and degree of specialization may outweigh the incentives set by different legal settings.

JEL-classification: D82, G140, G220, L15

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1. Introduction

There are two developments which put insurance intermediaries in the focus of attention: the deregulation of the German insurance market in 1994 and the introduction of state-aided complementary private pensions in 2002. (1) After three generations of life and non-life directives the single European insurance market has been completed in 1993. As it is based on a rather formal regulative framework, the German insurance law had to be adapted. Therefore, in 1994 the hitherto strictly regulated German insurance market was liberalized, with the effect of a more heterogeneous supply of insurance products and services in the German insurance market. (2) To cope with the demographic burden on the statutory pension scheme in the years ahead, a state-aided complementary private pension scheme was introduced in Germany in 2002. As quite a number of different heterogeneous investment and insurance types are eligible, the demand for advisory services will rise. Thus, also from a social policy point of view the working of the insurance market comes into focus.

Most insurance services are very complex experience and credence goods. Therefore, an assessment of their features and the ability to choose among many diverse offers requires specialized knowledge. Because of high information asymmetries and high search costs insurance intermediaries play an important role in mediating between the two market sides. By reaping economies of scale and scope, they are able to reduce transaction costs and information asymmetries between insurance companies and customers. Besides they offer ex ante advisory services and ex post services in contract fulfillment like claim settlement. In the German insurance market several marketing channels are used: agents, brokers, multi-level marketing, banks, financial service providers, and direct marketing, to name the most important ones. Although the other channels are getting more important, full-time self-employed insurance agents and - to a lesser extent - insurance brokers still account for most of the concluded insurance contracts (Weigelt 2001). Whereas the German insurance market was strictly regulated up to 1994, insurance intermediation both by agents and brokers was and still is widely unregulated. Neither insurance agents nor brokers are required to have any minimum vocational skills. A trading license is sufficient and can be easily obtained. But there are profound differences. Unlike an insurance broker an insurance agent is tied to a certain insurance company whose products he or she sells. In contrast to that, an insurance broker is free to choose from the products of various companies. These differences are reflected by the law. Insurance agents act as commercial agents in the name of a particular insurance company, whereas insurance brokers act as commercial brokers. This also implies different legal duties and liability rules.

The objective of this paper is to test empirically the following hypothesis. The legal incentives induce insurance brokers to provide more high-quality information and advisory services than insurance agents. To test this hypothesis empirically we use a survey among self-employed German insurance agents and brokers.

In the next section, the theoretical background to the agency problem and the legal framework for insurance intermediaries in Germany is presented. In section 3, the hypothesis, the data set and the variables used to test it are described. Section 4 shows the findings of the empirical test. Conclusions are drawn in section 5.

2. Quality Differences between Insurance Agents and Brokers – The Theoretical Point of View

2.1 Intermediaries in Insurance Markets

Insurance markets are characterized by various market failures, which arise to a great extent from uncertainty and information asymmetries between the two market sides. Most research in this field deals with the economic consequences of adverse selection and moral hazard phenomena due to private information on the side of the insured parties (Rejda 1998; Williams/Smith/Young 1995). But in the transaction process of searching a contracting partner and writing an insurance contract, usually insurance companies are better informed than the persons seeking insurance with respect to the relevant characteristics of the products offered and the contractual terms. Insurance policies to cover income loss due to old-age, illness, or disability are very complex experience and credence good (Nelson 1970). The relationship between the two market sides is characterized by long-term contracts, specific investments, and information asymmetries before and after entering a contract. The decision to buy a particular insurance product not only requires information about one's preferences, needs, and the risks to be covered but also about the diverse investment and insurance types available. To compare the performance of different insurance types one has to be informed about their costs and returns as well as about the insurance companies' past performance and services, in particular with respect to claim settlement. Besides, there is uncertainty about the behaviour of the insurance company after entering a contract. This poses particular problems for long-term contracts or for contracts which go along with large switching-costs. To lessen the resulting quality and behavioural uncertainties consumers need suitable information on prices, qualities, and terms of comparable products (Traub 1994).

As the acquisition and assessment of such information exhibit fixed costs (Rose 1999, 25p.), there is scope for insurance intermediaries like insurance agents and brokers to reduce transaction costs and information asymmetries. Besides the procurement of insurance products and the provision of services related to contract fulfilment, like claims settlement, they acquire, process, and disseminate information and provide advisory services (Traub 1994, 317p.). The quality of these information and advisory services has both objective and subjective dimensions (Bosselmann 1994, 90pp., 138pp.; Meffert 1995, 197pp.). The objective dimension comprehends the appropriateness of the characteristics of a product to serve its purpose. This holds true also for immaterial goods like information products or advisory services. Thus, an insurance intermediary provides objective high-quality information and advisory services if and only if the information given by him or her enables one to select the best insurance policy given the circumstances. Besides, the subjective quality dimension is related to the individual preferences and expectations regarding the way in which the information is presented and the advice is given. Subjective high-quality information and advisory services are provided if the intermediary has the empathy to come up to the corresponding expectations of his or her clients. Whereas some customers might prefer more a matter-of-fact counseling interview with very detailed information about the pros and cons of different products, others might have a preference for more interest displayed for their individual situation, but only for a rough sketch of details on the different products appropriate to their demands.

In sum, high-quality information and advisory services are provided if the relevant information is given in a way that enables the consumer to choose from the range of products those

that serve best and at least costs his or her subjective preferences and needs. In particular, the necessary information to take a rational decision has to be provided in a comprehensible way for the customer. Furthermore, it has to be undistorted by the self-interest of the intermediary. In the following we take a look at transaction costs economics, agency theory, and the law and economics approach to see whether they support our hypothesis according to which quality differences between insurance agents and brokers are to be expected.

2.2 Transaction Costs Economics

Because of the high search costs to acquire and process reliable information about insurance products and companies necessary to take a rational decision, insurance intermediaries have cost advantages compared to individual customers. They can realize economies of scale and scope by fixed cost investments in human capital and technology to assess the information about product prices, performance, and terms (Rose 1999, 25p.; Traub 1994, 378pp.). Besides, they can realize gains from specialization and dynamic economies of scale due to learning effects. Additional transaction costs are reduced on the side of the customer as he or she has to deal only with one intermediary, instead of with a multitude of insurance companies (Rose 1999, 53ff.; Traub 1994, 373, 383). Altogether, insurance intermediaries thus help to reduce uncertainty with respect to quality and prices of insurance products and companies.

As insurance agents are tied to a certain insurance company, they are specialized in its products. They are to be expected to have profound knowledge about the characteristics of the product range this particular company offers as well as about the company itself (its past performance, its behaviour with respect to claim settlement etc.). Information on the products of other insurance companies is to be disseminated only as far as that information can be used as a sales argument in favour of the own products. In contrast to that insurance brokers are not tied to a certain insurance company. As they are free to sell the products of different companies, they are to be expected to have a better overview of the insurance market and not only of the products of a certain company. They provide information with respect to more companies and their products, thus economizing more on transaction costs.

Therefore, transaction costs economics supports our hypothesis: Insurance brokers will provide more relevant information to the consumers which amounts to more high-quality information and advisory services.

2.3 Agency Theory

But the services provided by insurance intermediaries are again experience and credence goods. So the relationship between insurance intermediary and customer is itself characterized by information asymmetries. To assess the quality of the services provided by the intermediary again requires special knowledge and hence search efforts of the individual decision maker. Information asymmetries exist with respect to the extent to which an intermediary has actually acquired the available information about insurance companies and their products and to the extent that his or her recommendations are not distorted by self-interest. Again quality uncertainty and behavioural uncertainty exist (Traub 1994, 384pp.).

The relationship between insurance intermediaries and individual decision-makers is a typical agency relationship, where the welfare of the person seeking insurance (= principal) depends in part on the actions of the insurance intermediary (= agent) (Jensen/Meckling 1976; Fama

1980; Fama/Jensen 1983; Macho-Stadler/Pérez-Castrillo 1997; Salanié 1997). Because of the information asymmetries and market uncertainty, the intermediary has discretionary scope to pursue his or her own objectives, which may lower the welfare of the principal. Thus, a conflict of interests exists between insurance intermediaries and their clients. Information asymmetries result in hidden characteristics, hidden action, and hidden information.

As the consumers have only incomplete information about the qualifications and skills of the insurance intermediaries (hidden characteristics), they have only limited ability to assess the quality of the information processing done by the intermediary to recommend specific insurance products. Besides, the consumers have only limited information about the search efforts in acquiring and processing information about product characteristics by the intermediaries (hidden action), which may result in moral hazard behaviour. Moreover, the consumers do not know whether the intermediary uses all the information on hand in the interest of the consumer or whether he or she has additional information which is not used although it would be of interest to the consumer, but not to the intermediary (hidden information). In particular, remuneration practices play an important role in this respect. Insurance companies use them by granting high acquisition commissions to set incentives for the intermediaries to promote their products. In the end, they are paid by the insuree as part of the insurance premium. But as the contract terms are not specific in this respect, consumers are very poorly informed. Thus, the information and advice given by the intermediary might be distorted due to his or her self-interest in favour of such insurance policies which grant him or her high commissions.

Whether hidden characteristics, action, and information are more relevant with respect to insurance agents than to insurance brokers is mainly an empirical question. On the one hand, insurance companies which have invested in reputation, will have stricter requirements to the qualifications and control mechanisms of the services provided by the intermediaries which distribute their products to prevent a loss of reputation due to low-quality services of their marketing channels. On the other hand, in Germany the market share of insurance brokers is relatively small compared to insurance agents. Therefore, insurance brokers have to build up reputation to compete successfully with insurance agents. Thus, strong incentives exist for them not to cheat with respect to their efforts in searching and processing information as this is their main competitive advantage to insurance agents. Besides, the remuneration design also sets incentives for insurance brokers to distort information in favour of those insurance companies that reward them with high acquisition commissions in the German market. Like insurance agents, they get a commission (courtage) which is included in the insurance premium and paid by the insurance company (Traub 1994, 384pp.). To the insuree there are no visible costs for the intermediary services, as these acquisition costs are part of the insurance premium. Even if a customer contracts directly the insurance company without using an intermediary, he or she has no cost advantage, as the insurance companies prorate the acquisition costs to all contracts.² The difference between insurance agents and brokers is, however, that the latter are free to negotiate the terms of an insurance policy with different insurance companies. By cooperating with other brokers they can further improve their bargaining position and negotiate for better terms for their clients. As these options do not exist for insurance agents, insurance brokers may provide their customers with relatively better insurance poli-

² Furthermore, for both insurance agents and brokers there is a ban on charging a fee for advice.

cies even if they use the existing discretionary scope to distort recommendations in favour of policies with high commissions.³

To sum up, agency theory also gives well-founded arguments for the hypothesis that those intermediaries provide more high-quality information and advisory services who are less dependent from insurance companies. On the whole this is the case for insurance brokers compared to insurance agents, even if the former also have broad discretionary scope to pursue their self-interest opposed to the interests of their customers.

2.4 Law and Economics Literature

The law and economics literature states that legal rules set incentives to behave in a certain way. Thus, contract law and liability rules may help to overcome agency problems which are related to information asymmetries. Legal duties as to minimum information which have to be provided by intermediaries as well as more strict liability rules may induce insurance intermediaries to behave in the interest of their clients (Grundmann/Kerber 2001). However, a necessary prerequisite is that the respective rules are enforced. If different legal rules are applied to insurance agents and brokers, different incentives are set which would result in different behavior, eventually leading to different market outcomes.

Self-employed insurance agents sell exclusively the products of a certain insurance company. According to artt. 84pp. of the German Code of Commerce they are commercial agents who act on a continuing basis in the name of the insurance company. In contrast, insurance brokers are legally independent from insurance companies, they are seen as commercial brokers (artt.93pp. German Code of Commerce). As persons seeking insurance are considered as the weaker party in insurance contracts, the duties imposed by the law on insurance brokers with respect to the information and advice given to their clients are stricter (Bosselmann 1994, 113pp.). Moreover, insurance brokers are also subject to stricter liability rules. Whereas insurance companies are liable for miscounselling by insurance agents, insurance brokers are liable themselves for a culpable breach of duty and for loss from ill-advise. But no liability insurance for financial losses is required from insurance brokers. As far as these rules are enforced by the legal system, stronger incentives exist for insurance brokers than for agents to provide high-quality information and advisory services. But even under incomplete enforcement due to information asymmetries, competitive and reputation effects may set respective incentives. Therefore, our hypothesis is supported also from a law and economics point of view.

In sum, transaction cost economics, agency theory, and the law and economics literature seem to support the hypothesis that insurance brokers should provide more high-quality information and advisory services than insurance agents. That is they are to be expected to reveal more information about the advantages and disadvantages of different insurance products and their suppliers and give more balanced recommendations.

³ A number of provisions is discussed for signalling high quality advisory services (qualifications, membership in a professional group or association, reputation). But again this poses a credibility problem (Traub 1994, 386pp., Vahrenkamp 1991, 43pp.). Therefore these measures seem to be only of limited gain as long as they are not awarded by a state agency or another recognized organization. Up to now no such recognized certification marks exist in Germany.

3. Hypothesis, Data, and Methodology

In the following we test empirically the hypothesis derived above: The legal incentives induce insurance brokers to provide more high-quality advisory services than insurance agents as the former are more independent from insurance companies than the latter. The accompanying null hypothesis states:

H₀: Insurance agents and brokers provide information and advisory services of the same quality.

The data used are obtained from a survey among 4,687 self-employed German insurance intermediaries, which was carried out in autumn 2001. As there is no legal duty to register for insurance intermediaries in Germany the total population is unknown. Thus, the addresses of the interviewees were chosen from online directories and from the yellow pages. 945 insurance intermediaries answered the questionnaire, implying a response rate of 20%. Among the respondents there are 423 insurance agents and 437 insurance brokers. According to a survey among German insurance companies, self-employed insurance agents accounted for the procurement of 50% of the insurance portfolio in 1999/2000, whereas self-employed insurance brokers accounted for 11% (GDV). The latter rank second to self-employed insurance agents as marketing-channels in the German insurance market.

Data were collected about attributes of the interviewee and his or her company, the services offered, the intermediation process, and general market conditions.⁴ As the pretest showed a very low willingness to answer questions to remuneration patterns, costs, turnovers, and profits, no such questions were posed in the survey. Attitude and behavioral statements are expressed by the respondents on a 1 to 5 rating scale where 1 = “strongly agree” and 5 = “strongly disagree”. Therefore, a lower mean indicates that the respondent agrees more with the particular item. As no objective standard exists according to which the quality of the advisory services of insurance intermediaries can be assessed, indicators have to be generated first. We differentiate between three categories of variables: variables used as quality indicators, structural variables, and customer-specific variables.

1. *Variables serving as quality indicators*

As the quality of the advisory services is not directly measurable, different input and output indicators are used (Table 1). *Quantitative input indicators* show the share of the total time budget that is spent for different activities (like information acquisition and counseling), the average duration of counseling interviews, and the number of courses in further training and conferences the intermediary has attended over the last twelve months. The larger the proportion of time devoted to information acquisition and counseling respectively, the more information about insurance products and their characteristics as well as about the specific needs of the clients can be gathered. Consequently, the advice of the intermediary may be better suited to the customer.

The *qualitative input indicators* point to the importance the interviewees subjectively attach to different aspects in counseling interviews. It is assumed that they inform their clients more extensively about those aspects to which they attached more weight in the questionnaire. Together with general information, product information, and information on contract design, the

⁴ For descriptive statistics see Eckardt (2002a; 2002b).

interviewees were questioned on particular topics relevant for old-age insurance. Furthermore, as the participation in profits is an important sales argument for life assurances, different items were asked about this subject to see how much weight the intermediaries put on informing the consumers about the components of the calculations normally used. As the interviewed intermediaries cannot be expected to objectively assess the quality of their advisory services, we may draw from their responses only conclusions about behavioral patterns, but not about the quality of the content of the advice given.

In total, 27 different items were asked. To see whether these items could be reduced to fewer factors a factor analysis was conducted (*Table 4* and *5* in the *Appendix*).⁵ Based on the factors extracted seven subscales were calculated as a mean value of the respective variables. Finally, also the mean value of all the 27 variables is used as an overall index. According to the coding, the lower the indices the higher is the weight attached to the respective items by the interviewee in his or her counseling interviews.

Table 1: Variables serving as quality indicators

Quantitative input indicators	
<i>Time budget (7 items)</i>	<i>Shares in %</i>
<i>Further training and conferences</i>	<i>Number in the last 12 months</i>
<i>Duration of counseling (2 items)</i>	<i>In minutes</i>
Qualitative input indicators	<i>Five-point rating scale (1 = very important... 5 = not at all important)</i>
<i>General information (3 items)</i>	
<i>Product information (6 items)</i>	
<i>Information on contract design (5 items)</i>	
<i>Information on old-age insurance (8 items)</i>	
<i>Calculation of participation in profits for life assurances (5 items)</i>	
<i>Qualitative subscales (7 indices)</i>	Output indicators
<i>Qualitative overall index</i>	
<i>Success rates</i>	
<i>In general</i> <i>In old-age insurance</i>	
<i>Pressure of competition</i>	<i>Average share of interviews which lead to a contract conclusion (in %)</i>
	<i>Five-point rating scale (1 = very strong ... 5 = none at all)</i>

Finally, the success rate of counseling interviews in general and with respect to old-age insurance are used as *output indicators*. They indicate consumer satisfaction with the information provided and the products offered in the consultation. The better advised consumers feel, the higher will be the success rate as the average number of interviews which lead to the conclusion of a contract. The subjectively perceived pressure of competition may also be used as a variable that indicates the quality of the advisory services. But this holds true only under the assumption that quality aspects play an important role in market competition among insurance intermediaries and that better advisory services reduce the competitive pressure.

⁵ In regard to the use of a factor analysis, which assumes interval data, with ordinal Likert scale items, in a recent review of the literature on this topic, Jaccard and Wan (1996, 4) summarize, “for many statistical tests, rather severe departures (from interval ness) do not seem to affect Type I and Type II errors dramatically.”

2. *Structural variables*

Table 2 shows four variables to measure structural differences between insurance agents and brokers. The three variables of firm size and employment structure may indicate different resources to reap economies of scale and scope in the intermediation process. The degree of specialization in private customers indicates diverse consumer demands. The lower the degree in specialization in private customers, the higher is the share of business customers, small- and medium-sized firms, and professionals who usually have different demands. In both cases, these factors may affect the information and advisory activities of the insurance intermediaries and may rule out the institutional incentives set by the legal framework.

Table 2: Structural variables

Firm size and employment structure Employees (total staff) Insurance intermediaries Other staff	<i>Number</i>
Specialization in private customers	<i>Turnover in %</i>

3. *Customer specific variables*

Table 3 lists two variables which permit to make statements about possible differences within customer structure. If customers of insurance agents and brokers differ with respect to their knowledge about insurance products, differences in the processing of information and giving advice could result. Such differences again could counteract the institutional incentives. Therefore, the intermediaries were asked about the state of knowledge their customers possess on average with respect to their risks, the available options for private old age security, and the advantages of insurance services versus other investment forms. In addition, they were asked about the average demand for information on different insurance types. Higher demands for information would require more time spent on this issue, thus again affecting the information and counseling behavior of the intermediaries.

Table 3: Customer specific variables

State of knowledge with regard to Own risks Options for private old age security Advantages of insurance services vs. other investment forms	<i>Five-point rating scale (1= strongly agree ... 5=strongly disagree)</i>
Demand for information on Life assurance Temporary life assurance Unit linked life assurance Old-age insurance	<i>Five-point rating scale (1= strongly agree ... 5=strongly disagree)</i> Health insurance Nursing care insurance Disability insurance

The hypothesis is tested by comparing the mean values for insurance agents and brokers using *t*-tests under the assumption of heterogeneous variances and a level of significance of $\alpha = 0.001$.⁶ The results are discussed in the next section.

⁶ In addition, Mann-Whitney U-tests were run, which showed the same results with only very few exceptions. Therefore, their results are not discussed in the text.

4. Results

4.1 General Results

Table 6 (see Appendix) shows the results from a mean differences parametric test between insurance agents and brokers. Most of the variables used as indicators to assess the quality of information and advisory services supplied show highly significant differences, which not only leads to a rejection of the null hypothesis, but also gives strong evidence that indeed insurance brokers may provide better advisory services than insurance agents.

As the *quantitative input indicators* show, significant differences between insurance agents and brokers exist with respect to the proportion of their respective time budget spent on the acquisition of information and on counseling interviews. Insurance brokers spend a larger amount of their working time on the search for information on insurance companies, products, and their customers. Also as the legal setting would imply, on average their counseling interviews take longer, both in general as well as with respect to consultations on old-age security. Moreover, they attend further trainings and conferences more often than insurance agents.

Besides, half of the variables used as *qualitative input indicators* to evaluate the weight attached to different questions of interest in the counseling interview by the insurance intermediary differ significantly. With the exception of two items, the mean values are higher for insurance agents. According to the scale applied this means that insurance agents attach *less* weight to these aspects in consultations than insurance brokers. Therefore, it can be assumed that on average consumers will get more detailed information on insurance products and companies as well as better suited recommendations from insurance brokers. With respect to the qualitative subscales, those representing the weight attached to information on the products available, as well as contract and product design differ significantly. The same holds for the overall index. On average insurance agents seem to put less weight on these aspects than insurance brokers. This is particularly important with respect to the information on contract and product design, because these scales comprise the aspects relevant for a rational decision on insurance products on the side of the consumers. But it is remarkable that insurance brokers attach not that much more weight on information about contract design, which entails information about contract period, termination options, and procedures as well as costs of contract modification.

Furthermore, also the *output indicators* differ significantly. Insurance brokers have higher success rates, i.e. a higher proportion of their consultations leads to a contract conclusion compared to the success rates of insurance agents. This indicates that on average a larger share of consumers feel well advised by insurance brokers. Correspondingly, the competitive pressure insurance brokers perceive is significantly lower than it is the case for insurance agents.

These findings strongly indicate that the different legal rules applying to insurance agents and brokers do indeed lead to better information and better-suited advice for clients of insurance brokers. Thus, the hypothesis derived from transaction costs economics, agency theory, and the law and economics literature is supported by these data. However, a look at the structural variables shows that insurance agents are characterized by significantly smaller firms. Besides, they employ significantly fewer insurance intermediaries than insurance brokers do. Therefore, the quality differences may be due to extended specialization and the realization of

economies of scale and scope on the side of the insurance brokers. Moreover, they are also significantly less specialized in services to private customers, which means in turn that they are more specialized in business customers, small-and medium-sized companies, and professionals. Thus, we may not exclude that the results indicating more high-quality advisory services by insurance brokers are due to the particular demands of their business clients. But only very few of the customer-specific variables differ significantly. And those which differ indicate that the customers of insurance agents seem to have a higher demand for information on particular insurance types. These findings imply a demand for longer counseling interviews by the clientele of insurance agents which in fact they do not get as the counseling interviews of insurance agents are shorter on average than those of insurance brokers. Therefore, these customer-specific variables would rather support the rejection of the null hypothesis.

To separate the influence of the structural factors, in the following we test the various indicators for homogeneous groups. In addition to firm size, employment structure, and degree of specialization in private customers, we also test the hypothesis for homogeneous groups with respect to specialization in target groups, types of insurances which are primarily marketed, and additionally provided services by the intermediaries. In this way statements about the influence of these factors relative to the institutional incentives set by the legal framework shall be derived.

4.2 The Influence of Structural Variables on the Quality of Advisory Services

To assess the influence of structural variables on the quality of the advisory services of insurance intermediaries, estimations were carried out for insurance agents and brokers pertaining to comparable groups. To control for the influence of firm size and employment structure, the mean values of the indicators were tested for firms with one, two or three, and more than three employees resp. intermediaries (*Table 7 in the Appendix*). For firms with only one employee, that is the insurance agent or broker himself, only three of the qualitative input variables show significant mean differences compared to fourteen for all insurance agents and brokers. But the subscales on contract and product design still differ significantly. That there are only minor differences for these one-person-firms with respect to the qualitative input indicators is also reflected by the overall index which shows no significant difference anymore. Although there are also fewer qualitative input variables that differ significantly in the other two categories (firms with two or three resp. more than three employees), the subscales and the overall index show that the behavioral pattern seems not to be affected that much by firm size.

Nearly all of the quantitative input indicators show significant differences for each firm size, which holds also for one-person-firms. The same goes for the output indicators which again differ significantly for all categories. This indicates that the advisory behavior of the insurance intermediaries may be influenced only for very small firms which employ only one person. In general, firm size seems not to rule out the impact of the different legal incentives on the quality of advisory services.

As on average insurance brokers employ significantly more intermediaries than insurance agents, it is tested whether the quality indicators also differ for firms which employ either one, two or three, or more than three intermediaries (*Table 8 in the Appendix*). Again, for all three categories the mean values of distinctly fewer qualitative input variables differ signifi-

cantly. But the subscales and the overall qualitative index indicate only for firms which employ more than three intermediaries that both insurance agent and broker firms of that size put the same weight on these aspects in their counseling interviews. Furthermore, it is striking that insurance agents and brokers who employ more than four intermediaries also differ not much in their responses with respect to the quantitative input indicators. And even the general success rate and the perceived pressure of competition do not vary in a significant way for these firms. Thus, it seems that in fact for these insurance agents and brokers the structural component outweighs the institutional incentives set by the legal framework. But some reservations are appropriate before drawing further conclusions as these results are based on the statements of a minimum of at least 32 insurance agents from the sample.

When we test the quality of advisory services for insurance agents and brokers who are similarly specialized in private customers, again, structural factors seem to influence their behaviour the more or the less they are specialized (*Table 9* in the *Appendix*). But this holds only for the qualitative input indicators, but not for the quantitative input indicators nor for the output indicators. Major differences in the qualitative input indicators between insurance agents and brokers exist primarily for those for which 61% to 80% of their sales volume results from private customers. Those insurance agents and brokers display similar behavioral differences as are found on average (see *4.1*). Thus, the degree of specialization seems to affect the weight attached to different aspects in the counseling interview that, but it does not even out differences in other respects.

Also, the results obtained in *4.1* are not subject to any major change when the behaviour of insurance intermediaries is analysed with respect to those who either target customers or to those who do not specialize in any particular group (*Table 10* in the *Appendix*). The same holds when running the tests for insurance agents and brokers who either concentrate on personal insurances or on other insurances as well as for those who provide services in addition to the sale of insurances, like financial affairs or company-related services (risk-management, technical accident prevention etc.).⁷ Again, the same behavioural pattern is attained. Looking at insurance agents and brokers to whom new customers contribute most to their sales volume, only few variables show significantly different mean values. This holds true also for the quantitative input indicators. In contrast to that, insurance agents and brokers exhibit nearly the same differences as have been found in *4.1* for all intermediaries when new customers have the second largest share in sales. Again these findings should be treated carefully, as they are based on a minimum of at least 57 insurance agents for whom new customers have the highest share in sales.

⁷ For lack of space the detailed results for the following tests are not given in the appendix, but they can be obtained from martina.eckardt@wiwi.uni-rostock.de.

5. Conclusions

To sum up the empirical findings, they support the thesis derived from transaction costs economics, agency theory, and the law and economics literature according to which insurance brokers will provide more high-quality information and advisory services than insurance agents. The institutional incentives set by the legal framework thus seem to induce them to supply more information and better suited advice. But the influence of different legal rules are outweighed by structural factors to some extent with respect to the quality indicators applied. When we analyze the quality indicators of insurance agents and brokers who pertain to comparable homogenous groups, we find that their advisory services are influenced to some degree by firm size and employment structure as well as by the degree of specialization on private customers. Stronger behavioral similarities are also found for insurance agents and brokers who have a large share of new customers in their sales volume.

Therefore, based on these findings alone, it cannot be stated that quality problems in the intermediation process may be solved if consumers seek advice from insurance brokers or from comparable agents. To assess the resulting quality of the advisory services it is necessary not only to look at the differences in the mean values of the quality indicators, but also to assess their absolute values. In particular, also insurance brokers show rather high mean values for the qualitative input variables on product and contract information. This indicates that they put only small weight on these aspects in their counseling interviews. This is backed by the statement of 98% of the interviewees that the quality of the advisory services should be improved. From an economic policy point of view this suggests institutional reforms to give more incentives for providing high-quality information and advisory services for both insurance agents and brokers. Agency theory and the law and economics literature give some hints as to effective provisions like minimum qualification requirements, guarantees, more strict liability rules, certificates etc. (Vahrenkamp 1991, 70ff.).

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Appendix

Table 4: Factor Analysis – Sampling Adequacy and Total Variance Explained

Measure of sampling adequacy by the Kaiser-Meyer-Olkin (KMO) statistics 0.888

Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.639	28.291	28.291	7.639	28.291	28.291	2.877	10.657	10.657
2	1.887	6.990	35.282	1.887	6.990	35.282	2.758	10.213	20.870
3	1.788	6.621	41.903	1.788	6.621	41.903	2.627	9.730	30.600
4	1.517	5.618	47.521	1.517	5.618	47.521	2.361	8.746	39.346
5	1.412	5.228	52.749	1.412	5.228	52.749	2.197	8.139	47.485
6	1.247	4.617	57.367	1.247	4.617	57.367	2.002	7.416	54.901
7	1.074	3.979	61.346	1.074	3.979	61.346	1.740	6.445	61.346
8	.796	2.947	64.293						
9	.783	2.901	67.194						
10	.755	2.795	69.989						
11	.725	2.687	72.675						
12	.694	2.572	75.247						
13	.648	2.402	77.649						
14	.618	2.287	79.936						
15	.571	2.116	82.052						
16	.547	2.027	84.079						
17	.506	1.874	85.953						
18	.491	1.818	87.771						
19	.461	1.708	89.479						
20	.427	1.581	91.060						
21	.421	1.558	92.618						
22	.395	1.464	94.082						
23	.372	1.378	95.460						
24	.350	1.295	96.755						
25	.318	1.178	97.932						
26	.300	1.111	99.043						
27	.258	.957	100.000						

Extraction Method: Principal Component Analysis.

Table 5: Factor Analysis – Rotated Component Martrix

Variables	Components						
	<i>1 General information on products for risk provision</i>	<i>2 Information on calcula- tions for participa- tion in prof- its</i>	<i>3 Contract design</i>	<i>4 Security demand and options</i>	<i>5 Product design</i>	<i>6 Private old- age insur- ance</i>	<i>7 Contract execution</i>
<i>Tax advantages</i>	.810						
<i>Occupational pension schemes vs. private old-age insurance</i>	.709						
<i>Taxation and social policy regulation</i>	.692						
<i>Performance of in- surance companies</i>	.522						
<i>Investment funds</i>	.497						
<i>Surplus and interest rate changes</i>		.783					
<i>Non commitment</i>		.710					
<i>Guaranteed perform- ance</i>		.700					
<i>Surplus determinants</i>		.619					
<i>Past effective surplus</i>		.618					
<i>Termination options</i>			.843				
<i>Contract period</i>			.792				
<i>Procedures of con- tract modification</i>			.653				
<i>Costs of contract modification</i>			.580				
<i>Type and coverage of the insured risks</i>				.725			
<i>Individual security gaps</i>				.696			
<i>Insurance and prod- uct types</i>				.607			
<i>(Dis-) advantages of different security options</i>				.531			
<i>Premium design</i>					.781		
<i>Price-performance tests</i>					.762		
<i>Cost components</i>					.591		
<i>Capital sum life in- surance vs. Riester- policy</i>						.778	
<i>Cost calculation by change of policy</i>						.773	
<i>Specific rest life in- surance vs. capital sum life insurance</i>						.608	
<i>Claim settlement</i>							.712
<i>Conflict settlement</i>							.608

Extraction Method: Principal component analysis.

Rotation Method: Varimax with Kaiser-normalization.

Table 6: Quality of Advisory Services

Variable	Mean value		T-test Level of sig- nificance
	Insurance agents	Insurance bro- kers	
Structural variables			
<i>Firm size and employment structure</i>			
Employees	3.18	5.05	***
Insurance intermediaries	1.86	2.76	***
Other staff	1.42	2.16	
<i>Specialization</i>			
Turnover in private customers (in %)	72.13	56.09	***
Customer variables			
<i>Level of information</i>			
Own risks	3.37	3.31	
Options for private old age security	3.21	3.29	
Insurance services vs. other types of investment	3.61	3.73	
<i>Demand for information</i>			
Capital sum life insurance	2.05	2.41	***
Specific rest-life life insurance	2.82	3.17	***
Unit-linked life insurance	1.55	1.60	
Annuity insurance	1.96	2.24	***
Health insurance	1.41	1.30	
Nursing care insurance	2.38	2.62	
Disability insurance	1.29	1.19	
Quantitative input indicators			
<i>Time budget(in %)</i>			
Acquisition of information	17.61	24.65	***
Counseling interviews	40.79	32.95	***
Further training	11.13	12.24	
Claim settlement	11.52	11.01	
Advertising efforts	6.39	6.04	
Administration	4.33	6.08	
Other	8.63	7.10	
<i>Further training and conferences (number)</i>	5.74	7.76	***
<i>Duration of counseling (minutes)</i>			
General counseling interviews	47.94	67.14	***
Counseling on private old-age security	75.79	89.71	***
Qualitative input indicators			
<i>General information¹</i>			
Individual security gaps	1.35	1.42	
(Dis-) advantages of different security options	2.10	1.86	***
Taxation and social policy regulation	2.47	2.30	
<i>Product information¹</i>			
Insurance and product types	2.05	1.98	
Type and coverage of the insured risks	1.65	1.61	
Price-performance tests	2.55	1.75	***

*** level of significance 0.001

¹ five-point rating scale with 1 = strongly agree (resp. very important) ... 5 = strongly disagree (resp. totally unimportant).

Table 6: Quality of Advisory Services (cont.)

Variable	Mean value		T-test Level of sig- nificance
	Insurance agents	Insurance bro- kers	
Premium design	2.72	2.34	***
Cost components	3.77	3.22	***
Claim settlement	2.06	2.38	***
<i>Information on contract design¹</i>			
Contract period	2.52	2.29	
Termination options	3.06	2.68	***
Procedures of contract modification	2.11	2.25	
Costs of contract modification	2.73	2.38	***
Conflict settlement	2.55	2.48	
<i>Information on old-age security¹</i>			
Specific rest life insurance vs. capital sum life insurance	2.16	2.16	
Capital sum life insurance vs. <i>Riester</i> - policy	1.80	2.21	***
Occupational pension schemes vs. private old-age insurance	2.12	1.71	***
Investment funds	2.48	2.08	***
Tax advantages	2.28	2.02	***
Cost calculation by change of policy	3.01	2.90	
Performance of insurance companies	2.52	1.76	***
Disadvantages of zillmering	3.41	3.00	***
<i>Information on surplus calculations¹</i>			
Guaranteed performance	1.74	1.63	
Past effective surplus	2.18	2.14	
Surplus determinants	3.08	2.79	***
Surplus and interest rate changes	2.22	2.12	
Non commitment	1.84	1.70	
<i>Qualitative subscales¹</i>			
Security demand and options	1.79	1.72	
Products for risk provision	2.38	1.97	***
Private old-age insurance	2.39	2.42	
Contract design	2.61	2.40	***
Product design	3.01	2.44	***
Contract execution	2.30	2.43	
Information on calculations for participation in profits	2.21	2.08	
<i>Qualitative overall index¹</i>	2.39	2.18	***
Output indicators			
<i>Success rate (in %)</i>			
General interviews	57.06	71.66	***
Old-age counseling interviews	46.35	65.17	***
<i>Competitive pressure</i>	2.37	2.97	***

*** level of significance 0.001

¹ five-point rating scale with 1 = strongly agree (resp. very important) ... 5 = strongly disagree (resp. totally unimportant).

Table 7: Firm Size – Significant Results

	Mean values		T-test Level of sig- nificance
	Insurance agents	Insurance brokers	
1 employee			
Structural variables			
Specialization			
Turnover in private customers (in %)	75.31	61.25	***
Customer variables			
Demand for information ¹			
Specific rest-life life insurance	2.65	3.23	***
Quantitative input indicators			
Time budget (in %)			
Acquisition of information	18.06	27.30	***
Counseling interviews	43.61	32.99	***
Duration of counseling (in Minutes)			
General counseling interviews	46.68	63.95	***
Qualitative input indicators			
Product information ¹			
Price-performance tests	2.53	1.70	***
Information on old-age security			
Investment funds	2.49	2.00	***
Performance of insurance companies	2.73	1.76	***
Qualitative subscales ¹			
Products for risk provision	2.52	2.07	***
Product design	3.01	2.47	***
Output indicators			
Success rate (in %)			
General interviews	57.08	72.84	***
Old-age counseling interviews	44.73	63.10	***
Pressure of competition	2.40	3.00	***
2-3 employees			
Structural variables			
Specialization			
Turnover in private customers (in %)	72.61	56.83	***
Quantitative input indicators			
Time budget (in %)			
Acquisition of information	16.70	23.02	***
Counseling interviews	41.11	33.38	***
Duration of counseling (Minutes)			
General counseling interviews	48.70	67.21	***
Counseling on private old-age security	76.32	93.65	***
Qualitative input indicators			
Product information ¹			
Price-performance tests	2.60	1.70	***
Premium design	2.76	2.30	***
Cost components	3.76	3.21	***

*** level of significance 0.001

¹ five-point rating scale with 1 = strongly agree (resp. very important) ... 5 = strongly disagree (resp. totally unimportant).

Table 7: Firm Size – Significant Results (cont.)

	Mean values		T-test Level of sig- nificance
	Insurance agents	Insurance brokers	
<i>Information on contract design¹</i>			
Termination options	3.07	2.56	***
Costs of contract modification	2.77	2.22	***
<i>Information on old-age security</i>			
Occupational pension schemes vs. private old-age insurance	2.10	1.72	***
Performance of insurance companies	2.47	1.76	***
Disadvantages of zillmering	3.39	2.91	***
<i>Qualitative subscales¹</i>			
Products for risk provision	2.33	1.96	***
Contract design	2.67	2.26	***
Product design	3.04	2.40	***
<i>Qualitative overall index¹</i>	2.38	2.13	***
Output indicators			
<i>Success rate (in %)</i>			
General interviews	57.79	73.29	***
Old-age counseling interviews	47.66	66.18	***
<i>Pressure of competition</i>	2.37	2.92	***
More than 4 employees			
Structural variables			
<i>Specialization</i>			
Turnover in private customers (in %)	66.97	53.11	***
Customer variables			
<i>Demand for information¹</i>			
Capital sum life insurance	1.95	2.43	***
Annuity insurance	1.86	2.28	***
Quantitative input indicators			
<i>Time budget (in %)</i>			
Acquisition of information	17.49	24.47	***
<i>Further training and conferences (Number)</i>	5.68	8.82	***
<i>Duration of counseling (in Minutes)</i>			
General counseling interviews	47.24	68.40	***
Qualitative input indicators			
<i>General information¹</i>			
(Dis-) advantages of different security options	2.26	1.83	***
<i>Product information¹</i>			
Price-performance tests	2.49	1.80	***
Cost components	3.90	3.17	***
Claim settlement	1.98	2.42	***
<i>Information on old-age security</i>			
Capital sum life insurance vs. Riester-Police	1.88	2.31	***
Occupational pension schemes vs. private old-age insurance	2.02	1.61	***
Investment funds	2.52	2.10	***

*** level of significance 0.001

¹ five-point rating scale with 1 = strongly agree (resp. very important) ... 5 = strongly disagree (resp. totally unimportant).

Table 7: Firm Size – Significant Results (cont.)

	Mean values		T-test Level of sig- nificance
	Insurance agents	Insurance brokers	
Performance of insurance companies	2.44	1.77	***
Disadvantages of zillmering	3.50	3.01	***
<i>Qualitative subscales¹</i>			
Products for risk provision	2.32	1.93	***
Product design	3.00	2.43	***
<i>Qualitative overall index¹</i>	2.42	2.20	***
Output indicators			
<i>Success rate</i> (in %)			
General interviews	56.21	70.11	***
Old-age counseling interviews	45.47	65.69	***
Pressure of competition	2.35	2.98	***

*** level of significance 0.001

¹ five-point rating scale with 1 = strongly agree (resp. very important) ... 5 = strongly disagree (resp. totally unimportant).

Table 8: Employment Structure: Insurance Intermediaries – Significant Results

Variable	Mean values		T-test Level of sig- nificance
	Insurance agents	Insurance brokers	
1 insurance intermediary			
Structural variables			
Specialization			
Turnover in private customers (in %)	73.10	58.14	***
Quantitative input indicators			
Time budget (in %)			
Acquisition of information	17.03	25.15	***
Counseling interviews	41.77	33.12	***
Duration of counseling (minutes)			
General counseling interviews	47.89	65.80	***
Counseling on private old-age security	76.18	89.21	***
Qualitative input indicators			
General interviews			
Product information ¹			
Price-performance tests	2.53	1.70	***
Premium design	2.74	2.34	***
Cost components	3.73	3.22	***
Information on contract design ¹			
Termination options	2.95	2.47	***
Information on old-age security			
Capital sum life insurance vs. Riester-Police	1.80	2.20	***
Occupational pension schemes vs. private old-age insurance	2.19	1.84	***
Investment funds	2.50	2.11	***
Performance of insurance companies	2.54	1.80	***
Qualitative subscales ¹			
Products for risk provision	2.41	2.06	***
Contract design	2.55	2.29	***
Product design	3.00	2.43	***
Qualitative overall index ¹	2.40	2.18	***
Output indicators			
Success rate (in %)			
General interviews	57.67	72.39	***
Old-age counseling interviews	46.33	65.25	***
Pressure of competition	2.34	2.92	***
2-3 insurance intermediaries			
Structural variables			
Specialization			
Turnover in private customers (in %)	69.35	53.27	***
Customer variables			
Demand for information ¹			
Capital sum life insurance	2.02	2.41	***

*** level of significance 0.001

¹ five-point rating scale with 1 = strongly agree (resp. very important) ... 5 = strongly disagree (resp. totally unimportant).

Table 8: Employment Structure: Insurance Intermediaries – Significant Results (cont.)

Variable	Mean values		T-test Level of sig- nificance
	Insurance agents	Insurance brokers	
Quantitative input indicators			
<i>Time budget (in %)</i>			
Acquisition of information	17.19	24.32	***
Counseling interviews	39.37	32.41	***
<i>Further training and conferences (Number)</i>	5.37	8.13	***
<i>Duration of counseling (Minutes)</i>			
General counseling interviews	49.04	66.96	***
Qualitative input indicators			
<i>Product information¹</i>			
Price-performance tests	2.64	1.88	***
Premium design	2.75	2.34	***
Cost components	3.88	3.18	***
<i>Information on contract design¹</i>			
Termination options	3.29	2.79	***
Costs of contract modification	2.85	2.26	***
<i>Information on old-age security</i>			
Occupational pension schemes vs. private old-age insurance	2.02	1.61	***
Tax advantages	2.21	1.82	***
Performance of insurance companies	2.56	1.66	***
Disadvantages of zillmering	3.52	2.82	***
<i>Qualitative subscales¹</i>			
Products for risk provision	2.33	1.87	***
Product design	3.08	2.46	***
<i>Qualitative overall index¹</i>	2.40	2.12	***
Output indicators			
<i>Success rate (in %)</i>			
General interviews	56.02	72.79	***
Old-age counseling interviews	46.46	64.40	***
<i>Pressure of competition</i>	2.42	3.01	***
More than 4 insurance intermediaries			
<i>Demand for information¹</i>			
Capital sum life insurance	1.90	2.52	***
Annuity insurance	1.71	2.29	***
Quantitative input indicators			
<i>Further training and conferences (Number)</i>	5.19	8.88	***
<i>Duration of counseling (Minutes)</i>			
General counseling interviews	41.72	69.62	***
Qualitative input indicators			
<i>General interviewse inhaltliche Schwerpunkte</i>			
<i>General information¹</i>			
(Dis-) advantages of different security options	2.44	1.78	***

*** level of significance 0.001

¹ five-point rating scale with 1 = strongly agree (resp. very important) ... 5 = strongly disagree (resp. totally unimportant).

Table 8: Employment Structure: Insurance Intermediaries – Significant Results (cont.)

Variable	Mean values		T-test Level of sig- nificance
	Insurance agents	Insurance brokers	
<i>Product information¹</i>			
Price-performance tests	2.38	1.67	***
Cost components	3.88	3.24	***
<i>Qualitative subscales¹</i>			
Product design	2.93	2.40	***
Output indicators			
<i>Success rate</i> (in %)			
Old-age counseling interviews	45.17	66.57	***

*** level of significance 0.001

¹ five-point rating scale with 1 = strongly agree (resp. very important) ... 5 = strongly disagree (resp. totally unimportant).

Table 9: Specialization in Private Customers – Significant Results

Variable	Mean values		T-test Level of sig- nificance
	Insurance agents	Insurance brokers	
21-40% share in sales volume	n=29	n=77	
Quantitative input indicators			
<i>Duration of counseling (Minutes)</i> General counseling interviews	42.00	57.53	***
Qualitative input indicators			
<i>Product information¹</i> Price-performance tests	2.47	1.69	***
<i>Information on old-age security</i> Performance of insurance companies	2.57	1.78	***
<i>Qualitative subscales¹</i> Product design	2.97	2.41	***
Output indicators			
<i>Success rate (in %)</i> Old-age counseling interviews	45.34	62.51	***
41-60% share in sales volume			
Quantitative input indicators			
<i>Time budget (in %)</i> Acquisition of information	18.25	25.73	***
<i>Duration of counseling (Minutes)</i> General counseling interviews	46.80	68.46	***
Qualitative input indicators			
<i>Product information¹</i> Price-performance tests	2.53	1.77	***
Cost components	3.84	3.21	***
<i>Information on old-age security</i> Performance of insurance companies	2.49	1.93	***
<i>Qualitative subscales¹</i> Product design	3.03	2.43	***
Output indicators			
<i>Success rate (in %)</i> General interviews	54.89	71.37	***
Old-age counseling interviews	41.76	64.23	***
<i>Pressure of competition</i>	2.24	2.97	***
61-80% share in sales volume			
Customer variables			
<i>Demand for information¹</i> Capital sum life insurance	2.06	2.48	***
Specific rest-life life insurance	2.77	3.24	***

*** level of significance 0.001

¹ five-point rating scale with 1 = strongly agree (resp. very important) ... 5 = strongly disagree (resp. totally unimportant).

Table 9: Specialization in Private Customers – Significant Results (cont.)

Variable	Mean values		T-test Level of sig- nificance
	Insurance agents	Insurance brokers	
Quantitative input indicators			
<i>Time budget (in %)</i>			
Acquisition of information	17.24	22.75	***
Counseling interviews	40.55	34.27	***
<i>Further training and conferences (Number)</i>	5.63	8.22	***
<i>Duration of counseling (Minutes)</i>			
General counseling interviews	47.70	66.55	***
Qualitative input indicators			
<i>General information¹</i>			
(Dis-) advantages of different security options	2.18	1.74	***
<i>Product information¹</i>			
Price-performance tests	2.60	1.81	***
Cost components	3.77	3.30	***
Claim settlement	1.97	2.44	***
<i>Information on contract design¹</i>			
Contract period	2.58	2.14	***
Termination options	3.11	2.48	***
<i>Information on old-age security</i>			
Occupational pension schemes vs. private old-age insurance	2.23	1.72	***
Investment funds	2.50	1.86	***
Performance of insurance companies	2.49	1.65	***
Disadvantages of zillmering	3.42	2.86	***
<i>Qualitative subscales¹</i>			
Products for risk provision	2.39	1.91	***
Contract design	2.64	2.30	***
Product design	3.00	2.53	***
<i>Qualitative overall index¹</i>	2.37	2.11	***
Output indicators			
<i>Success rate (in %)</i>			
General interviews	58.47	74.91	***
Old-age counseling interviews	47.34	67.48	***
<i>Pressure of competition</i>	2.36	3.07	***
81-100% share in sales volume			
Quantitative input indicators			
<i>Time budget (in %)</i>			
Acquisition of information	16.69	27.79	***
Counseling interviews	46.13	30.40	***
<i>Further training (Number)</i>			***
<i>Duration of counseling (Minutes)</i>			
General counseling interviews	50.04	72.66	***

*** level of significance 0.001

¹ five-point rating scale with 1 = strongly agree (resp. very important) ... 5 = strongly disagree (resp. totally unimportant).

Table 9: Specialization in Private Customers – Significant Results (cont.)

Variable	Mean values		T-test Level of sig- nificance
	Insurance agents	Insurance brokers	
Qualitative input indicators			
<i>Product information¹</i>			
Price-performance tests	2.50	1.77	***
Premium design	2.83	2.30	***
Cost components	3.78	3.17	***
<i>Information on old-age security</i>			
Performance of insurance companies	2.56	1.75	***
<i>Qualitative subscales¹</i>			
Products for risk provision	2.45	2.06	***
Product design	3.04	2.14	***
Output indicators			
<i>Success rate (in %)</i>			
General interviews	56.70	72.81	***
Old-age counseling interviews	47.95	67.11	***

*** level of significance 0.001

¹ five-point rating scale with 1 = strongly agree (resp. very important) ... 5 = strongly disagree (resp. totally unimportant).

Table 10: Specialization on Target Customers – Significant Results

Variable	Mean values		T-test Level of sig- nificance
	Insurance agents	Insurance brokers	
No Specialization			
Structural variables			
<i>Specialization</i>			
Turnover in private customers (in %)	76.38	67.84	***
Quantitative input indicators			
<i>Time budget (in %)</i>			
Acquisition of information	16.66	25.09	***
Counseling interviews	41.76	33.64	***
<i>Duration of counseling Minutes)</i>			
General counseling interviews	48.45	63.63	***
Qualitative input indicators			
<i>Product information¹</i>			
Price-performance tests	2.55	1.75	***
Premium design	2.71	2.29	***
Cost components	3.81	3.30	***
<i>Information on contract design¹</i>			
Contract period	2.63	2.20	
Termination options	3.14	2.53	***
<i>Information on old-age security</i>			
Investment funds	2.50	1.96	***
Performance of insurance companies	2.56	1.87	***
Disadvantages of zillmering	3.50	2.99	***
<i>Qualitative subscales¹</i>			
Products for risk provision	2.43	2.08	***
Contract design	2.68	2.35	***
Product design	3.01	2.44	***
<i>Qualitative overall index¹</i>	2.41	2.20	***
Output indicators			
<i>Success rate (in %)</i>			
General interviews	56.27	70.49	***
Old-age counseling interviews	45.31	62.67	***
<i>Pressure of competition</i>	2.36	2.90	***
Specialization			
Structural variables			
<i>Firm size</i>			
Employees	3.29	5.70	***
Insurance intermediaries	1.97	3.03	***
<i>Specialicalication</i>			
Turnover in private customers (in %)	66.53	51.21	***
Customer variables			
<i>Demand for information¹</i>			
Capital sum life insurance	1.98	2.41	***

*** level of significance 0.001

¹ five-point rating scale with 1 = strongly agree (resp. very important) ... 5 = strongly disagree (resp. totally unimportant).

Table 10: Specialization on Target Customers – Significant Results (cont.)

Variable	Mean values		T-test Level of sig- nificance
	Insurance agents	Insurance brokers	
Specific rest-life life insurance	2.85	3.22	***
Annuity insurance	1.96	2.25	***
Quantitative input indicators			
<i>Time budget (in %)</i>			
Acquisition of information	18.69	24.44	***
Counseling interviews	39.55	32.65	***
<i>Duration of counseling (Minutes)</i>			
General counseling interviews	47.30	68.66	***
Counseling on private old-age security	72.82	91.27	***
Qualitative input indicators			
<i>Product information¹</i>			
Price-performance tests	2.54	1.75	***
Premium design	2.76	2.36	***
Cost components	3.72	3.18	***
<i>Information on old-age security</i>			
Capital sum life insurance vs. Riester-Police	1.83	2.24	***
Occupational pension schemes vs. private old-age insurance	1.98	1.62	***
Investment funds	2.47	2.14	***
Performance of insurance companies	2.45	1.72	***
<i>Qualitative subscales¹</i>			
Products for risk provision	2.31	1.93	***
Product design	3.00	2.43	***
<i>Qualitative overall index¹</i>	2.36	2.17	***
Output indicators			
<i>Success rate (in %)</i>			
General interviews	57.99	72.08	***
Old-age counseling interviews	47.75	66.21	***
<i>Pressure of competition</i>	2.40	3.01	***

*** level of significance 0.001

¹ five-point rating scale with 1 = strongly agree (resp. very important) ... 5 = strongly disagree (resp. totally unimportant).