The Nordic model for consumer and customer satisfaction

Policy report

Consumer Co-operation in the Nordic Countries

The aim of the co-operation in the Nordic Committee of Senior Officials on Consumer Affairs is to promote consumer safety, protect their financial and legal interests, inform consumers and promote their education, and promote consumer influence in society. Exchange of information, reports, and research will contribute to the Nordic consumer policy and provides a platform for joint Nordic presentation in international contexts.

Nordic co-operation

Nordic co-operation, one of the oldest and most wide-ranging regional partnerships in the world, involves Denmark, Finland, Iceland, Norway, Sweden, the Faroe Islands, Greenland and Åland. Co-operation reinforces the sense of Nordic community while respecting national differences and similarities, makes it possible to uphold Nordic interests in the world at large and promotes positive relations between neighbouring peoples.

Co-operation was formalised in 1952 when *the Nordic Council* was set up as a forum for parliamentarians and governments. The Helsinki Treaty of 1962 has formed the framework for Nordic partnership ever since. The *Nordic Council of Ministers* was set up in 1971 as the formal forum for co-operation between the governments of the Nordic countries and the political leadership of the autonomous areas, i.e. the Faroe Islands, Greenland and Åland.

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Foreword

The key element in consumer policy is to create the best possible conditions for consumers: the best conditions with regard to consumer protection and rights, but also in relation to the opportunity for consumers to choose between an ever expanding range of alternatives on a transparent basis. Strengthening the opportunity of consumers to make real choices between more products and providers boosts competition – businesses are encouraged to become more efficient, and in many cases to become more innovative.

There is a long tradition of creating good conditions for consumers in the Nordic countries. In comparison with the rest of the world, the Nordic countries have a good baseline situation. However, having a good baseline must not be used as an excuse for politicians, authorities or the business community to rest on their laurels. Good conditions for consumers benefit the individual consumer, but they also help ensure that Nordic businesses are highly competitive. These are characteristics and strengths we need to build on.

If the best possible conditions are to be ensured, it is of course crucially important to know what conditions consumers actually regard as significant. It is important to focus on those areas that have the greatest impact on consumer satisfaction. It is important to be able to allocate priorities – but sensible allocation of priorities necessitates having knowledge based on facts.

The purpose of the project was to make a start on the development of the *Nordic model for consumer and customer satisfaction,* as a step in the direction of consumer policy based on facts. It is hoped that more quantitative arguments can be brought into the debate on setting priorities with the model, and that it will become possible to monitor whether the initiatives that are launched actually have the anticipated effects.

This report outlines the initial results of a pilot study, and a number of specific policy implications of the model are identified. The report is to be regarded as a taster, which primarily illustrates possible applications for the model. At the same time, the results can be fed directly into the debate on improving conditions for consumers in the eight selected markets.

The pilot project *Model for consumer/customer satisfaction* has been funded by the Nordic Council of Ministers and implemented under the Committee of Senior Officials for Consumer Affairs. The project is being carried out in conjunction with a project group from the Nordic countries[1]. The model setup and results are closely coordinated between the Centre for Corporate Performance (CCP) at the Aarhus School of Business and the Ministry of Economic and Business Affairs Centre for Economic and Business Research (FORA).

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[1] See Annex A for an overview of the project group.

Summary

Politicians and authorities, in interaction with the business community and relevant interest organisations, are responsible for consumers being able to act in markets that work as smoothly as possible. As in many other areas, it is necessary to have a firm foundation of facts on which to base decisions in order to ensure the best possible input and allocation of priorities.

A number of studies have previously been made of consumer satisfaction with particular markets, and the focus has previously been on areas and sectors in which consumers have been less satisfied. These analyses are interesting and beneficial, as they help to shed light on particular problem areas.

However, it is not possible to decide against the backdrop of these previous analyses what action an authority or business can take to improve consumer satisfaction to the greatest possible extent.

The purpose of the *Nordic model for consumer and customer satisfaction* is to create a tool for allocating priorities in consumer policy, a tool which, in conjunction with other quantitative and qualitative analyses, can help provide a better foundation for decision-making.

The purpose of the pilot project has been to link the existing econometric model, the *European Customer Satisfaction Index,* for the first time to a model for consumer satisfaction. As in other pilot projects, this analysis represents the first step along the way to creating the best possible model tool. The aim of the pilot project has therefore not been just to achieve specific usable policy results but also to try out and test various scenarios and models, work which, in the longer term, is intended to help improve the model and its potential applications.

The initial test results with the model are encouraging. All the evidence points in the direction of the model becoming a useful tool, that can shed light on a number of factors that contribute to consumer satisfaction. The initial pilot tests naturally provide a relatively narrow basis for analysis, but the results suggest that the model parameters can be used to describe consumer satisfaction, and that the model can therefore be used to study what measures are actually of significance to consumer satisfaction.

In brief, the model is made up of five areas of consumer policy:

Consumer policy area	Definition
Transparency	Available information on price and quality
Choice	Sufficient number of providers and types of product/service
Consumer protection	Rules and right to complain for consumer protection
Social concerns	Environmentally and ethically sound products and services
Consumer information	Product/service information and labelling schemes

The pilot study has been carried out in eight selected markets in Denmark: building materials, mobile phone subscriptions, scheduled air travel, package/charter travel, car repairs, electricity supply, banks and hospitals.

One of the findings of the pilot study is that the perception consumers have of good conditions in relation to consumer policy is very much dependent on the possibility of creating a clear and simple overview of price and quality, with the reassurance that comes with consumer protection and the right to complain.

At the same time, the study shows that there are wide differences between markets in relation to consumer satisfaction and the contribution made by the underlying parameters. It is shown, for example, that consumers are relatively satisfied with the market for charter travel, and that this satisfaction is largely due to transparency, while consumers of mobile phone subscriptions are less satisfied, a lack of transparency and consumer protection being factors that have an adverse impact on the level of satisfaction.

The pilot study represents a baseline analysis, in other words it is a static analysis of how matters stand here and now in the specified markets. The results can therefore be used primarily to set priorities between different instruments of consumer policy. If, for example, there is a desire to improve consumer satisfaction in the market for mobile phone subscriptions, it can be seen on the basis of the model where a start should be made, all other things being equal, in order to achieve the greatest possible effect.

On the other hand, the results of the pilot test cannot help in establishing how different consumer-policy measures can be more specifically organised. The model does not, for example, say anything about how the right to complain can be organised in a particular market. There is a need here to benchmark the results with results from other countries. Broadening the model to more countries will make it possible to learn from those countries where conditions in relation to consumer policy are better.

Nor does the pilot test give any direct indication of whether previous consumer-policy measures have proved effective. But dynamism can be created in the model by repeating a model test year after year, dynamism that can show whether different measures bear fruit – in other words where specific policy changes prove effective over the course of time.

Chapter 1. A tool of consumer policy

Consumer policy can be organised in many ways, and it is difficult to decide which procedures and which frameworks ultimately benefit consumers most.

Politicians and authorities, in interaction with the business community and relevant interest organisations, are responsible for consumers being able to act in markets that work as smoothly as possible. As in many other areas, it is necessary to have a firm foundation of facts on which to base decisions in order to ensure the best possible input and allocation of priorities. In the area of financial and monetary policy, for example, there is a well established basis, and the tools of competition policy have also been strengthened in recent years. But in the area of consumer policy, the basis on which decisions are taken still largely consists of qualitative and case-based analyses.

A number of studies have previously been made of consumer satisfaction with particular markets, and the focus has previously been on areas and sectors in which consumers have been less satisfied. These analyses are interesting and beneficial, as they help to shed light on particular problem areas.

However, it is not possible to decide against the backdrop of these previous analyses what action an authority or business can take to improve consumer satisfaction to the greatest possible extent. It is difficult to directly set priorities on the basis of simple measurements of satisfaction. Allocating priorities involves making a commitment to those areas that have the greatest effect, and this is difficult without knowing what more specifically underlies consumer satisfaction.

The purpose of the *Nordic model for consumer and customer satisfaction* is to create a tool for allocating priorities in consumer policy, a tool which, in conjunction with other quantitative and qualitative analyses, can help provide a better foundation for decision-making.

Basis for decision-making by businesses

The Nordic model for consumer and customer satisfaction is based on the principles contained in the *European Customer Satisfaction Index*

(ECSI).[2] The ECSI uses objective statistical methods to identify the parameters that have the greatest impact on customer loyalty and satisfaction with the products and services provided by particular businesses.[3] These businesses can gauge whether it is improvements in image or perhaps improvements in product quality that have the greatest impact on customer loyalty and satisfaction.

In contrast to ordinary satisfaction surveys, the ECSI shows what parameters *underlie* customer satisfaction and loyalty, so that businesses can find out where they need to take action if they want to have the greatest effect at the lowest possible cost.

A large number of Danish, Nordic and European companies pay annually for runs of the customer model. And the level of interest among companies wishing to use the model is rising sharply.

Part of the reason for the high level of interest is calculations which show that a rise in customer of loyalty of one percentage point leads to an increase in company earnings of two percentage points.[4] Companies can therefore see the results of improved customer loyalty directly in their bottom line, and it is therefore of interest to them to know how they can boost loyalty. And by repeating the analysis year after year, companies can monitor whether specific strategic measures have a significant bearing on loyalty and satisfaction over the course of time.

Model for consumer satisfaction

In the same way that companies use the ECSI as a priority-setting tool in their overall strategic planning, politicians and authorities responsible for consumer policy can use the Nordic model for consumer and customer satisfaction to allocate priorities among various consumer-policy measures and at the same time monitor whether new measures and initiatives prove effective over the course of time.

Just as a number of parameters that contribute to increased customer loyalty and satisfaction are identified in the customer area, a number of factors assumed to have an impact on consumer satisfaction are pinpointed in the area of consumer policy. These areas are described in Table 1.

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[2] The European Customer Satisfaction Index (ECSI). The Danish version, Danish Customer Index (Dansk Kundeindeks) is based on the European proposal and has been drawn up as a cooperative venture between the Aarhus School of Business and the Danish Centre for Management.

[3] The ECSI measures underlying parameters such as image, expectations, product quality and service quality. For a more detailed description of the model, see: Juhl, Kristensen and Østergård (2002), Customer Satisfaction in European Food Retailing, *Journal of Retailing & Consumer Services* 9, 327-334.

[4] See Kristensen, K. and Westlund, A. (2004), Performance Measurement & Business Results, *Total Quality Management* vol. 15, No. 5-6, 719-733.

Table 1. The areas of consumer policy

Consumer policy area	Definition
Transparency	Available information on price and quality
Choice	Sufficient number of providers and types of product/service
Consumer protection	Rules and right to complain for consumer protection
Social concerns	Environmentally and ethically sound products and services
Consumer information	Product/service information and labelling schemes

Note: see Annexes B and E for a more detailed description of the areas of consumer policy and the underlying indicators.

The Nordic model for consumer and customer satisfaction has a number of specific potential applications:

- Measuring general satisfaction among consumers and their assessment of the areas of consumer policy
- Identifying areas of consumer policy which are of greatest significance to consumer satisfaction, both across and within specific markets
- Gauging whether specific consumer-policy measures have an impact over the course of time
- Benchmarking across countries and consequently learning from those countries where the level of satisfaction is highest.

Among the more specific potential applications is the possibility of gaining a better understanding of the link between the consumer-policy and customer-related areas.[5] Does consumer policy have a bearing on customer satisfaction with the individual provider? Or does the satisfaction of a consumer with his or her supplier have a bearing on how consumer policy should be organised? Finally the model provides a research insight into factors that have an impact on consumer and customer satisfaction.[6]

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[5] As work on further development of the model progresses, work will be done on documenting the model and the underlying calculations in detail.

[6] Researchers from both the Aarhus School of Business and the Stockholm School of Economics are closely attached to the project. It is planned that articles for publication in a number of international journals will be written on the basis of the pilot analysis.

Chapter 2. General results

The results of the initial tests are encouraging. The results suggest that it is possible to describe consumer satisfaction on the basis of the model parameters, and that the model can therefore be used to examine which areas are of real significance for consumer satisfaction.[7]

Although the pilot study has a narrow analytical base, the results point to a number of specific policy implications, both at the overall level and for each of the eight selected markets. It is also evident that the pilot results on the customer part match the results found in previous runs of the customer model, while measurement of general consumer satisfaction is in agreement with previous consumer-policy studies. Together they help to substantiate the results of the pilot study.

A number of the provisional model results and possible policy implications are examined here to illustrate the potential applications of the model. The model results can be broadly divided into two categories.

Firstly there are a number of index results that contribute knowledge on the general level of satisfaction of consumers with the markets studied and their assessment of the five areas of consumer policy. The index results thus describe how well consumers, for example, assess general satisfaction or transparency in the markets studied. The assessments can be used, for instance, to see whether there are problems with inadequate satisfaction, while also providing a basis in the long term for analyses of whether policy changes are effective over the course of time.

Secondly there are a number of estimated results that show how much the individual areas of consumer policy contribute to consumer satisfaction,[8] that is to say whether consumers attach most value to markets being transparent or whether it is of greater significance that there are sufficient consumer protection rules. These results, which can be calculated both at an aggregate level and for each of the markets studied, can be used as a knowledge base for specific priority-setting. It is possible to judge the effect a rise in consumer satisfaction with the areas of consumer policy will have on the overall level of satisfaction. See Box 1 for further interpretations of the results.

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[7] See Annex G for underlying calculations and tests of reliability and validity.
[8] See Annex H for method of calculation.

Box 1. Interpretation of the results

Note: See Annex H for the method of calculation.

For each of the 8 markets an index value is calculated for general satisfaction and an index value for each of the 5 underlying policy areas. The index values can range over a scale from 0-100 index points. Index 100 is attained if all consumers questioned are fully satisfied with the market concerned or the policy areas concerned.. The index results show how consumers have responded to questions such as: *"How satisfied are you with the number of providers in the charter market?"* or *"How satisfied are you in general with the charter market?"*.

A number of calculations are also made that show how much the individual 5 policy areas contribute to research on general satisfaction with a market. Equation (1) shows the estimated results – based on multiple PLS (Partial Least Squares) estimation – for the charter market:

(1)   General consumer satisfaction = 0.28*transparency +

            0.19*choice + 0.16*consumer protection +

            0.08*social concerns + remaining element

Inserting the index values from the charter amrket yields Equation (2):

(2)   68.7 = 0.28*59.1 + 0.19*76.1 + 0.16*56.2 + 0.08*56.6 +
            remaining element

On the basis of the estimates it is possible to find out what effect a change in consumer assessment of a specific policy area has on overall satisfaction. If consumer assessment of transparency in the charter market, for example, rises by 10%, from index 59.1 to 65.01, the overall consumer satisfaction will rise by 2.4%, from index 68.7 to index 70.4. See Equations (3) and (4) for calculation:

(3)   Estimate*(PolicyIndex*0.10)/

            Satisfaction index + (Estimate*(PoliticyIndex*0.10))

            = percentage change in overall satisfaction

(4)   [0.28*(59.1*0.10)]/[68.7 + 0.28*(59.1*0.10)] = 2.4%.

Results – aggregated level

The analyses at the aggregated level show that three out of the five areas of consumer policy are of great significance to overall consumer satisfaction. These three areas are transparency, choice and consumer protection. It is, in fact, found that these areas have just as great an effect on con-

sumer satisfaction as image and product quality have on the satisfaction of customers with businesses[9].

On the other hand, the last two areas of consumer policy, social concerns and consumer information, appear directly to be of lesser significance for consumer satisfaction. The underlying analyses suggest, however, that it is advantageous to carry on working in these two areas, with regard to both limitation and formulation of questions.[10] In specific terms, the results show that if consumer-policy authorities are able to increase general consumer protection by one point by taking policy measures, consumer satisfaction on average increases by 0.27, while a rise in transparency of one point increases satisfaction by 0.21. On the other hand, a rise in the possibility of buying ethically sound products and services (social concerns) will only result in a rise of 0.05 in overall satisfaction.

Table 2 shows how much each of the areas of consumer policy contributes to consumer satisfaction.

Table 2. Contribution to consumer satisfaction – aggregated level

Consumer policy area	Contribution to consumer satisfaction
Consumer protection	0.27
Transparency	0.21
Choice	0.13
Social concerns	0.05
Consumer information	0.04

Note 1: All estimates in the table are significant at the 5% level

Note 2: Annex F presents an overview of the capacity of the model to explain, i.e. how much of the satisfaction can actually be explained by the model. The customer model has undergone a large number of modifications over the years, and therefore has high capacity to explain. The aspiration is for it to be possible to have a high capacity to explain in the consumer section when working with the model.

Note 3: See Annexes B and E for a more detailed description of the areas of consumer policy and the underlying questions.

The specific estimates may be difficult to interpret, but if the aims of consumer policy are only to increase consumer satisfaction, the results suggest that the best result is attained by making policy changes that improve transparency or increase consumer protection. This does not, however, mean that effort does not need to be put into improving the social concerns or increasing consumer information. There may be other good reasons for this. But if priorities are only to be set between different consumer-policy initiatives on the basis of this model, it will be most rewarding to look at ways of improving general consumer protection and transparency.

It obviously needs to be emphasised that the results of the model have to be used in interaction with other analyses and tools, and that the consumer-policy agenda will not improve consumer satisfaction in all con-

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[9] See Annex G for an overview of results from the customer model

[10] See Annex G for limitations on the capacity of the areas to explain.

texts – at least not in the short term. It needs to be emphasised at the same time that the markets studied are very varied, and that it may therefore be difficult to make specific policy recommendations across the markets. In addition, the aggregated results from the pilot study should be taken as indications. A fully developed test of the model at aggregated level necessitates further analysis with a greater spread and with the involvement of more markets.[11]

Results – market level

The pilot study has been carried out with tests in eight selected markets. In contrast to a number of the traditional consumer studies, it has been a requirement in this study that the respondents have been active in the specific market within the past year. Only people who have real experience of the individual markets therefore take part, cf. Table 3 for a definition of the eight selected markets.

Table 3. Definition of the eight selected markets

Market	Definition of consumers
Building materials	Persons who have bought building materials within the last 12 months
Mobile phone subscriptions	Persons who have been in contact with mobile phone subscription providers within the last 12 months
Scheduled air travel	Persons who have ordered and travelled by scheduled air services within the last 12 months
Package/charter travel	Persons who have ordered and travelled on package/charter trips within the last 12 months
Car repair	Car owners who have visited a service workshop within the last 12 months
Electricity supply	Persons who have been in contact with electricity supply companies within the last 12 months
Banks	Persons who have been in contact with their bank within the last 12 months
Hospitals	Persons who have been treated by the Danish hospitals within the last 12 months

Note: see Annex C for selection procedure.

As expected, the initial tests show that there are wide differences across the markets with regard to general satisfaction, assessment of and contributions from the areas of consumer policy. The index results for each of the eight markets are shown in Table 4.

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[11] See Annex D for the underlying statistical requirements.

Table 4. Index results – consumers' assessments (index 100)

	Charter travel	Sched-uled air travel	Build-ing materi-als	Elec-tricity supply	Banks	Car re-pairs	Mobile phone subscrip-tions	Hos-pitals	Av.
General consumer satisfac-tion	**68.7**	**67.0**	**63.5**	**62.9**	**62.2**	**58.4**	**56.9**	**67.1**	**63.3**
Trans-parency	59.1	54.1	52.4	42.0	49.7	42.2	45.0	49.4	49.2
Choice	76.1	70.4	70.2	45.1	68.1	70.8	75.8	59.8	67.0
Con-sumer protection	56.2	54.2	46.8	52.5	51.7	44.5	45.2	49.4	50.1
Social concerns	56.6	48.5	50.4	58.0	54.4	48.0	31.7	-	49.7
Con-sumer informa-tion	51.5	42.9	55.5	64.3	50.4	48.6	46.8	-	51.4

Note 1: As the market for hospitals differs substantially from the other markets, it has not been possible to assess the market on the parameters of social concerns and consumer information.

Note 2: See Annex E for underlying indicators.

It may be difficult to make an absolute assessment of the index results when there is no basis for comparison from previous years or from other countries. However, it can normally be said that an index below 50 is judged relatively poorly, while an index score of over 80 is judged as genuinely good.[12]

The results in Table 4 show that the market for charter and package travel has the highest level of general consumer satisfaction, while the market for mobile phone subscriptions has the fewest satisfied consumers. These results are in good agreement with previous studies. In the 'consumer satisfaction index' of the National Consumer Agency of Denmark, the market for charter and package travel comes second out of a total of 49 markets studied, while the market for phone subscriptions and the Internet comes 42nd.[13]

The pilot study also shows that there are wide differences between the markets in terms of which areas contribute most to consumer satisfaction, cf. Table 5.

Both the direct estimates and percentage effects are shown here. The direct estimates at the top of the table show what effect a change of one unit in the index result for example for transparency will have on the index value for general satisfaction. The percentage effects at the bottom of the table show by how many per cent general consumer satisfaction will rise if transparency rises, for example, by 10 per cent.

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[12] Based on experience from work with the European Customer Satisfaction Index.

[13] National Consumer Agency – Ministry for Family and Consumer Affairs (2004), Consumer Review 2004.

Table 5. Contributions to satisfaction – direct estimation results and 10% effects

	Charter travel	Sched-uled air travel	Building materials	Electricity supply	Banks	Car repairs	Mobile phone subscrip-tions	Hospitals
Estimates								
Transparency	0.28	0.21	0.16	0.15	0.23	0.2	0.24	0.15
Choice	0.19	0.23	0.25	-	0.32	-	0.3	0.17
Consumer protection	0.16	0.22	0.28	0.36	0.13	0.29	0.24	0.37
Social concerns	0.08	-	0.09	-	-0.12	0.23	-	-
Consumer information	-	0.09	-	-	0.16	0.04	-	-
Percentage effects (10%)								
Transparency	2.35	1.67	1.30	0.99	1.80	1.43	1.86	1.09
Choice	2.06	2.36	2.69	-	3.38	-	3.84	1.49
Consumer protec-tion	1.29	1.75	2.02	2.92	1.07	2.16	1.87	2.65
Social concerns	0.65	-	0.71	-	-1.06	1.86	-	-
Consumer infor-mation	-	0.57	-	-	1.28	0.33	-	-

Note: The parameters indicated are all significant at the 5% level. The estimates in the top part of the table are interpreted as meaning that a rise in consumer assessment of transparency of one point will lead to a rise in satisfaction of 0.3 points. The bottom effects show by how many per cent overall consumer satisfaction will change if consumer assessment of the various policy areas changes by 10 per cent. See Box 1 for a more detailed explanation and the method of calculation.

A number of interesting policy implications can be deduced from the results in Table 5. It is interesting to observe, for example, that it is largely in those markets where there have previously been state monopolies, hospitals and electricity supply, that consumers value consumer protection most highly. The reason for this may be that transparency is difficult in these markets, and that consumers therefore want rules and the right to complain that protect them.

It is notable at the same time that the degree of choice is of great significance to consumers in those markets where consumers in one way or another are tied as customers, for example in the market for mobile phone subscriptions and banks. Although consumers are tied to particular providers, they would like to be able to choose among other providers and products: they want to retain the ability to change supplier.

Because this is a pilot test, there are no directly comparable results from previous calculations, and it is therefore difficult to assess absolute magnitudes. By comparing the assessments from the individual markets with the average assessments of consumers, it is obviously possible to gain a picture of whether the market is at the good or poor end. But be-

cause the markets and the underlying challenges are highly diverse, care needs to be taken in making direct comparisons across markets. It is not certain that it is possible or necessary to aim for the markets to reach the same level. The results relating to the eight markets are compared in Figure 1. It can be seen that there are wide differences in relation to which policy areas are of decisive importance for satisfaction and differences in how much the policy areas explain.

Figure 1. Breakdown of overall satisfaction
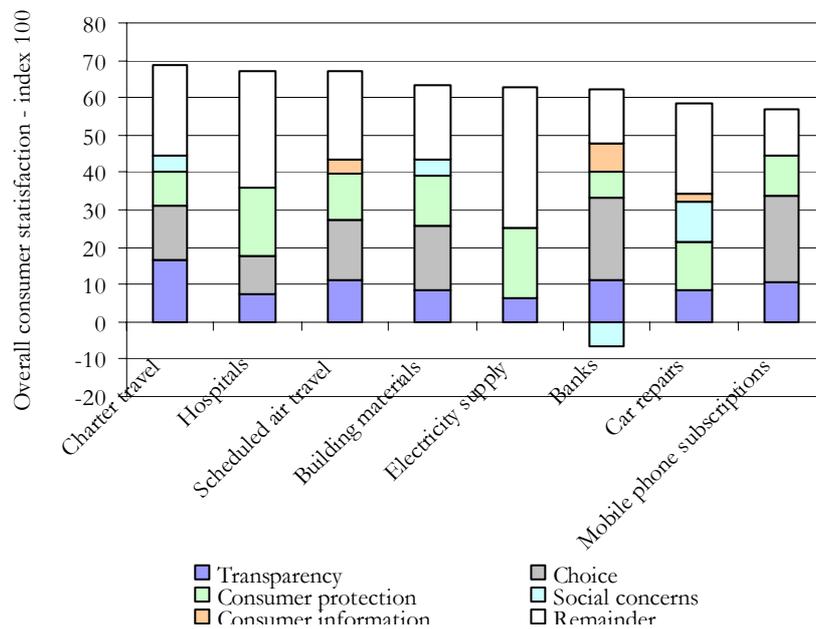
Note: The figure breaks the contributions to general consumer satisfaction down into the five policy areas and one miscellaneous element.

Chapter 3. Results from eight markets

The results for each of the eight markets are examined below. The overall results are outlined and possible policy implications are identified for each market. As the areas of social concerns and consumer information do not appear to be elucidated to a sufficient degree, the focus here is primarily on the areas of transparency, choice and consumer protection.[14]

Market for charter and package travel

The market for charter and package travel is the market out of the eight studied where consumers overall are most satisfied. All assessments of areas of consumer policy are above 50, and the overall satisfaction index is 68.7, cf. Figure 2.

Figure 2. Assessment of areas of consumer policy and contributions to satisfaction
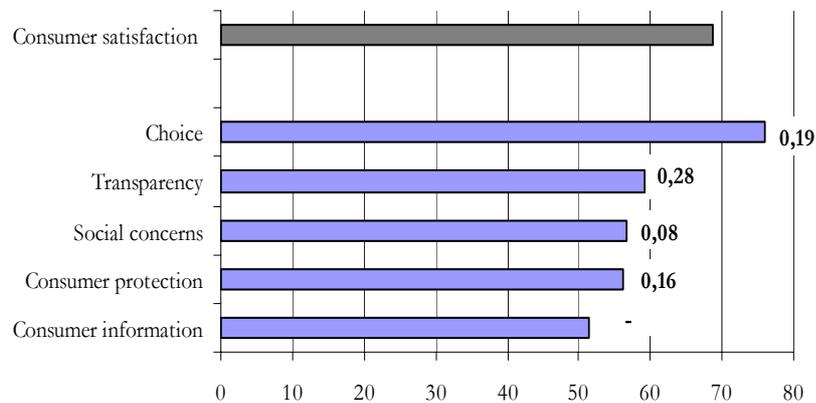
Note: The index values in the bars show consumer satisfaction with the areas concerned. The numerical values on the right show how much the various areas of consumer policy contribute to consumer satisfaction. All the estimates shown are significant at the 5% level.

The bars in Figure 2 show how consumers assess market conditions, in other words whether they are satisfied with conditions existing at present. An index value of 75 in relation to choice shows that consumers feel that there is relatively good choice in the market for charter travel. A value of 100 is attained if all consumers questioned are entirely satisfied with the range of choice.

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[14] See Annex G for calculations of capacity to explain and reliability.

These index results thus have something to say about how consumers assess conditions existing at present, but do not say anything about what effect a change in these conditions has for general satisfaction. In this case it is necessary to look instead at how much the different areas of consumer policy contribute to general satisfaction. These contributions are indicated by numerical values on the right in Figure 2.

The numerical values are estimates from multiple regression analysis, and may be difficult to interpret directly.[15] The estimates show which areas in relative terms are of greatest significance, in relation both to other areas and to the other markets. It can be seen, for example, that the degree of transparency is of greatest significance to consumers' general satisfaction with the charter market. If consumers' assessment of transparency can be increased by one unit, general satisfaction will be increased by 0.28, or expressed differently a rise in consumer satisfaction of an average of 10 per cent will increase general consumer satisfaction by 2.4 per cent.[16]

Overall, the consumers questioned are relatively satisfied with present-day conditions in the market for charter and package travel. As can be seen in Figure 2, however, there is variation in the assessments of the various areas of consumer policy. [17]

The index values in Figure 2 show that consumers primarily judge the degree of choice and transparency to be high. These results fit in well with the traditional picture of a Danish travel market, where a large number of providers try to attract the attention of consumers. There is a relatively high level of competition, and good opportunities to compare quality and prices for example on the Internet help to make the market transparent.

In comparison with other markets, consumers in the charter and package travel market are also relatively well satisfied with consumer protection. The average assessment across the eight markets is at an index of 50, while that for charter and package travel is 56.2. The relatively high score may be due to the presence of the Travel Guarantee Fund, which helps create reassurance in the market.

If there is a wish to further improve satisfaction with the charter and travel market, the results show that the greatest effect will be attained either by creating increased transparency (0.28) or by increasing the degree of choice (0.19).

As consumers' assessment of choice is already relatively high, it may perhaps be difficult to further improve the situation in this area. On the other hand, it may be beneficial to look more closely at transparency. The

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[15] See Box 1 and Annex H for a more detailed explanation of method.

[16] See also the results in Table 5.

[17] It is important to point out that a low score for example for right to complain does not say anything about the actual possibility of making complaints in a given market, but does say something about how consumers *experience* the right to complain.

situation in this area makes a great contribution to the level of satisfaction, while there is also room for improvement in consumers' assessment.

Scheduled air travel

As in the market for charter and package travel, consumers are relatively satisfied with the situation in the market for scheduled air travel. Overall satisfaction is 67, and satisfaction with choice, consumer protection and transparency is relatively high, cf. the bars in Figure 3.

Figure 3. Assessment of areas of consumer policy and contributions to satisfaction
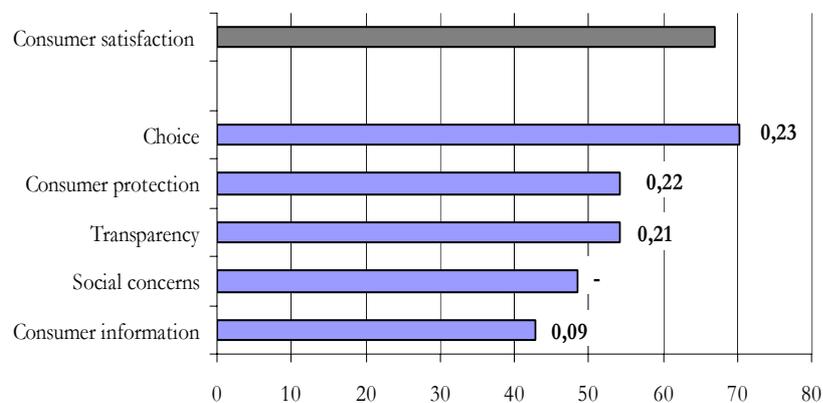
Note: The index values in the bars show consumer satisfaction with the areas concerned. The numerical values on the right show how much the various areas of consumer policy contribute to consumer satisfaction. All the estimates shown are significant at the 5% level.

The results show at the same time that the three principal areas, choice (0.23), consumer protection (0.22) and transparency (0.21), explain a relatively large part of the satisfaction, and that they make roughly the same contribution.

If areas where there is room for improvement in the market for scheduled air travel are to be identified, it is primarily in transparency and consumer protection. Consumers' assessment here is not at the very highest level, and these areas make a relatively large contribution to overall consumer satisfaction.

A need for transparency can be found for instance in the many bonus and discount schemes that exist in the Danish and Nordic markets for air travel. It is difficult for consumers to assess what performance is obtained from one or other airline, or with one or other type of ticket. At the same time, it may be difficult to understand the rules and rights to compensation that come into effect for example in the event of delays. The industry has certain standards in the area, but it is up to the individual airline to decide whether any delay is to provide entitlement to compensation.

Clearer guidelines may possibly help in improving satisfaction with consumer protection.[18]

Building materials

The index for the overall satisfaction of Danish consumers with the market for building materials is 63.5, i.e. around the average index level of 63.3 for the eight markets. Satisfaction with the consumer policy situation is greatest for choice and consumer information, while the assessment for social concerns and consumer protection is relatively lower, cf. the bars in Figure 4.

Figure 4. Assessment of areas of consumer policy and contributions to satisfaction
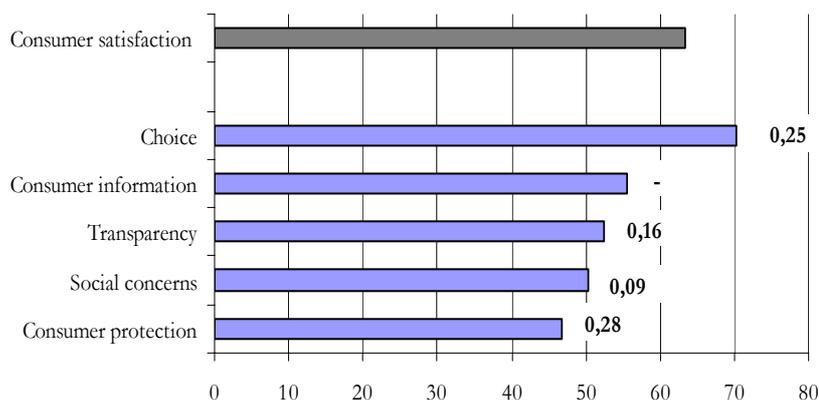
Note: The index values in the bars show consumer satisfaction with the areas concerned. The numerical values on the right show how much the various areas of consumer policy contribute to consumer satisfaction. All the estimates shown are significant at the 5% level.

It is principally choice (0.25), consumer protection (0.28) and transparency (0.16) that contribute to consumer satisfaction. And while the range of choice is already assessed highly at present, the results suggest that there is scope for increasing satisfaction both through improvements in consumer protection and through increased transparency in the area.

The direct policy implications will thus be that possible ways of increasing consumer protection should be looked at more closely, or perhaps initially increasing consumer awareness of the rules relating to consumer protection and right to complain, and that an assessment should be made of how increased transparency can be created in the market for building materials.

A number of studies, from the Danish Competition Authority and elsewhere. provide further evidence of the problem relating to transpar-

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[18] It should also be noted that only package travel is covered by the Travel Guarantee Fund at present.

ency. Their results show e.g. that it is difficult for consumers to gain an overview of prices for Danish building products.

Electricity supply

In the recently liberalised market for electricity supply, it is primarily the quantity of consumer information and social concerns that are assessed highly. The more traditional areas of consumer policy - consumer protection, choice and transparency - receive a relatively low score here, cf. the bars in Figure 5.

Figure 5. Assessment of areas of consumer policy and contributions to satisfaction
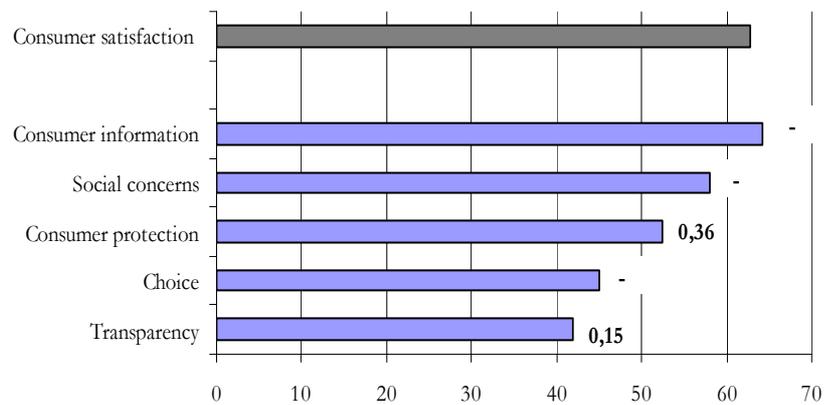
Note: The index values in the bars show consumer satisfaction with the areas concerned. The numerical values on the right show how much the various areas of consumer policy contribute to consumer satisfaction. All the estimates shown are significant at the 5% level.

The low level of satisfaction with transparency recurs in a number of studies. Danish consumers are uncertain and confused about the new choices. It is difficult to make out what specific products and services are received on the basis of bills and customer information.

The model shows at the same time that only improvements in consumer protection (0.36) and transparency (0.15) make a significant contribution to increased satisfaction. At the same time, there are two areas in which there is room for improvement on the basis of assessment by consumers.

Consumers in the market for electricity supply overall are thus satisfied with a completely different situation than consumers in the other markets studied – information and environmental and ethical labelling are valued highly - and their satisfaction is primarily determined on the basis of two parameters.

If the consumer-policy authorities want to ensure increased satisfaction with the liberalised area of electricity supply, the model indicates that consumer protection and transparency need to be looked at in par-

ticular. On the other hand, increased choice does not have a direct bearing on consumers' general satisfaction.

Banks

The index score for overall satisfaction with Danish banks is 62.2. Danish bank consumers are relatively satisfied with the range of choice, while they give the areas of transparency and consumer protection a relatively poor assessment, cf. the bars in Figure 6.

Figure 6. Assessment of areas of consumer policy and contributions to satisfaction
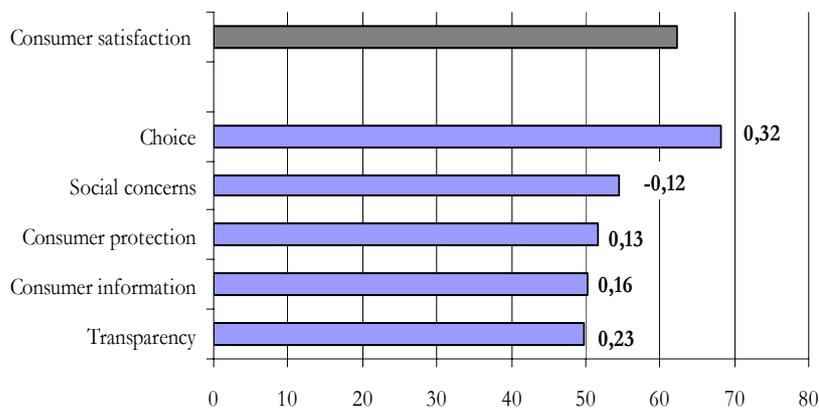
 Note: The index values in the bars show consumer satisfaction with the areas concerned. The numerical values on the right show how much the various areas of consumer policy contribute to consumer satisfaction. All the estimates shown are significant at the 5% level.

It is primarily increased choice (0.32) and improving transparency (0.23) that are significant for consumer satisfaction. The model predicts that increased satisfaction with banks has to come primarily from improvements in these areas.

While consumers already assess the range of choice highly, it will be beneficial to launch initiatives that increase transparency, to which consumers give a very low score. This picture is in good agreement with a Danish banking market where there are theoretically many different providers but where it is very difficult to differentiate between the products and serviced offered by the providers. It is difficult for consumers to see where they get the best value for money.

Car repairs

Consumers of car repairs are relatively dissatisfied with the way the market works at present. Transparency and consumer protection in particular are given a low score, cf. the bars in Figure 7.

Figure 7. Assessment of areas of consumer policy and contributions to satisfaction

Note: The index values in the bars show consumer satisfaction with the areas concerned. The numerical values on the right show how much the various areas of consumer policy contribute to consumer satisfaction. All the estimates shown are significant at the 5% level.

At the same time, the results show that the two areas given the lowest score are the ones that contribute most to increased satisfaction, namely consumer protection (0.29) and transparency (0.20). On the other hand, the range of choice does not have a direct impact on satisfaction. This result may be due to there being such a large range of suppliers of car repairs at present that consumers simply take the range of choice they have for granted.

The model results indicate that general satisfaction among consumers can be increased by launching initiatives that improve transparency and consumer protection.

The low score for transparency and the high significance of this area may be due to it being difficult for consumers to judge actual perform-ance in the market for car repairs. Very few consumers have a real over-view of the contents and extent of various repairs. Increased opportunity to "check" the service received may possibly contribute to consumers' general satisfaction.

In the area of consumer protection it may be mentioned that it is not at present possible to settle a dispute in civil law in Denmark without re-course to the courts. The results of the model show that strengthening the right to complain may help in boosting consumer satisfaction.

Mobile phone subscriptions

The very lowest level of satisfaction in the pilot study is found in the market for mobile phone subscriptions. The index score for consumer satisfaction here is 56.9, and the assessments of transparency and con-sumer protection are particularly low. On the other hand, consumers score the range of choice highly, cf. the bars in Figure 8.

Figure 8. Assessment of areas of consumer policy and contributions to satisfaction
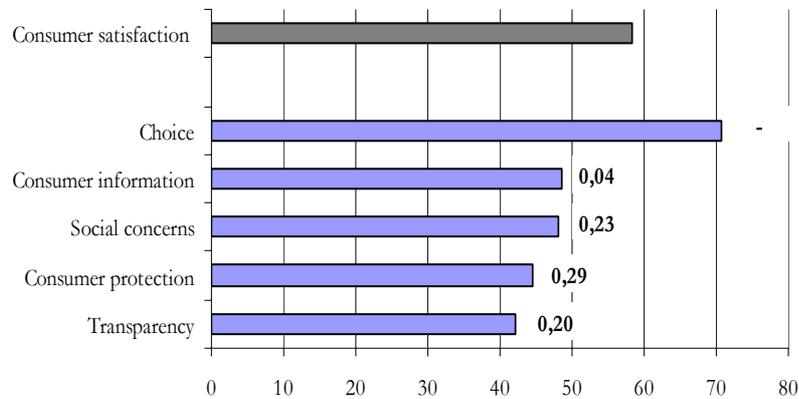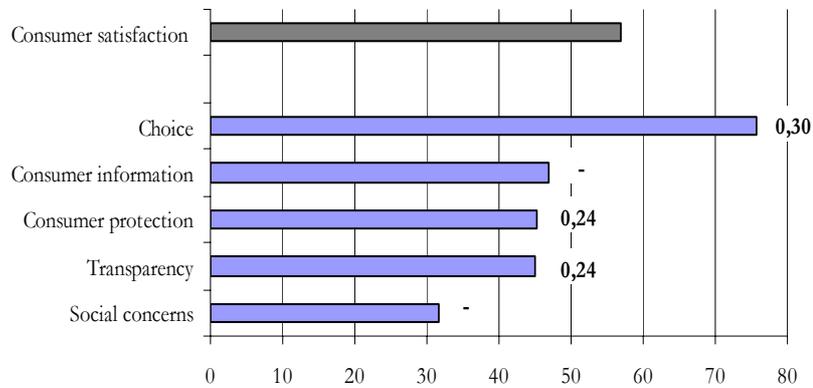

Note: The index values in the bars show consumer satisfaction with the areas concerned. The numerical values on the right show how much the various areas of consumer policy contribute to consumer satisfaction. All the estimates shown are significant at the 5% level.

The results are in line with a market that features many providers and many different products, but also with a market in which it is difficult to compare prices and the content of services. The great complexity of providers and dealers - telecommunications companies, mobile phone companies, retailers - at the same time makes it difficult to gain an overview of rules and to know where to turn to as a consumer with complaints.

The results of the model suggest that consumers in the mobile phone market primarily emphasise a wide range of choice (0.30), followed by consumer protection (0.24) and transparency (0.24). And while the range of choice already appears high at present, there are ways of improving consumer satisfaction through increased protection and transparency in the mobile market.

Hospitals

The hospitals market is distinctive, and has been deliberately included in the pilot study in order to introduce a public angle into the model. As this market in some respects differs from the private markets, it has not been possible to test the complete model for hospitals.

Initial results suggest that consumers are relatively well satisfied with conditions in the hospitals market in Denmark. Consumers judge that they have a relatively wide range of choice, which may be due to the free choice of hospital in Denmark, cf. the bars in Figure 9.

Figure 9. Assessment of areas of consumer policy and contributions to satisfaction
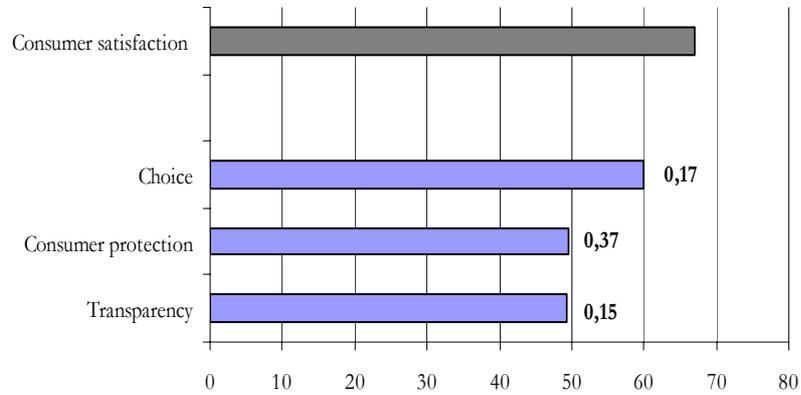
Note: The index values in the bars show consumer satisfaction with the areas concerned. The numerical values on the right show how much the various areas of consumer policy contribute to consumer satisfaction. All the estimates shown are significant at the 5% level.

Transparency and consumer protection are given a relatively lower score than range of choice, and as the results also show that it is primarily consumer protection (0.37) that is significant for consumer satisfaction, attention should be focused on ways of increasing protection, through consumer protection rules and by making it easier to lodge complaints.

Annex A. Organisation

Client

Nordic Council of Ministers

Head of project

Annelise Fenger, Deputy Director General, National Consumer Agency of Denmark

Working project group

Jørgen Rosted, Development Director, FORA, Denmark
Marie Degn Kristensen, Economist, FORA, Denmark
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Monitoring project group

Hans Jørn Juhl, Professor, Aarhus School of Business, Denmark
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Knut Eggum Johansen, Norwegian Competition Authority, Norway
Lasse Ekeberg, Head of Department, Norwegian Competition Authority, Norway
Irene Solberg, Head of Department, Norwegian Consumer Council, Norway
Terje Sørensen, Head of Department, Norwegian Consumer Council, Norway
Anders Westlund, Centre Director, Stockholm School of Economics, Sweden
Carin Wahren, Ministry of Agriculture, Sweden

Annex B. Areas of consumer policy

Many factors have an impact on consumer satisfaction with the individual market. Firstly there a number of general factors such as the right to lodge a complaint or the ability to buy goods on the basis of labelling schemes. Secondly three are the factors related to the individual provider, such as service or product quality. Thirdly there are a range of factors such as socio-economic status and place of residence which are of significance to consumer perception.

In a number of areas consumer policy plays the key role, while in other areas only the individual provider can improve the situation, but in the vast majority of cases the improvements need to be made by the consumer authorities and companies working together.

With the traditional measures of satisfaction it is not possible to decide what is behind consumers' assessment. The measurements do not reveal why consumers are dissatisfied.

It may be that low transparency results in a consumer not being satisfied with the market for mobile phone subscriptions, but the dissatisfaction may also be due to the service the consumer has received from a particular supplier of mobile phone services. While low transparency is an area in which consumer-policy instruments may help in improving the situation, it is difficult for politicians to do anything directly about poor service from the individual provider.

When many consumers are dissatisfied with a specific market, it would be beneficial to know whether the general dissatisfaction is due to circumstances in the area covered by the authorities responsible for consumer affairs. Are these factors the authorities can try to remedy?

At the same time it may be beneficial to see what specific areas of consumer policy have a significant bearing on satisfaction. Is it transparency or lack of right to complain that determines how consumers judge a market?

Just as a number of parameters that contribute to increased customer loyalty and satisfaction are identified in the customer area, a number of factors assumed to have an impact on consumer satisfaction are pinpointed in the area of consumer policy. These areas are described in Table H.1.

Table B.1. Areas of consumer policy

Consumer policy area	Definition
Transparency	Available information on price and quality
Choice	Sufficient number of providers and types of product/service
Consumer protection	Rules and right to complain for consumer protection
Social concerns	Environmentally and ethically sound products and services
Consumer information	Product/service information and labelling schemes

Transparency

Is there available information and transparency in relation to prices and quality of goods and services? Do consumers really know what they are buying?

More and more emphasis is being put on strengthening consumer advice. This may be done for instance by creating market information that provides consumers with correct details about products and producers, trust in the market and low search costs. At the same time it may be beneficial for there to be objective and targeted information screening which prevents consumers from being inundated with irrelevant and incorrect information.

The analysis shows that the least transparent markets are those for car repairs and mobile phone subscriptions, where it is difficult to establish what product a consumer actually receives, while consumers questioned feel that there is more transparency in the markets for package travel and scheduled air travel, where most people are able to assess quality in relation to price.

Figure B.1 Index value for transparency

Index 0-100
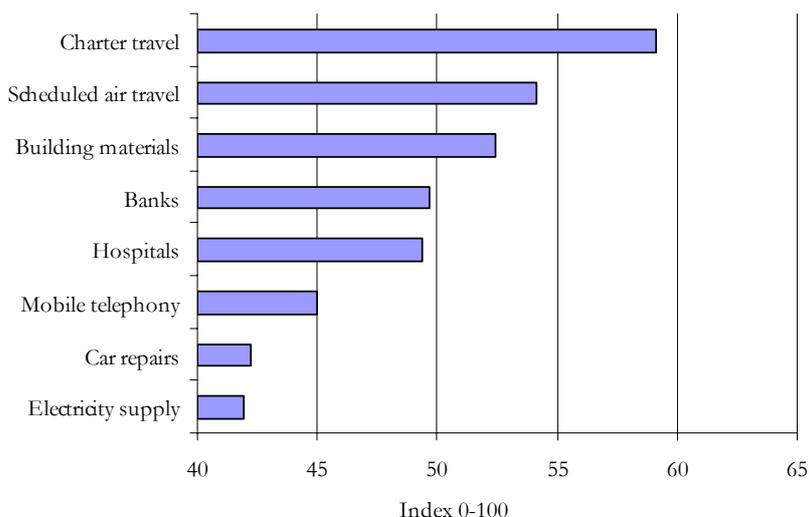
Note: Data based on calculations made by Aarhus School of Business.

Choice

Is there real choice between providers of products in the market? All other things being equal, the benefit to consumers will increase if they have more products, services and providers to choose among. Choice is an important indicator of competition, but wide choice does not guarantee the necessary competition.

A substantial proportion of consumer-policy work relates to ensuring the greatest possible choice for consumers. Effective competition, where pressure forces companies to develop new products, services and processes, is vitally important. This will ultimately benefit both consumers and the ability of companies to innovate.

Figure B.2 Index value for choice

Index 0-100
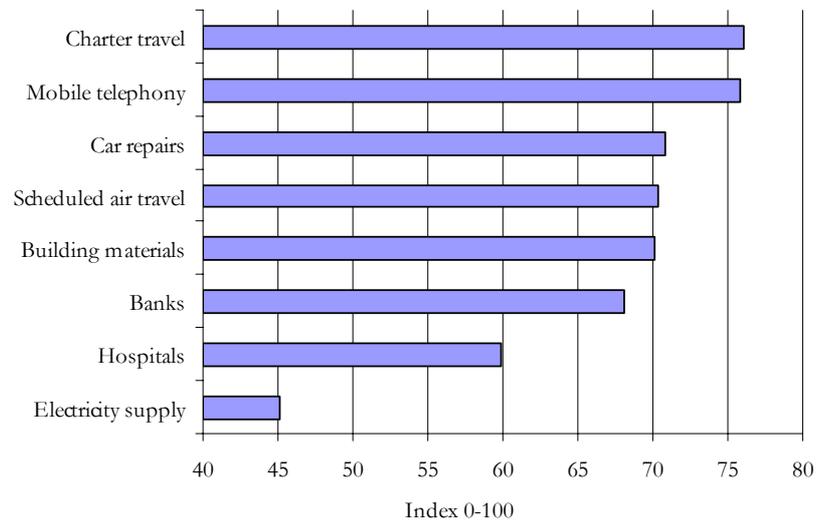
Consumer protection

Is there sufficient consumer protection, control and rules to ensure that consumers are protected? Is the marketing undertaken by companies trusted? Are bodies to which complaints can be addressed available?

A common aim of consumer policy is to steadily improve consumer safety. This may relate to food safety, control of medicinal products, marketing or ensuring that there are no hazardous products on the market. It is essential at the same time that consumers are able to complain about products or services without necessarily having to go to court. There has to be a reasonable and balanced level of protection, as well as quick and inexpensive resolution of disputes. There has to be provision for handling disputes effectively.

Figure B.3 Index value for consumer protection

Index 0-100
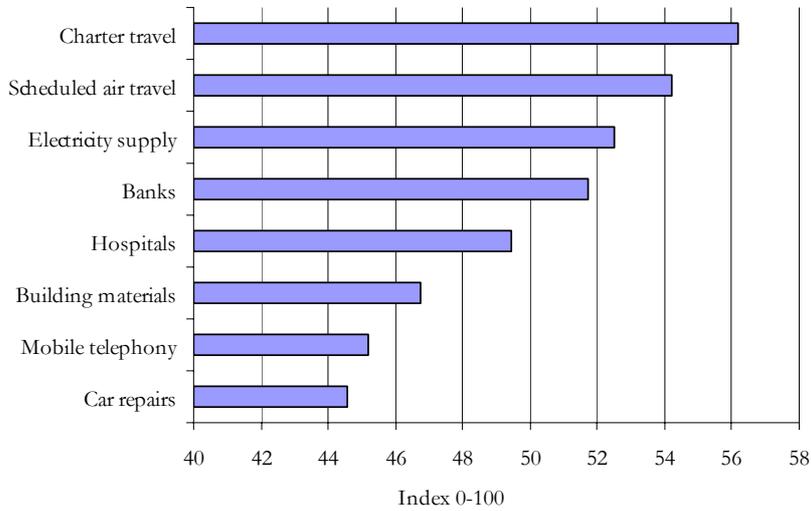
Social concerns

The possibility of buying ethically and environmentally sound products through labelling schemes and in similar ways.

As conditions in relation to consumer policy in the Nordic countries are improved, the focus can perhaps be expected to shift from basic factors such as right to complain and transparency to areas such as ethical and environmental soundness, just as has happened in the strategic considerations of companies. The focus here was previously on purely economic arrangements and considerations, but the focus today to a great extent is on the ethical and environmental circumstances of companies.

Figure B.4 Index value for social concerns

Index 0-100
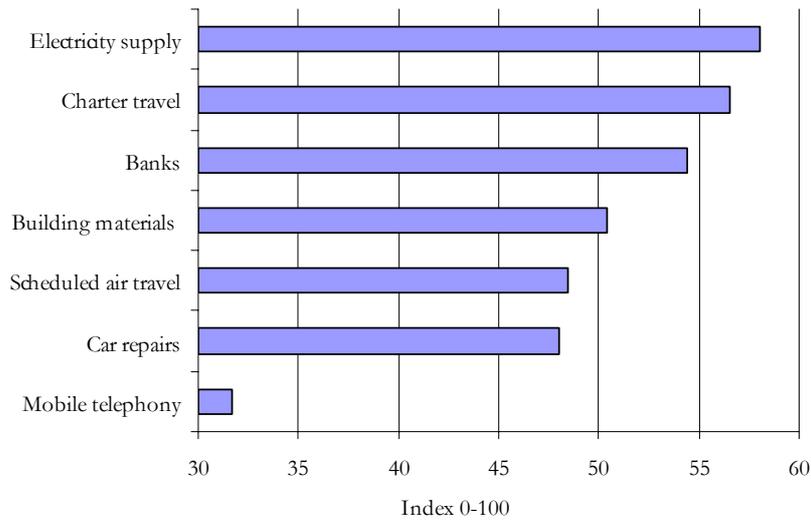
Consumer information

Is information available on different labelling schemes and processing methods? Is it possible to establish whether goods and services are produced in an environmentally and ethically sound way?

Figure B.5 Index value for consumer information

Index 0-100
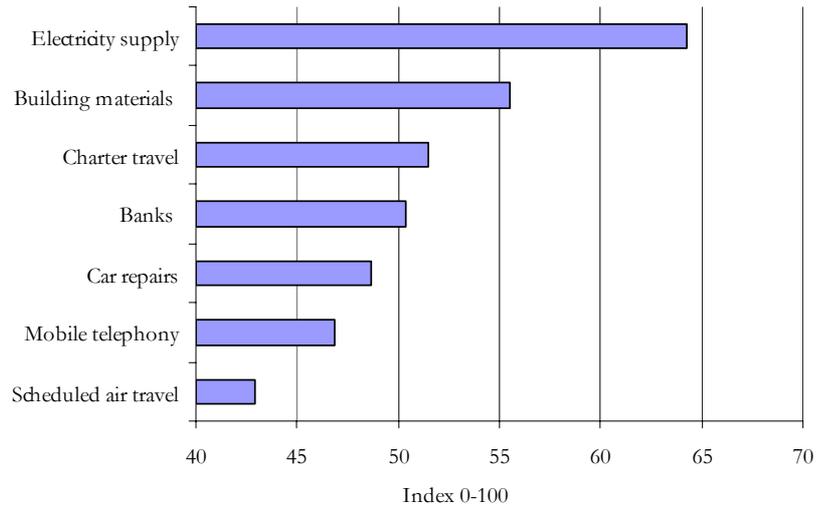
The last two areas were initially thought of as a single category – social concerns. However, a factor analysis of the results showed that in purely statistical terms these were two different areas. Further testing of the model could invalidate or confirm these results. See also Annex G for results obtained in the factor analysis.

Annex C. Choice of markets

A number of general results of the model relating to overall correlations and effects can be expected to be influenced to a great degree by the sectors chosen. It is therefore of decisive significance which sectors are selected for more detailed study.

There are two factors that have a direct bearing on the choice of sectors.

Firstly it is essential to consider some areas that are of some political interest. The model is to be regarded as a political control tool, and all other things being equal must therefore focus on markets that have some political relevance. These may be relatively new markets, such as the market for mobile phone subscriptions or markets where one has an idea beforehand or there are previous studies which show that there may be certain problems of consumer policy in the area, such as the market for building materials. Following a meeting of the project group, a number of markets were proposed as being of interest in a Nordic perspective, cf. Table C.1.

Table C.1. Proposals from the project group

Markets
Banks
Foods
Building products
Telecommunications
Public hospitals
Energy market
PC market
Car repair
Charter travel
Air transport

Secondly there are some methodological factors to be borne in mind in selecting sectors. The statistical method requires there to be some spread in the replies that are to form the basis for the results of the model: there has to be spread in the view of consumers of the areas of consumer policy across the selected sectors. This is to ensure that aggregate analyses can be carried out in the markets selected for the study of both customer satisfaction and consumer satisfaction.

The sectors are therefore selected so that there an expectation at the outset that the responses in the final model test will encompass all possible responses. In other words it is essential to select sectors where there is some idea beforehand of what the outcomes of the five consumer-policy

variables will be. This ensures that the effects of consumer satisfaction can be estimated.

If five areas of consumer policy are chosen, 25-32 sectors have to be selected on the basis of an optimum statistical procedure. As covering 32 sectors is very demanding on resources, the design is reduced to an orthogonal design with eight sectors. This results in a design in which the effects of each of the five variables expected to affect consumer satisfaction at market level can be estimated and studied, but where the effects of the interaction *between* the consumer-policy variables cannot be established in isolation.

A combined overview of the 32 different possible combinations can be seen in Table C.2.

Table C.2. Categories

Category	Transparency	Consumer protection	Right to complain	Choice	Social concerns
1	high	high	high	high	high
2	high	high	high	high	low
3	high	high	high	low	high
4	high	high	low	high	high
5	high	low	high	high	high
6	low	high	high	high	high
7	high	high	high	low	low
8	high	high	low	high	low
9	high	low	high	high	low
10	low	high	high	high	low
11	high	high	low	low	high
12	high	low	high	low	high
13	low	high	high	low	high
14	high	low	low	high	high
15	low	high	low	high	high
16	low	low	high	high	high
17	high	high	low	low	low
18	high	low	high	low	low
19	low	high	high	low	low
20	high	low	low	low	high
21	low	high	low	low	high
22	low	low	low	high	high
23	high	low	low	high	low
24	low	high	low	high	low
25	low	low	high	low	high
26	low	low	high	high	low
27	high	low	low	low	low
28	low	high	low	low	low
29	low	low	high	low	low
30	low	low	low	high	low
31	low	low	low	low	high
32	low	low	low	low	low

While the first part of the process relating to the selection of sectors is a more subjective and perhaps country-specific consideration, the second

part of the selection must be based on more objective criteria. This has entailed including "hard data" such as statistics on complaints and drawing on the large body of knowledge that already exists among consumer-policy experts. These criteria are also used to match the final results of the model with more objective factors.

In purely practical terms, the spread of 50 markets was assessed beforehand on the basis of a combination of previous analyses and expert assessments from consumer-policy authorities and the project group. Table C.3 shows how the 50 sectors are distributed among the five areas of consumer policy.

Table C.3 Distribution of markets among categories

Market	Category		Category
Hotels and campsites	2	Fitness centres	8
Package/charter travel	1	Funeral directors	13
Cinema, theatre and music	8	Dentists	10
Shoes and clothing	2	Kitchens and fittings	8
Driving schools	19	Electricians' work	10
Petrol/fuel	8	Foods	14
Restaurants	9	Postal services	28
Children's equipment	2	Insurance	26
Books	8	Betting and lotteries	17
Labour market insurance	7	Hardware, building materials	14
Newspaper and magazine subscriptions	2	Bricklaying	26
Air travel/air transport	2	Estate agency	26
Spectacles and contact lenses	2	Carpentry and joinery	26
Furniture and furnishings	4	Removal firms	26
Public transport	12	Plumbing, heating and sanitation	30
Hard white goods	14	Law firms	26
Mortgage loan institutions	19	Pension companies	29
Banks	16	Phone subscriptions and Internet	26
Cars and motorcycles	4	Veterinary surgeons	28
Cycles and mopeds	8	Electricity supply	25
Glaziers	19	Medicinal and pharmaceutical products	24
Tanning centres	9	Painting	30
TV, video, photographic equipment and music centres etc.	14	Cleaning assistance	30
Toys	5	Car repairs	30
IT equipment and electronics	14	Hospitals	19

Note 1: Markets highlighted in colour are those markets that were proposed by the project group

Note 2: The assessment of the location of the markets is based on subjective assessments by the project group and experts in consumer policy and on previous analyses.

Source: National Consumer Agency, Consumer Review 2004 and assessments by expert group.

Annex D. Methodological review[19]

With a view to identifying consumer satisfaction consisting of five exogenic variables:

- Choice
- Transparency
- Consumer protection
- Social concerns
- Consumer information

an experimental design was created in which the selection of sectors in which consumer satisfaction is assessed was varied according to the extent to which these exogenic variables are present, according to the following principles:

Choice:	many / few
Transparency:	high / low
Consumer protection:	high / low
Social concerns:	high / low
Consumer information:	many / few

A full trial will mean studying 25-32 sectors, but as a full test is demanding on resources, the design is reduced in this pilot test to an orthogonal design with eight sectors according to the following trial plan, indicating sectors where consumer satisfaction is studied.

Table D.1. Trial plan for the study

Plan	Choice	Information	Safety	Rights	Supervision	Sector
1	many	many	yes	low level	small degree	1
2	many	many	yes	high level	large degree	2
3	many	few	no	low level	small degree	3
4	many	few	no	high level	large degree	3
5	few	many	no	low level	large degree	4
6	few	many	no	high level	small degree	5
7	few	few	yes	low level	large degree	6
8	few	few	yes	high level	small degree	7

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[19] This annex is based on notes provided by Peder Østergård, Associate Professor, Aarhus School of Business.

It is important to be aware that the results are to a great extent affected by correct choice of sectors. In this pilot test a selection has been made of eight sectors which on the basis of both quantitative and qualitative data are judged to be spread over the trial plan.

In order to be able to analyse the interaction between customer satisfaction and consumer satisfaction, taking account of the significant difference that may be expected in customer satisfaction across providers in the sector, the study is conducted at two levels.

At the first level, customer satisfaction is established with the major providers in a sector, i.e. the largest providers who together cover at least 60% of the market, while the remaining providers are measured as a group of "other" providers. On the basis of these measurements of satisfaction with individual providers, a customer satisfaction is formed by weighting with market shares which at the subsequent level will form the basis for analyses of consumer satisfaction under the varying consumer-policy conditions.

A methodological approach of this type will ensure that the great variation in customer satisfaction there is expected to be across providers can be isolated and modelled in relation to consumer satisfaction.

With a view to having the two levels in the measurements sufficiently elucidated, the study is conducted in accordance with the principles of the European Customer Satisfaction Index, that is to say a telephone interview with selected customers based on a generic battery of questions to establish the concepts included in Figure 2. Elements of the operationalisations of the European Customer Satisfaction Index will be included in the design of questions, and there will be operationalisation of the exogenic variables in Figure 2, which measure consumer satisfaction. The questionnaire in conjunction with telephone interview contains 45-50 questions including demographic questions, where differences in customer choice depending on where in the country they live in particular attract interest at a time when a concentration of population is taking place around the larger towns.

Owing to the expected wide variations in customer satisfaction within and between sectors, 1600 telephone interviews are conducted in the pilot test, it being estimated that around two-thirds of these interviews are targeted at customers who are in the top part of the trial plan, where there is a wide range of choice, i.e. where there are many providers.

Telephone interviews are conducted by a professional data collection firm to ensure representativeness and uniformity in contact with customers. The regulations and the manual already established for the Danish Customer Index (Dansk KundeIndex) are drawn upon in this connection.

The questionnaire has been drawn up jointly by FORA and the Centre for Corporate Performance (CCP) at the Aarhus School of Business (HHÅ), and all analysis of the collected data, reporting and scientific analysis have been dealt with by the two institutions. CCP is responsible for ensuring that data collection takes place according to scientific principles and approved guidelines for tenders.

Annex E. Questionnaire - construction

Screening questions

- Have you been dealing in the market for <input sectors in random order> within the last year?
- Have you been dealing with the same or different providers in the market for <input sector> within the last year?

Consumer part

General introduction

- I shall now ask you some questions about the market for <input sector>. You must think about your own general experience of the market for <input sector> as a private individual. If you do not have any experience of the market or an opinion about a particular question, it can be answered with "no experience" or "don't know".
- On the basis of your overall experience in the market for <input sector>, how satisfied are you with the market in general?

Transparency

- How do you judge the possibility of easily comparing prices for example on the Internet, in newspapers or in magazines in the market for <input sector>?
- How do you judge the possibility of assessing the quality of <input prod1> before you buy/are treated? (INTV.: In other words, is it possible for the consumer to know the quality of the product/service in advance?)
- How do you judge the possibility of comparing quality and price in the market for <input sector>? (INTV.: In other words, can the consumer judge the choice between price and quality?) (NTV.: Explain scale)
- How do you judge the possibility of finding information about products and prices in general in the market?

Choice

- To what extent do you think there is a sufficient number of <input company1> to choose among when you buy/need <input prod2>? (INTV.: In other words does the consumer think there are many providers to choose among?)
- To what extent do you think there is a sufficient supply of different types of <input prod2>? (INTV.: In other words, are there many different products/services to choose among?)
- To what extent do you judge that there is competition in the market for <input sector>?

Consumer protection

- To what extent do you feel that there are sufficient rules that protect consumers against unjustifiable products and/or services in the market for <input sector>?
- To what extent do you feel that there is sufficient protection for you as a consumer against unlawful marketing in the market for <input sector>?
- To what extent do you trust marketing by businesses to be reliable and complete?
- To what extent do you consider that businesses that provide <input prod2> comply with the rules that are intended to protect consumers?
- How do you judge the possibility of making a complaint to a complaints body over <input prod1>? (NTV.: Explain scale)
- To what extent do you feel that there is a need for better consumer protection in the market for <input sector>? (this question is not included in the consumer protection index)
- Right to complain (these questions are not directly included in consumer satisfaction)
- Have you yourself needed to complain about a <input company2> within the last year?
- How was <input company3> handling of the complaint? If you have complained more than once, think about the last time you complained.
- Was the complaint passed on to a complaints body?
- What was access to the complaints body like?
- How was the complaint handled?
- How well did <input company3> comply with any decision taken?

Social concerns

- How do you judge the possibility of buying environmentally friendly and ethically sound products and/or services in the market for <input sector>?

- How highly do you value the possibility of buying ethically and environmentally sound <input prod2>?

Consumer information

- How do you judge access to information for example through labelling schemes on environmentally friendly and ethically sound products and/or services in the market for <input sector>?
- How do you value access to information for example through labelling schemes on environmentally friendly and ethically sound products and/or services in the market for <input sector>?

Concluding questions – consumer part

- Imagine a situation in which the market for <input sector> works optimally, in your judgement, in other words where your general satisfaction with the market is as high as possible. How far away from or how close to this situation is the market for <input sector> today?
- To what extent do you feel that the government is responsible for your satisfaction with the market for <input sector>?
- To what extent do you feel that businesses are responsible for your satisfaction with the market for <input sector>?

Customer part

- What is the name of the <input company2> you use most often? If you regularly use more than one <input company2>, think about the one you have used most often over the past year.

General introduction

- I shall now ask you some questions concerning <input reply from q. 1K>. You should think about your own experience of <input reply to q. 1K> as a private individual. If you do not have any experience or an opinion about a particular question, it can be answered with "no experience" or "don't know".

Overall satisfaction

- On the basis of your collective experience of <input reply to q. 1K>, how satisfied are you overall?

Image

- Think about <input reply to q. 1K>'s image. How do you regard <input reply from q. 1K>'s general image when you think about ... (INTV.: Read aloud)

    1. ...a trustworthy and reliable <input company2>? (INTV.: Explain scale)
    2. ...a customer/patient-oriented <input company2>? (INTV.: Explain scale)
    3. …a <input company2> where you get something for your money? (INTV.: Explain scale)
    4. …a <input company2>, which is notable for innovation? (INTV.: Explain scale)
    5. ... <input company3> collective image? (INTV.: Explain scale)

Expectations

- I shall now ask you to think about your expectations of <input reply from q. 1K>. Based on your own experience over the past year, what are …

    6. … your expectations of products/services in/on <input reply from q. 1K>?
    7. …your expectations of personal service?
    8. …your collective expectations in relation to all factors you regard as important for <input reply from q. 1K> to fulfil?

Fulfilment of expectations

- How do you think that <input reply from q. 1K> fulfils your collective expectations?

Experienced quality

- I shall now ask some questions about your experiences (over the past year) with <input reply from q. 1K> concerning the quality of products/services and personal service. What is …

    9. … the quality of products/services in/on <input reply from q. 1K>?
    10. … the quality of personal service and advice in/on <input reply from q. 1K>? (INTV.: Explain scale)
    11. …the possibility of making contact with <input reply from q. 1K> (opening hours, waiting time, easy to make contact with the staff and by phone, e-mail etc.)? (INTV.: Explain scale)
    12. ...the quality of the technique applied in connection with certain products/services? (INTV.: Explain scale)

13. ...the overall quality of products/services in relation to other <input company1>? (INTV.: Explain scale)
14. … the overall quality of personal service in/on <input reply from q. 1K> in relation to other <input company1>? (INTV.: Explain scale)

Experienced value

- Now think about products/services and personal service in/on <input reply from q. 1K>. Please assess the value of this in relation to what you pay. What is …

  15. … the "value for money" of products/services in/on <input reply from q. 1K>?
  16. … the "value for money" of personal service in/on <input reply from q. 1K> (opening hours, waiting time, easy to make contact with the staff and by phone, e-mail etc.)? ?
  17. … the overall "value for money" of products/services and personal service in/on <input reply from q. 1K>?

Loyalty

- If you were to choose <input company2> today, how certain is it that you would choose <input reply from q. 1K>?

Recommendation

- Would you recommend <input reply from q. 1K> to friends and colleagues?

Perfect companies

- Now imagine the perfect <input company2>. How far from or how close to this ideal is <input reply from q. 1K>?

Background criteria

(Register sex)

- How old are you?

- What is your highest level of completed education?
  1. Compulsory schooling
  2. Upper secondary-school education (general, vocational upper secondary school)
  3. Vocational training

4. Higher education
5. Other, note:_____

- How many people aged 18 and over live in the household? (INTV.: Note 99 if respondent is not willing to give information)
- How many people below the age of 18 live in the household? (INTV.: Note 99 if respondent is not willing to give information)
- What is the combined annual gross income of the household? I am thinking here of income before tax. (INTV.: Read out the ranges where appropriate)

Less than DKK 100,000
DKK 100,000-199,000
DKK 200,000-299,999
DKK 300,000-399,999
DKK 400,000-499,999
DKK 500,000-599,999
DKK 600,000-699,999
DKK 700,000 ++
Don't know
Unwilling to answer

- What postal code area do you live in?

Annex F. Data collection[20]

A representative random sample of a total of 14,000 telephone numbers was taken. To ensure statistically correct geographical distribution in the conducted interviews, the telephone numbers were simply drawn by chance from TDC's SCI database, which is updated four times a year. The sample is drawn on the basis of the individual exchange's share of all telephone numbers in the country.

Data collection was done using NORSTAT Denmark's CATI system (**C**omputer **A**ssisted **T**elephone **I**nterviewing) over the period from 18 January 2005 to 8 February 2005.

A total of 1,600 telephone interviews were conducted. The interviews were conducted on weekdays between 4.30 pm and 9.00 pm. At the weekend the interviews were conducted between 12.00 noon and 6.00 pm.

At the start of the interview, screening was done so that the respondent was the person in the household aged 18 or over who had most recently had a birthday. Each telephone number was redialled up to ten times.

The above method was used to aim for a correct demographic distribution in the final data in relation to the criteria of sex, age, geography and number of individuals in the household aged 18 or over.

In addition, screening was carried out in the very first question for the sector the interview was to be concerned with, on the basis of the following order of priority:

1. Hospitals
2. Scheduled air travel/air transport
3. Car repairs
4. Building materials
5. Charter/package travel
6. Banks
7. Electricity supply
8. Mobile phone subscriptions

This order of priority was modified on 31.1.2005 to the following, as there were fewer respondents than expected who had dealt in the market for electricity supply

1. Hospitals
2. Scheduled air travel/air transport

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[20] This annex is based on a technical report from Norstat Denmark

3. Car repairs
4. Electricity supply
5. Building materials
6. Charter/package travel
7. Banks
8. Mobile phone subscriptions

Table F.1 Implementation statistics

Random sample	14.000	100 %
Unused numbers	5,291	37.8 %
No reply on the number	1,992	14.2 %
Screened out	2,984	21.1 %
Wrong numbers (fax etc.)	282	2.0 %
Net random sample	**3,451**	**100 %**
Declined to take part	1,465	42.4 %
Correct respondent not found during interview period	386	11.2 %
Total conducted interviews	1,600	46.4 %

Statistical uncertainty

All studies based on representative random samples are subject to uncertainty. There may be uncertainty in the form of the quality of the replies given by the respondents, there may be skewing as a result of not everyone being at home when NORSTAT Denmark phones, and finally there may be uncertainties due to the statistical selection of the individuals or households we wish to interview. It is possible to compensate for this form of statistical uncertainty by ensuring a sufficient number of interviews in the target group or in the sub-segment to be looked at more closely. On the basis of the fact that it is not always possible to conduct the optimum number of interviews in the "critical" cell, it must therefore be accepted that the observed figures will be affected by a greater or less degree of statistical uncertainty.

It is shown below how these uncertainties are distributed in different observations and in the number of interviews in the cell or target group concerned.

Example: 1,000 interviews have been conducted. A question has been answered by 30% of the respondents (i.e. the respondent base for this question is 300). Of these 300 respondents, 40% answered "Yes". The uncertainty is read off from the table as 5.5. It can therefore be assumed with 95% probability that the "correct" figure is 40% ± 5.5% or that the "correct" figure is within the range: 34.5 – 45.5%.

Uncertainty	1000	750	500	400	300	200	100
at 95% level	Interview	interview	interview	interview	interview	interview	interview
5/95%	+/- 1.4	+/- 1.6	+/-1.9	+/- 2.1	+/- 2.5	+/- 3.0	+/- 4.3
10/90%	+/- 1.9	+/- 2.1	+/- 2.6	+/- 2.9	+/- 3.4	+/- 4.2	+/- 5.9
15/85%	+/- 2.2	+/- 2.6	+/- 3.1	+/- 3.5	+/- 4.0	+/- 4.9	+/- 7.0
20/80%	+/- 2.5	+/- 2.9	+/- 3.5	+/- 3.9	+/- 4.5	+/- 5.5	+/- 7.8
25/75%	+/- 2.7	+/- 3.1	+/- 3.8	+/- 4.2	+/- 4.9	+/- 6.0	+/-8.5
30/70%	+/-2.8	+/- 3.3	+/- 4.0	+/- 4.5	+/- 5.2	+/- 6.4	+/- 9.0
35/65%	+/- 3.0	+/- 3.4	+/- 4.2	+/- 4.7	+/- 5.4	+/- 6.6	+/- 9.3
40/60%	+/- 3.0	+/- 3.5	+/- 4.3	+/- 4.8	**+/- 5.5**	+/- 6.8	+/- 9.6
45/55%	+/- 3.1	+/- 3.6	+/- 4.4	+/- 4.9	+/- 5.6	+/- 6.9	+/- 9.8
50/50%	+/- 3.1	+/- 3.6	+/- 4.4	+/- 4.9	+/- 5.7	+/- 6.9	+/- 9.8

Annex G. Underlying calculations and figures

This annex is a collection of the calculations and graphs which underlie the analyses in the report. Calculations and modelling have been performed by Professor Kai Kristensen and Dean Peder Østergård.

G.1. ECSI and consumer models: estimation of external relations

UNSTANDARDISED OUTER WEIGHTS

	Variables						
	Image	Expecta-tions	Hardware	Software	Value	Satisfac-tion	Loyal
Image1	0,21						
Image2	0,21						
Image3	0,20						
Image4	0,15						
Image5	0,24						
Expectations1		0,35					
Expectations2		0,29					
Expectations3		0,36					
Hardware1			0,34				
Hardware2			0,31				
Hardware3			0,35				
Software1				0,35			
Software2				0,29			
Software3				0,36			
Value1					0,32		
Value2					0,30		
Value3					0,37		
Customer satisfaction1						0,37	
Customer satisfaction2						0,33	
Customer satisfaction3						0,30	
Loyal1							0,48
Loyal2							0,52

UNSTANDARDISED OUTER WEIGHTS

	Variables					
	Transpa-rency	Choice	Protection	Social	Informa-tion	Consumer satisfaction
T1	0,21					
T2	0,26					
T3	0,28					
T4	0,25					
C1		0,33				
C2		0,38				
C3		0,30				
P1			0,21			
P2			0,18			
P3			0,27			
P4			0,26			
P5			-0,07			
P6			0,15			
S1				0,83		
S2				0,17		
I1					0,76	
I2					0,24	
Satisfaction1						0,53
Satisfaction2						0,47

G.2. Internal relations in ECSI and overall effects

UNSTANDARDISED INNER COEFFIENTS

	Variables						
	Image	Expectation	Hardware	Software	Value	Satisfaction	Loyal
Image							
Expectation							
Hardware							
Software							
Value	0,35	0,06	0,18	0,37			
Satisfaction	0,39	0,06	0,32	0,09	0,15		
Loyal	0,26	0,02	0,00	0,13		0,81	

T-VALUES FOR INNER COEFFICIENTS

	Variables						
	Image	Expectation	Hardware	Software	Value	Satisfaction	Loyal
Image							
Expectation							
Hardware							
Software							
Value	13,81	3,00	5,73	14,51			
Satisfaction	18,45	3,59	12,65	4,32	7,64		
Loyal	5,94	0,65	-0,10	3,49		17,30	

OVERALL EFFECTS

	Variables						
	Image	Expectation	Hardware	Software	Value	Satisfaction	Loyal
Image							
Expectation							
Hardware							
Software							
Value	0,35	0,06	0,18	0,37			
Satisfaction	0,44	0,07	0,35	0,15	0,15		
Loyal	0,61	0,07	0,28	0,25	0,12	0,81	

G.3. Internal relations in consumer and overall effects

UNSTANDARDISED INNER COEFFIENTS

	Variables					
	Transpar-ency	Choice	Protection	Social	Information	Consumer satisfaction
Transparency						
Choice						
Protection						
Social						
Information						
Consumer satisfaction	0,21	0,13	0,24	0,05	0,04	

T-VALUES FOR INNER COEFFICIENTS

	Variables					
	Transpar-ency	Choice	Protection	Social	Information	Consumer satisfaction
Transparency						
Choice						
Protection						
Social						
Information						
Consumer satisfaction	11,63	7,25	12,92	3,03	2,59	

OVERALL EFFECTS

	Variables					
	Transpar-ency	Choice	Protection	Social	Information	Consumer satisfaction
Transparency						
Choice						
Protection						
Social						
Information						
Consumer satisfaction	0,21	0,13	0,24	0,05	0,04	

G.4. Assessment of reliability and validity in ECSI and consumer model

	Variables						
	Image	Expectation	Hardware	Software	Value	Satisfaction	Loyal
R-square for latent variables					0,68	0,78	0,62
Composite realiability	0,93	0,92	0,90	0,91	0,95	0,91	0,92
A verage variance explained by latent variables	0,71	0,80	0,75	0,78	0,86	0,77	0,86

	Variables					
	Trans-parency	Choice	Protection	Social	Information	Consumer satisfaction
R-Square for latent variables						0,39
Composite realiability	0,90	0,86	0,82	0,69	0,76	0,85
A verage variance explained by latent variables	0,68	0,67	0,54	0,57	0,63	0,73

G.5. Assessment of the structure of the models: ECSI and consumer

	Variables						
	Image	Expecta-tion	Hard-ware	Software	Value	Satisfac-tion	Loyal
Image1	0,86	0,51	0,66	0,64	0,63	0,72	0,61
Image2	0,87	0,55	0,68	0,68	0,65	0,72	0,60
Image3	0,82	0,48	0,60	0,53	0,67	0,69	0,62
Image4	0,75	0,45	0,58	0,52	0,52	0,59	0,51
Image5	0,91	0,54	0,70	0,66	0,67	0,75	0,64
Expectation1	0,57	0,88	0,57	0,56	0,54	0,57	0,49
Expectation2	0,49	0,89	0,49	0,61	0,51	0,51	0,43
Expectation3	0,55	0,91	0,54	0,54	0,52	0,56	0,47
Hardware1	0,66	0,55	0,87	0,71	0,66	0,72	0,59
Hardware2	0,63	0,49	0,84	0,67	0,59	0,64	0,51
Hardware3	0,69	0,51	0,89	0,74	0,68	0,74	0,63
Software1	0,69	0,62	0,74	0,91	0,72	0,74	0,61
Software2	0,54	0,48	0,65	0,84	0,63	0,58	0,51
Software3	0,67	0,59	0,77	0,90	0,70	0,71	0,61
Value1	0,67	0,50	0,65	0,59	0,90	0,67	0,60
Value2	0,67	0,56	0,69	0,81	0,92	0,70	0,61
Value3	0,73	0,57	0,73	0,76	0,96	0,77	0,68
C_satisfaction1	0,74	0,52	0,71	0,66	0,66	0,88	0,65
C_satisfaction2	0,71	0,55	0,71	0,67	0,68	0,89	0,64
C_satisfaction3	0,71	0,54	0,71	0,69	0,68	0,86	0,76
Loyal1	0,60	0,45	0,59	0,58	0,58	0,68	0,92
Loyal2	0,70	0,51	0,65	0,64	0,68	0,76	0,94

	Variables					
	Trans-parency	Choice	Protec-tion	Social	Information	Consumer satisfaction
T1	0,79	0,30	0,39	0,20	0,15	0,38
T2	0,81	0,25	0,38	0,25	0,17	0,43
T3	0,90	0,31	0,43	0,26	0,20	0,46
T4	0,80	0,39	0,38	0,19	0,14	0,39
C1	0,27	0,82	0,24	0,10	0,00	0,27
C2	0,32	0,86	0,22	0,18	0,07	0,32
C3	0,32	0,76	0,28	0,12	0,06	0,30
P1	0,39	0,28	0,78	0,24	0,17	0,40
P2	0,34	0,19	0,84	0,30	0,24	0,36
P3	0,46	0,25	0,82	0,32	0,20	0,50
P4	0,38	0,23	0,85	0,26	0,21	0,46
P5	-0,06	-0,03	-0,41	-0,03	0,07	-0,14
P6	0,31	0,28	0,63	0,34	0,20	0,32
S1	0,27	0,17	0,38	0,98	0,49	0,32
S2	0,07	0,05	0,02	0,42	0,44	0,07
I1	0,21	0,05	0,27	0,54	0,97	0,25
I2	0,05	0,04	0,02	0,31	0,56	0,08
Satisfaction1	0,46	0,30	0,39	0,22	0,15	0,87
Satisfaction2	0,40	0,33	0,50	0,32	0,26	0,84

G.6. Contribution to the creation of customer satisfaction

Contribution to customer satisfaction

■ Image ■ Expectations □ Quality of hardware □ Quality of software

	Hospitals	Scheduled air travel	Car repairs	Building materials	Charter travel	Banks	Electricity supply	Mobile telephony
Image	0,45	0,42	0,38	0,56	0,46	0,53	0,29	0,39
Expectations	0,06	0,16	0,05	0,06	0,01	0,17	0,00	0,09
Quality of hardware	0,41	0,33	0,28	0,15	0,49	0,16	0,39	0,55
Quality of software	0,08	0,04	0,34	0,16	0,04	0,18	0,24	0,08

G.7. Contribution to the creation of consumer satisfaction

Contribution to consumer satisfaction

■ **Transparency** ■ **Choice** □ **Consumer protection** □ **Social concerns** ■ **Consumer information**

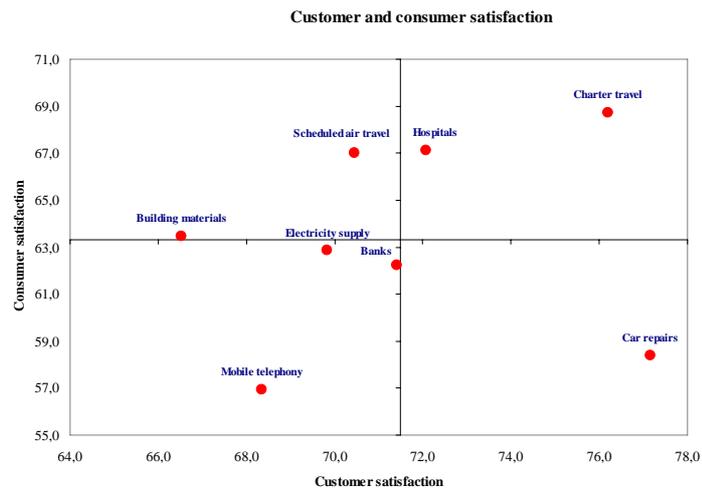|	Hospitals	Scheduled air travel	Car repairs	Building materials	Charter travel	Banks	Electricity supply	Mobile telephony
■ Transparency	0,15	0,21	0,20	0,16	0,28	0,23	0,15	0,24
■ Choice	0,17	0,23		0,25	0,19	0,32		0,30
□ Consumer protection	0,37	0,22	0,29	0,28	0,16	0,13	0,36	0,24
□ Social concerns			0,23	0,09	0,08	-0,12		
■ Consumer information		0,09	0,04			0,16		

G.8. Degrees of explanation in the models – how much of the variation in customer and consumer satisfaction can be explained by exogenic variables?

Capacities to explain in the models

□ Customer statisfaction □ Consumer satisfaction

	Hospitals	Scheduled air travel	Car repairs	Building materials	Charter travel	Banks	Electricity supply	Mobile telephony
□ Customer statisfaction	0,82	0,70	0,80	0,79	0,81	0,73	0,72	0,85
□ Consumer satisfaction	0,43	0,47	0,47	0,50	0,41	0,39	0,31	0,39
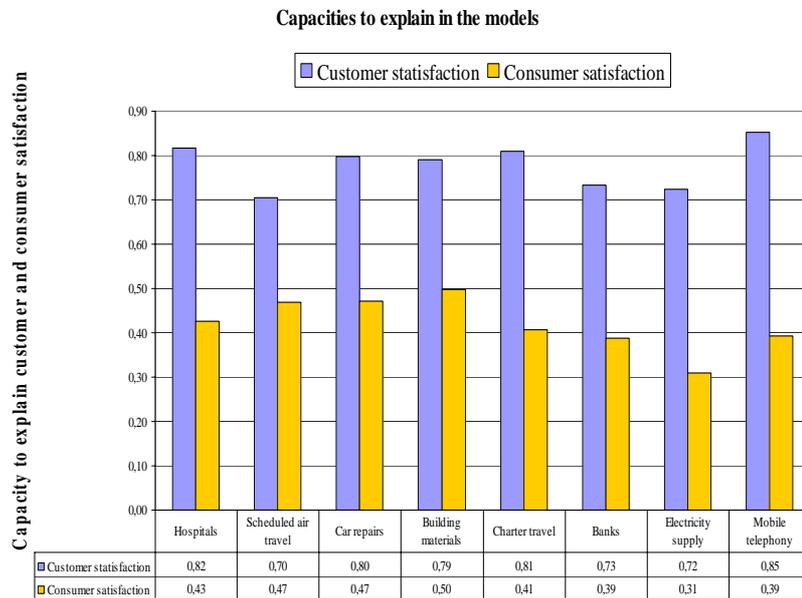
G.9. Extent of customer and consumer satisfaction broken down into markets

Customer and consumer satisfaction
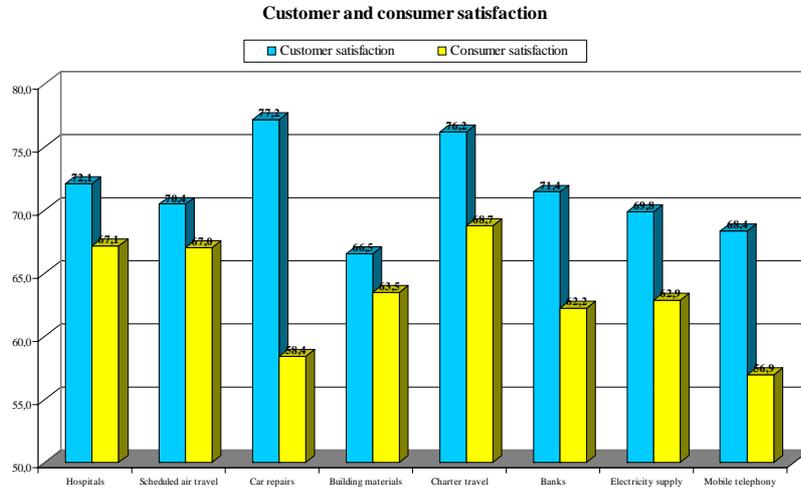
G.10. Positioning of customer and consumer satisfaction

Customer and consumer satisfaction

G.11. Degree of correlation between customer and consumer satisfaction

Degree of correlation between customer and consumer satisfaction

Serie1	Electricity supply	Hospitals	Charter travels	Banks	Building materials	Scheduled air travel	Car repairs	Mobile phone subscriptions
	0,686	0,679	0,553	0,539	0,524	0,502	0,444	0,281
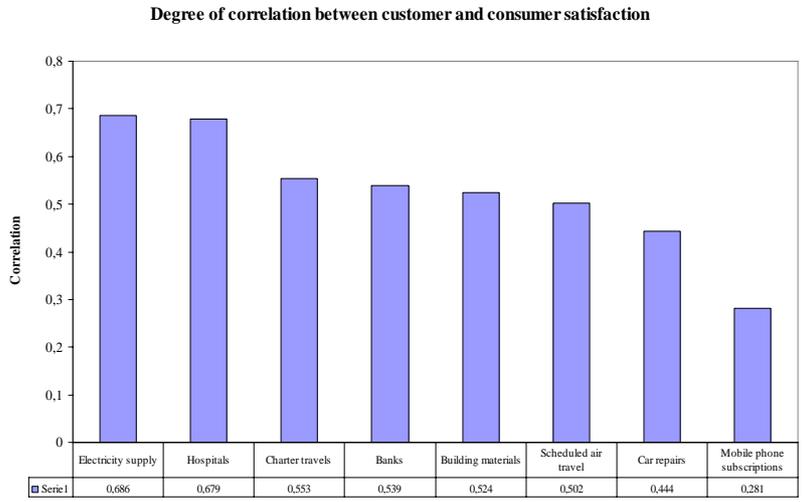
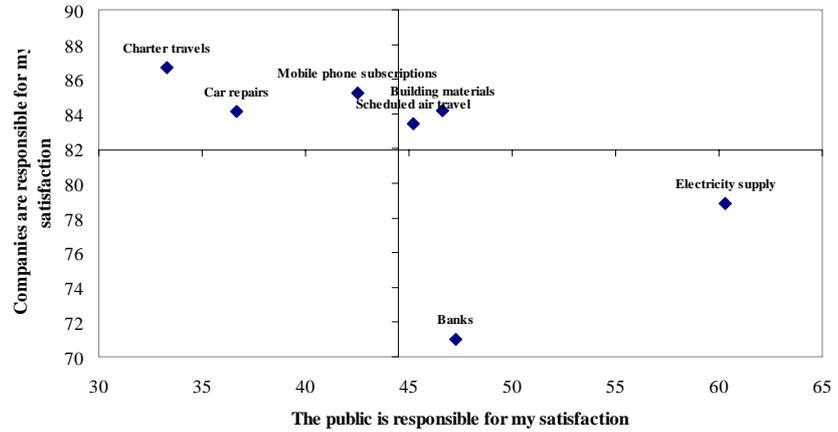## G.12. Development in degree of correlation between customer and consumer satisfaction, depending on extent of consumer saticfaction

Consumer satisfaction and correlation between consumer satisfaction and customer satisfaction
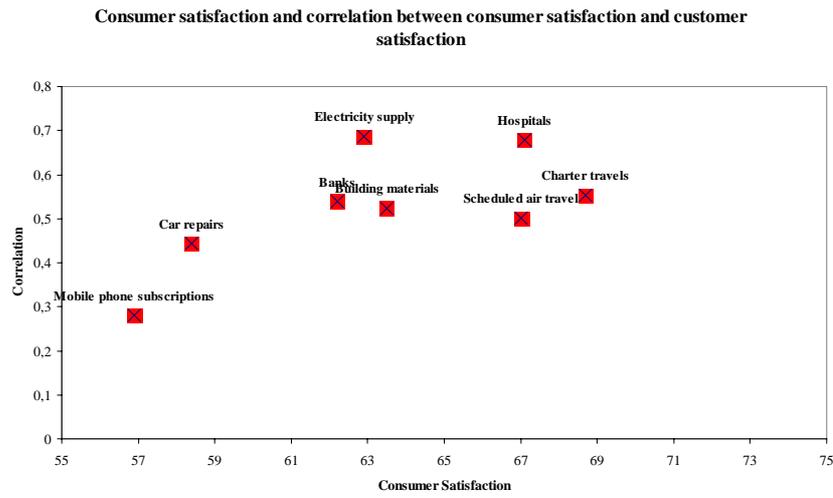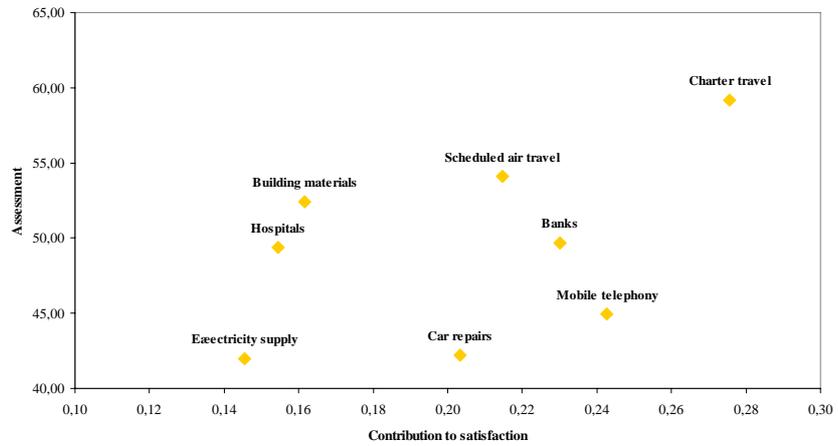
G.13. Perception of who is responsible for creating satisfaction
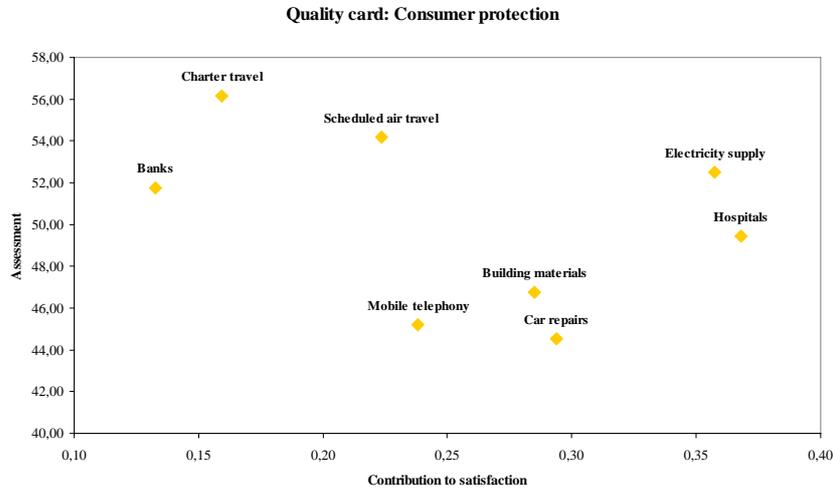
Responsibility for own satisfaction in markets
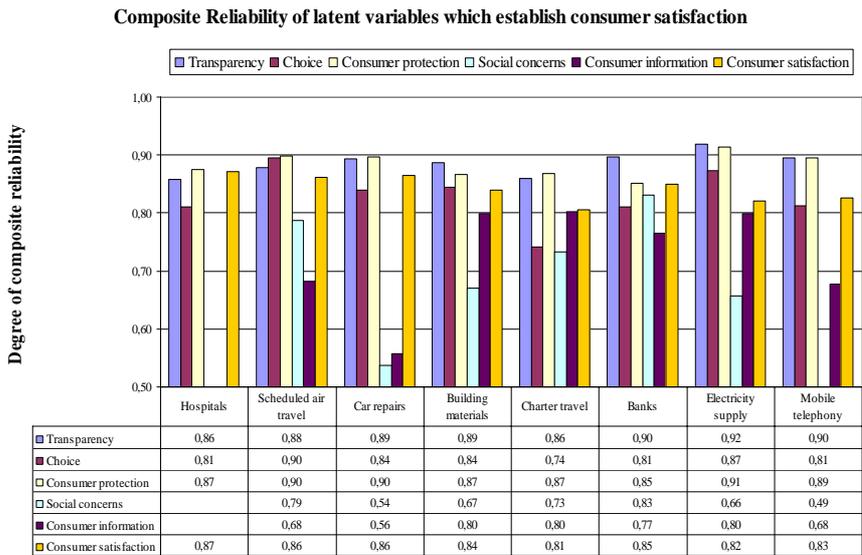

G.14. Quality card: Transparency in markets

Quality card: Transparency

G.15. Quality card: Consumer protection in markets

Quality card: Consumer protection

G.16. Assessment of reliability in latent variables

Composite Reliability of latent variables which establish consumer satisfaction

	Hospitals	Scheduled air travel	Car repairs	Building materials	Charter travel	Banks	Electricity supply	Mobile telephony
Transparency	0,86	0,88	0,89	0,89	0,86	0,90	0,92	0,90
Choice	0,81	0,90	0,84	0,84	0,74	0,81	0,87	0,81
Consumer protection	0,87	0,90	0,90	0,87	0,87	0,85	0,91	0,89
Social concerns		0,79	0,54	0,67	0,73	0,83	0,66	0,49
Consumer information		0,68	0,56	0,80	0,80	0,77	0,80	0,68
Consumer satisfaction	0,87	0,86	0,86	0,84	0,81	0,85	0,82	0,83

Annex H. Method of calculation – technical review of PLS

This note has been prepared to show how weights are estimated using Partial Least Squares (PLS) and Pearson correlations.[21] The note is based on one written by Professor Kai Kristensen – Marketing Consultant.

The note is based on Claes Fornell & Jaesung Cha: "Partial Least Squares" in Richard P. Bagozzi, ed., Advanced Methods of Marketing Research, Oxford, England: Blackwell Publishers, 1994, pp. 52-78.

PLS will be explained below on the basis of the model underlying the Nordic model for customer and consumer satisfaction. Model structure and understanding are dealt with first, after which the estimation technique behind the model will be considered.

Structure of the PLS model

- A PLS model contains both latent and manifest variables.
- The overall/generic model for the Nordic model for consumer and customer satisfaction has brought together nine latent variables – 4 for the customer part and 5 for the consumer part. Latent variables are abstract terms that cannot be used to measure directly (for example using directly asked questions). An example of a latent variable is the overall variable of the model "Transparency" or "Image", which is not something that is directly measurable.
- The latent variables (and the correlations between them) can instead be measured and calculated on the basis of manifest variables, which is done via PLS with structural systems of equations. Each latent variable is measured using two to six manifest variables. Manifest variables are made up of the questions contained in the questionnaire. Questions are answered in the consumer and customer study on a 10-point scale, which runs for example from "Completely disagree" to "Completely agree". An example of a manifest variable might the assessment made by respondents of "the right to complain", which is used to cover the latent variable of "Consumer protection".
- The correlation in the model is that the five (nine) latent variables on the left have an impact on consumer satisfaction.

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[21] *Pearson correlation is the most used statistical measure and describes the strength of the correlation between two metric variables. The size of the correlation coefficient indicates the degree of co-variation between two variables and is used to study whether a linear relationship exists between the two variables.

Structure of the PLS model – the inner and outer coefficients

The inner coefficients indicate the correlation between the latent variables.

This is the causal correlation in the model which is calculated using PLS. Each line in principle is to be regarded as a form of linear relationship. If the factor of Consumer Protection, for example, is improved, then customer satisfaction is increased proportionally by a given factor.

This latent variable, which has the greatest impact in relation to the creation of satisfaction, is therefore in principle the latent variable which has the greatest linear connection to satisfaction when the correlations are estimated simultaneously for the latent variables.

The outer coefficients indicate the correlation between the latent and manifest variables.

Partial Least Squares (PLS) – estimation of the model

PLS models and calculation of these models can be described for the purpose of understanding as follows:

- The models are a combination of a form of factor analysis and regression. The latest variables are a form of factors (principal components), each of which is set up on the basis of the manifest variables. A factor can be regarded as the manifest variables added to an index (for example transparency), where the manifest variables at the same time are weighted in relation to their significance for the index.
- As the name suggests, a PLS model is estimated partially. This means that parts of the model are estimated, while the remainder of the model is kept locked. (See below).
- In relation to the fact that PLS is not based on a distribution condition, it can be said that PLS is more closely linked to data than traditional techniques for the estimation of structural systems of equations.

The calculation process

1. On the basis of a set of initial outer weights and the initial correlation matrix between the latent variables, new outer weights are calculated.
2. The correlation matrix between the latent variables is then recalculated on the basis of new outer weights. This is done on the basis of a principle of maximising the correlation between variables which in relation to the model specification are linked to each other in the internal relations without taking account of the causal sequence.
3. The iterative process between the outer weights and the latent correlation matrix continues until the absolute difference between the estimated weights and the weights from the previous iteration are below a given convergence value. The latent index is now calculated. Using the least squares method, the inner structure between the latent indexes is then calculated.