6. Empirical Study Results

In the course of this chapter, findings from the empirical study will be presented. Specifically, a description of the sample and data cleansing processes will be given (Chapter 6.1), followed by a comprehensive section on descriptive statistics (Chapter 6.2), where those survey questions not included in the main model test will also be addressed. Subsequently, a documentation of the main model test will be provided (Chapter 6.3), with a quick roundup of the qualitative study component concluding the chapter (Chapter 6.4).

6.1 Sample Description and Data Cleansing Processes

Table 12 gives an overview of the key data associated with the sample of this customer survey. Altogether, 8,260 people were approached to hand out the 2,000 questionnaires. Next to the quota of people willing to participate in the study, the quota of loyalty program members acted as the second important driver of the number of people that had to be addressed. 1,149 of the 2,000 distributed survey forms were returned, resulting in a surprisingly high response rate of 57.5%. Out of those returned, 65 questionnaires had to be excluded for one of two reasons: (1) either because the respondent turned out to belong to the wrong target group (e.g. the possession of a Clubsma r card was indicated on a Shell control group form meant for non-members – despite the fact that the membership status was checked verbally when handing out the questionnaires) or (2) because a significant segment of the questions was not answered (i.e. when more than 50% of a whole section of the survey, and not just individual answers, were omitted; see Backhaus & Bleichschmidt 2009 for further details on possible ways of handling missing values). Ultimately, 1,084 filled-out forms were used for this study.

Prior to all statistical evaluations, a systematic process of data cleansing was conducted. Hereby, the following five issues were addressed (see appendix for the original questionnaires):

(1) Affected Question: “Which type of loyalty scheme do you like best?”
   Problem: Some respondents indicated more than one answer.
   Solution: All answer pairs of a specific kind were selected (e.g. all instances where both Type 1 and Type 2 were indicated) and one of these two answers
deleted in an alternating manner. This process was conducted separately for each of the four sample groups and applied to all answer pair variations.

(2) **Affected Question:** “Please estimate how your total expenditure for fuel is divided up among the following fuel stations. Please distribute 100% among the different chains (leave chains you do not visit blank).”

**Problem:** The sum of percentages allocated by respondents did not always add up to exactly 100%.

**Solution:** The allocated percentage values were reduced (if the sum exceeded 100%) or increased (if the sum turned out to be below 100%) according to their proportions to reach a total of 100%.

<table>
<thead>
<tr>
<th>Overview</th>
<th>Aral</th>
<th>Shell</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey take-home quota (eligible)(^1)</td>
<td>34.8%</td>
<td>31.9%</td>
</tr>
<tr>
<td>Loyalty program membership quota</td>
<td>42.7%</td>
<td>32.1%</td>
</tr>
<tr>
<td>Number of surveys distributed</td>
<td>1,000</td>
<td>1,000</td>
</tr>
<tr>
<td>Absolute number of people approached</td>
<td>3,364</td>
<td>4,896</td>
</tr>
<tr>
<td>Survey take-home quota (overall)(^2)</td>
<td>29.7%</td>
<td>20.4%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Response Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aral</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>distributed</th>
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<tbody>
<tr>
<td>Number returned</td>
</tr>
<tr>
<td>Response rate</td>
</tr>
<tr>
<td>Number returned (total)</td>
</tr>
<tr>
<td>Response rate (total, returned)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>usable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number excluded wrong target group – signif. incomplete –</td>
</tr>
<tr>
<td>7</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>Number usable</td>
</tr>
<tr>
<td>Response rate</td>
</tr>
<tr>
<td>Number usable (total)</td>
</tr>
<tr>
<td>Response rate (total, usable)</td>
</tr>
</tbody>
</table>

\(^1\) Percentage of *eligible* people that was willing to take the questionnaire home (i.e. only non-members were eligible to receive a control group survey form, while program members were the target for the main group questionnaires)

\(^2\) Taking all approached people into account; calculation based on two variables: (1) the quota of eligible people that was willing to take the questionnaire home and (2) the loyalty program membership quota (i.e. as this quota is below 50% for both Aral and Shell, control group questionnaires were distributed faster than those for program members)

Table 12: Study Sample Description
(3) **Affected Question**: “Please indicate your highest, already completed level of education.”

**Problem**: Some respondents indicated more than one answer.

**Solution**: As the different answer options were considered ordinal, all but the highest indicated level of education were removed.

(4) **Affected Question**: “Please indicate the professional position you currently hold.”

**Problem**: Some respondents indicated more than one answer.

**Solution**: In cases of answer pairs where only one generates income (e.g. student and employee, homemaker and freelancer, etc.), the professional position which generates income was selected as the single answer. In cases where the answer pair includes two types of professional position that the respondent gets paid for, the same process used for issue 1 was applied (i.e. within all instances of each type of answer pairs, one answer was deleted in an alternating manner).

(5) **Affected Question**: “Lastly, please indicate your approximate monthly net-income (= income at your disposition after taxes and social insurance contributions are deducted).”

**Problem**: Some respondents indicated very high monthly net-incomes (i.e. among the 1,149 returned questionnaires, 22 out of the 1,024 respondents who had answered this question indicated net-incomes of more than 15,000 EUR per month. Answers ranged from 17,000 to 180,000 EUR).

**Solution**: It was decided to treat all answers above 15,000 EUR as missing values to prevent these few extreme cases from interfering with the analysis. This decision was made, as it was unclear whether the respondents had unintentionally indicated their yearly instead of monthly net-income, whether they indicated their household instead of their personal net-income, whether any other error caused this outcome, or whether they really made that much money.

### 6.2 Extended Descriptive Statistics

In the course of this chapter, descriptive statistics contrasting all four survey groups will be presented covering all questions of the survey form. As far as the sequence is concerned, demographic and socio-economic characteristics will be dealt with first (Chapter 6.2.1), followed by the other questionnaire segments in the order found on the survey form (Chapter 6.2.2-6.2.4). The only exceptions to this approach are the questions exclusive for the main groups (i.e. page 2 of the main group questionnaires), which will be the last ones to be attended to. In that specific case, a comparison will be made across the two main groups wherever
possible (Chapter 6.2.5), followed by simple frequency tables for coalition scheme-specific (Chapter 6.2.6) and stand-alone scheme-specific items (Chapter 6.2.7). Depending on the nature of the question, classical examinations of distribution, central tendency, and/or dispersion will be performed, with a test of significance supplementing these evaluations (which is why this chapter on descriptive statistics is called “extended”). Contingent upon the explaining variable, either a one-way ANOVA or a $\chi^2$ test will be used for comparisons across four groups, while either a t-test or a $\chi^2$ test will be employed when two groups are contrasted (Freedman et al. 2007). Furthermore, a post hoc test (i.e. a Duncan test) will be performed in addition to the one-way ANOVA to determine the differences between groups.

Figure 23: Schematic Illustration of Chapter Structure

Note: Main group questionnaire depicted

### 6.2.1 Demographic, Socio-Economic, and Other Shopper Characteristics

#### 1) Gender

“Please indicate your gender.”

While the various sample groups should preferably not differ with regard to the demographic variables, this is the case with gender in the underlying survey. It seems a fair assessment that men generally are the more dominant customer group when it comes to fuel retailing virtually anywhere on earth. This is also reflected within the two control groups with a comparatively similar distribution of men and women between the groups, but things are not quite that clear when it comes to the two main groups (see Figure 24). The principal reason for the
above-average dominance of men in the Shell main group is that the Clubsmart
loyalty program is primarily positioned for men, while the opposite is true for the
Payback scheme. Furthermore, the higher representation of women in the latter
group has certainly also been influenced by the fact that most of the Payback
coalition partners are retailers that are generally patronized by a higher share of
women than fuel stations (e.g. drug store, grocery store, etc.). Naturally, that
highly significant difference between the survey groups (Pearson’s \( \chi^2 \) test: \( p < 0.001 \)) has the potential to interfere with the study results – that is, if men and
women really were to behave differently when it comes to a membership in a
fuel retailing loyalty scheme. Whether or not (and if yes, to what extent) this is
the case is unknown and thus remains a possible limitation to keep in mind.

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fuel retailing loyalty scheme. Whether or not (and if yes, to what extent) this is
the case is unknown and thus remains a possible limitation to keep in mind.

Figure 24: Descriptive Statistics – Gender

2) Age

“Please indicate your age.”

In the questionnaire, age has been captured on a metric scale, but for a better
visual comparison, categories were introduced ex post (see Figure 25). Within all
four groups, 40 to 49 year olds form the largest group of respondents, followed
by the 30 to 39 year olds. Notable differences include a comparatively bigger
dominance of the 40-49 year old age bracket at Shell, as well as a greater percen-
tage of up to 29 year olds in the Aral control group as compared to the Shell
control group. In return, the Shell control group is characterized by a few more
respondents aged 60 and above. Calculated across all four groups using the original metric data, the one-way ANOVA led to a significant result ($p = 0.005$; Duncan test-group assignment: Group 1: Aral Control, Aral – Group 2: Aral, Shell – Group 3: Shell, Shell Control).

### Figure 25: Descriptive Statistics – Age

#### 3) Education

"Please indicate your highest, already completed level of education."

In the customer survey, respondents were asked to indicate their highest, already completed level of education. The different options, ranging from compulsory schooling to a doctoral degree, were considered ordinal. The clear majority of respondents marked a diploma degree as the highest completed level of education. While the low quota of bachelors and masters (which might be surprising to readers from the Anglo-American educational system) can easily be explained by the fact that these degree types were only recently established in the German educational system, the same is not true for the high overall quota of people having completed tertiary education (i.e. bachelor, diploma, master’s, or doctoral degree holders). For all four groups, these values lie well above national average. The most likely explanation for this is this study’s focus on fuel stations within the city of Munich – as compared to the rest of Germany an area with above-average levels of education and income. While the process of selecting the specific stations where the survey forms were handed out was aimed at reducing the
negative influence of covariates and making the sample as representative as possible, it should be noted that it is unclear whether absolute generalizability is given. The Pearson’s $\chi^2$ value turned out to be significant ($p = 0.020$) across all groups.  

Figure 26: Descriptive Statistics – Education

4) Professional Position

“As please indicate the professional position you currently hold.”

As illustrated in Figure 27, employees and civil servants with leadership responsibility made up the majority of respondents, followed by those without leadership responsibility and freelancers. Together, these three groups encompassed roughly 88% of study participants. It should further be noted that some of the six categories displayed in Figure 27 are actually an aggregation of further categories that were part of the original questionnaire. Altogether, respondents had ten options to indicate their current professional position, of which some have been consolidated for this illustration due to their small size. The Pearson’s $\chi^2$ value was found to be highly significant ($p = 0.001$).
Next to gender, age, educational background, and professional position, customers were asked for their monthly net-income. Due to a couple of well-earning outliers, the median remains consistently below the average. It can be seen that overall, the income of Shell patrons is higher than that of Aral customers. Still, the difference between the median of the Aral and the Shell main group turned out to be 500 EUR, while that between the corresponding control groups equaled only 200 EUR and goes in the opposite direction. In addition to the overall mean and median, Table 13 also includes an overview based on gender in order to check whether this disparity has been caused by a differing composition of the customer base in terms of that variable. When looking at the gender-specific median, differences between the two Aral groups disappear. The two Shell groups still differ by 200 to 300 EUR, while interestingly, a discrepancy between the Aral and Shell main group exists only for male customers. Nevertheless, a consistent discrepancy of 200 EUR between the two control groups confirms the impression of Shell having customers with a slightly higher income. Overall, the one-way ANOVA proved to be significant (p = 0.006; Duncan test-group assignment: Group 1: Aral, Shell Control – Group 2: Shell Control, Aral Control, Shell).
1) Income

"Lastly, please indicate your approximate monthly net-income (= income at your disposal after taxes and social insurance contributions are deducted)."

Next to gender, age, educational background, and professional position, customers were asked for their monthly net-income. Due to a couple of well-earning outliers, the median remains consistently below the average. It can be seen that overall, the income of Shell patrons is higher than that of Aral customers. Still, the difference between the median of the Aral and the Shell main group turned out to be 500 EUR, while that between the corresponding control groups equaled only 200 EUR and goes in the opposite direction. In addition to the overall mean and median, Table 13 also includes an overview based on gender in order to check whether this disparity has been caused by a differing composition of the customer base in terms of that variable. When looking at the gender-specific median, differences between the two Aral groups disappear. The two Shell groups still differ by 200 to 300 EUR, while interestingly, a discrepancy between the Aral and Shell main group exists only for male customers. Nevertheless, a consistent discrepancy of 200 EUR between the two control groups confirms the impression of Shell having customers with a slightly higher income. Overall, the one-way ANOVA proved to be significant (p = 0.006; Duncan test-group assignment: Group 1: Aral, Shell Control – Group 2: Shell Control, Aral Control, Shell).

<table>
<thead>
<tr>
<th></th>
<th>Aral</th>
<th>Aral Control</th>
<th>Shell</th>
<th>Shell Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>m</td>
<td>f</td>
<td>m</td>
<td>f</td>
</tr>
<tr>
<td>Median</td>
<td>3,000</td>
<td>2,000</td>
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<td>2,000</td>
</tr>
<tr>
<td>Median (total)</td>
<td>2,500</td>
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<td>3,000</td>
<td>3,000</td>
</tr>
<tr>
<td>Mean</td>
<td>3,679</td>
<td>2,149</td>
<td>4,021</td>
<td>2,238</td>
</tr>
<tr>
<td>Mean (total)</td>
<td>2,954</td>
<td>3,438</td>
<td>3,626</td>
<td>3,328</td>
</tr>
<tr>
<td>n</td>
<td>141</td>
<td>127</td>
<td>142</td>
<td>69</td>
</tr>
<tr>
<td>n (total)</td>
<td>268</td>
<td>211</td>
<td>250</td>
<td>221</td>
</tr>
</tbody>
</table>

Table 13: Descriptive Statistics – Income

Note: Mean values in EUR per month, listed by gender

Figure 28: Descriptive Statistics – Economic Shopping Orientation

6) Economic Shopper Orientation

The construct of economic shopper orientation was operationalized with three items and measured on a 5-point Likert scale to complement the demographic and socio-economic shopper characteristics. Figure 28 provides an illustration of the mean values calculated for the four study groups. Surprisingly, only the Shell main group sticks out from the crowd. As its values differ significantly from the Shell control group (at least as far as statement 1 is concerned), it can be assumed that either the varying gender structure (possibly coupled with the underlying income levels) or the Clubsmart membership caused these different attitudes in terms of...
economic shopper orientation. Across all four groups, the one-way ANOVA showed highly significant values for Item 1 (p < 0.001; Duncan test-group assignment: Group 1: Shell – Group 2: Aral Control, Aral, Shell Control), while Item 2 (p = 0.053; Duncan test-group assignment: Group 1: Shell, Aral Control – Group 2: Aral Control, Aral, Shell Control) and Item 3 were significant only at the 10% level (p = 0.060; Duncan test-group assignment: Group 1: Shell, Aral Control, Shell Control – Group 2: Aral Control, Shell Control, Aral).

7) Convenience Orientation

Mixed into the latter three items operationalizing economic shopper orientation was one statement concerning the convenience orientation of customers, or specifically, a question asking customers whether they usually refuel at the fuel station with the most convenient location. Both control groups demonstrated a significantly higher level of agreement with the statement than the main groups. In addition to that, both Shell groups turned out to be slightly less convenience-oriented than their respective Aral counterpart (though not by a significant margin). Overall, the one-way ANOVA returned a highly significant value (p < 0.001; Duncan test-group assignment: Group 1: Shell, Aral – Group 2: Aral, Shell Control, Aral Control).

![Figure 29: Descriptive Statistics – Convenience Orientation](image)

6.2.2 Loyalty Cards

1) Memberships in Loyalty Schemes in the Industry

"Which one of these fuel station loyalty cards do you possess and/or at which of these campaigns do you collect sticker points (multiple answers possible)?"

It can be seen in Figure 30, that while all respondents in the Aral and Shell main group were naturally members in their respective loyalty scheme, around 86% of the Aral control group and 79% of the Shell control group possessed no loyalty card at all. Another noteworthy point is that while only 14% of the main Aral
group and 9% of the Aral control group were members in the Clubsmart scheme, 33% of the main Shell group and 19% of the Shell control group were members in the Payback coalition — clearly illustrating the fact that a high penetration rate is one of the key strengths of multi-partner schemes. The undoubted dominance of Payback and Clubsmart in the German fuel loyalty market, coupled with this study’s focus on customers encountered at Aral and Shell fuel stations, was destined to lead to comparatively lower possession rates of other competitive loyalty cards. Still, the average membership rate with each of the remaining programs turned out at a surprisingly low 1.2% across all four groups.

Figure 29: Descriptive Statistics – Convenience Orientation

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Figure 30: Descriptive Statistics – Memberships in Loyalty Schemes in the Industry
2) Memberships in Other Coalition Schemes

“Which one of these two loyalty cards do you possess (multiple answers possible; please skip question if you possess neither one)?”

In addition to memberships in other fuel station schemes, the customers’ participation in Germany’s two other big, national coalition schemes was captured. In that regard, HappyPoints (formerly known as HappyDigits, the country’s second largest multi-partner program) clearly outrivaled the Deutschland Card (the number 3 in the market). Roughly a quarter of the Aral main group and 18% of the Shell main group also holds a HappyPoints card, as compared with 4% in the Aral control group and an unexpected 10% in the Shell control group (see Figure 31). By contrast, only a rounded 9% of the Aral main group, 8% of the Shell main group, 3% of the Aral control group, and 2% of the Shell control group are members of the Deutschland Card program.

3) Number of Loyalty Cards Carried

“Altogether, how many loyalty cards do you usually carry with you (e.g. in your wallet; including all loyalty cards, not only those of fuel stations)?”

Broadening the scope to loyalty schemes in general, customers were asked how many cards they usually carry with them. While the figures for the two main groups look fairly similar at first sight, it can still be noticed that the segment of customers carrying no card at all is considerably larger at Shell than it is at Aral. Taking the common complaint of wallets overflowing with loyalty cards into consideration, this finding supports the claim that, as compared to stand-alone solu-
tions, members of coalition schemes are more likely to carry the loyalty card (and hence have the opportunity to use it in the first place). Why, however, the amount of respondents in the Aral control group carrying no card exceeds that in the Shell control group by such a large extent is unclear. Unsurprisingly, the Pearson’s \( \chi^2 \) value turned out to be highly significant \((p < 0.001)\) across all groups.

![Figure 31: Descriptive Statistics – Memberships in Other Coalition Schemes](image)

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![Figure 32: Descriptive Statistics – Number of Loyalty Cards Carried](image)

4) Preferred Type of Loyalty Scheme

"Which type of loyalty program do you like best?"

Asked for their preference of one of the three basic types of loyalty scheme (sticker point/stamp collection, electronic points accumulation, or immediate discount), customers generally preferred those with immediate discount. That in itself might not have been such a surprising finding, but interestingly, in neither study group did more than 54% show a preference for that type. Whether points are redeemed for a free product or other rewards, in practice they rarely match a direct discount in terms of its monetary value (i.e. the point value of most retail loyalty schemes hovers around 0.5 to 1%, while direct discounts given with a loyalty card often reach 2% and more; likewise, stamp cards frequently feature higher discount rates when completed – for instance, 9.1% in case of a "buy ten,
get one free” stamp card). Taking that and the low diffusion of stamp cards in retailing into account, the amount favoring direct discounts still appears fairly low. Two other noteworthy points include the following: (1) the quota of respondents favoring point collection schemes is obviously biggest among the Aral and Shell main groups, but significantly larger at Shell than at Aral (even outmatching the segment preferring a direct discount). (2) The amount of people favoring a classic stamp or sticker collection scheme reaches only around 3% in the main groups, but 8-9% in the control groups (possibly due to fewer privacy issues associated with stamp cards). Across all groups, then, the Pearson’s $\chi^2$ value turned out to be highly significant ($p < 0.001$).

5) Barriers of Exit

The barriers of exit construct, although not included in the main study framework, has been accommodated in this study to find out how significant loyalty card users and non-users perceive costs of change to a competitive loyalty card to be. Loyalty scheme advocates do not tire of praising point accumulation programs for their ability to create such barriers of exit. Mean values between 2 and 2.3 on the 5-point Likert scale indicate that customers are not really convinced that a switch to another fuel station loyalty card would incur a high loss of points.
and consequently rewards. While a minor difference between the main and control groups exists, it is not significant. Despite the fact that a coalition scheme might arguably be able to establish higher exit barriers as customers have higher point balances in their accounts and might consequently be aiming for a bigger reward, Shell came out slightly better than Aral in this respect. On the other hand, however, customers might have thought that with a coalition scheme, points are not entirely lost as they can still be used (and indeed, the balance further increased) with their regular purchase activity at other partner companies. As mentioned before, however, the differences between the groups proved to be non-significant (though in case of question 1, only by a small margin), with a one-way ANOVA returning a p-value of 0.051 for Item 1 (Duncan test-group assignment: Group 1: Aral Control, Shell Control, Aral – Group 2: Shell Control, Aral, Shell) and 0.070 for Item 2 (Duncan test-group assignment: Group 1: Aral Control, Shell Control, Aral – Group 2: Shell Control, Aral, Shell).

6) General Attitude Towards Loyalty Programs

What is presented here under the headline “general attitude” is an accumulation of questions revolving around general attitudes customers have towards loyalty schemes. As seen in Figure 35, the differences between the groups are highly significant. While the mean values of respondents from the Aral and Shell main groups are almost identical, these from the two control groups vary slightly. In any case, members of the Aral or Shell program turned out to be significantly more convinced than their non-member counterparts, that loyalty cards are generally good and a good way for companies to show their appreciation to customers, as well as that they help a company to get customers committed. They also found loyalty cards less annoying and are less bothered by carrying cards of
different companies with them. While these results were again fairly predictable, a look at both the average level of agreement with these statements as well as the differences between the main and control groups yields some remarkable insights: (1) the difference between the main and control groups is smaller for statements regarding the effect of the loyalty schemes on the issuing company (i.e. Item 1 and 3) as opposed to effects on the customers (i.e. Items 2, 4, and 5). (2) Across all four groups, the statement about loyalty cards helping companies to get customers committed found the highest agreement with mean values around 4 on the 5-point Likert scale. In other words, both members and non-members of loyalty schemes are convinced that they do indeed work. (3) The largest difference between the main and the control groups exists with regard to the statement pair “loyalty schemes are good/annoying” (Items 2 and 4). (4) The statement attracting the single highest amount of agreement is that concerning the annoyance felt when having to carry around many cards of different programs. In this case, both control groups clearly surpassed the threshold of a mean value of 4 on the 5-point scale with an average of around 4.2. The p-values calculated by the one-way ANOVA proved highly significant (p < 0.001) across all groups for all five statements (Duncan test-group assignment – Item 1: Group 1: Aral Control, Shell Control – Group 2: Aral, Shell; Item 2: Group 1: Aral Control – Group 2: Shell Control – Group 3: Shell, Aral; Item 3: Group 1: Aral Control, Shell Control – Group 2: Shell Control, Aral; Group 3: Aral, Shell; Item 4: Group 1: Shell, Aral – Group 2: Shell Control, Aral – Group 3: Aral Control; Item 5: Group 1: Aral, Shell – Group 2: Shell Control, Aral Control).

Figure 35: Descriptive Statistics – General Attitude Towards Loyalty Programs
7) Privacy Concerns

Ending the general segment on loyalty cards, customers were asked whether (1) they are and whether (2) program members generally should be concerned about their privacy. Again, two distinct groups can be made out in Figure 36, with respondents of the control groups naturally being the bigger skeptics with regard to the privacy issue. Interestingly though, even within the main groups respondents indicated a privacy concern more often than not (with mean values between 2.5 and 3 for Item 1 and between 3 and 3.5 for Item 2). Moreover, customers were more likely to agree with the statement that holders of loyalty cards should generally be afraid, as opposed to the statement that they themselves are afraid. Most likely, however, this discrepancy can be explained by the disrupting effect of social desirability – giving room to the speculation that the responses to Item 2 are the more accurate ones. The one-way ANOVA yielded highly significant p-values (p < 0.001) for both items (Duncan test-group assignment – Item 1: Group 1: Aral, Shell – Group 2: Shell Control, Aral Control; Item 2: Group 1: Aral, Shell – Group 2: Shell Control, Aral Control).

Figure 36: Descriptive Statistics – Privacy Concerns

6.2.3 Satisfaction and Loyalty

1) Store Satisfaction

Following the introductory section on loyalty cards in general (and a special segment for the main groups covered in Chapters 6.2.5 to 6.2.7), a passage on store satisfaction and loyalty was presented to respondents. Satisfaction was operationalized with three items, largely based on Mägi’s (2003) work (see Chapter 5.5). As illustrated in Figure 37, answers were very similar within the
main and within the control groups, but significantly different between these two. The slight drop for Item 3 can probably be explained almost entirely by the rather extreme wording used (a “perfect” fuel station), but also here, the absolute difference between the mean values for the main and control groups remains the same. Specifically, loyalty program members were found to be consistently more satisfied than non-members across all items. Whether or not this excess in satisfaction is entirely due to the loyalty program, however, is unclear. A possible explanation would be the same as often cited in relation to loyalty: customers who are already very loyal to a retailer are the ones most likely to become members of the loyalty program, as they draw the biggest benefit from it. Given, then, that satisfaction is a precursor to loyalty, it could be the case that customers within the main group have already been more satisfied in the first place. While this might be true at least for a part of the respondents, it is not unlikely, however, that the loyalty program indeed played a role. As for the result of the one-way ANOVA across all groups, values proved to be significant (Item 1: \( p = 0.002 \), Item 2: \( p = 0.001 \), Item 3: \( p =0.008 \); Duncan test-group assignment – Item 1: Group 1: Aral Control, Shell Control – Group 2: Aral, Shell; Item 2: Group 1: Aral Control, Shell Control – Group 2: Aral, Shell; Item 3: Group 1: Shell Control, Aral Control – Group 2: Aral, Shell).

![Figure 37: Descriptive Statistics – Store Satisfaction](image)

2) Attitudinal Loyalty

In the questionnaire, attitudinal loyalty represented the first component of the loyalty construct to be checked. In order to determine the attitude (i.e. feel-
main and within the control groups, but significantly different between these two. The slight drop for Item 3 can probably be explained almost entirely by the rather extreme wording used (a “perfect” fuel station), but also here, the absolute difference between the mean values for the main and control groups remains the same. Specifically, loyalty program members were found to be consistently more satisfied than non-members across all items. Whether or not this excess in satisfaction is entirely due to the loyalty program, however, is unclear. A possible explanation would be the same as often cited in relation to loyalty: customers who are already very loyal to a retailer are the ones most likely to become members of the loyalty program, as they draw the biggest benefit from it. Given, then, that satisfaction is a precursor to loyalty, it could be the case that customers within the main group have already been more satisfied in the first place. While this might be true at least for a part of the respondents, it is not unlikely, however, that the loyalty program indeed played a role. As for the result of the one-way ANOVA across all groups, values proved to be significant (Item 1: p = 0.002, Item 2: p = 0.001, Item 3: p = 0.008; Duncan test -group assignment – Item 1: Group 1: Aral Control, Shell Control – Group 2: Aral, Shell; Item 2: Group 1: Aral Control, Shell Control – Group 2: Aral, Group 3: Shell; Item 3: Group 1: Aral Control, Shell Control – Group 2: Aral – Group 3: Shell).

Figure 37: Descriptive Statistics – Store Satisfaction

2) Attitudinal Loyalty

In the questionnaire, attitudinal loyalty represented the first component of the loyalty construct to be checked. In order to determine the attitude (i.e. feeling/mind-set) customers have towards the company, they were asked to indicate their answer to three statements relating to their loyalty. This led to a couple of interesting findings: (1) members of the loyalty schemes were found to be significantly more loyal than members of the control group. (2) Members of the standalone program turned out to be significantly more loyal than those of the coalition scheme, while no significant difference was to be found between the two control groups (see Chapter 6.3.8 for a more detailed discussion of these findings). (3) The agreement with the attitudinal loyalty statements was clearly lower than that with the satisfaction statements. In other words, satisfaction did not fully translate into attitudinal loyalty. As far as the one-way ANOVA is concerned, p-values proved to be highly significant for all three statements (p < 0.001; Duncan test-group assignment – Item 1: Group 1: Aral Control, Shell Control – Group 2: Aral – Group 3: Shell; Item 2: Group 1: Aral Control, Shell Control – Group 2: Aral – Group 3: Shell; Item 3: Group 1: Aral Control, Shell Control – Group 2: Aral – Group 3: Shell).

Figure 38: Descriptive Statistics – Attitudinal Loyalty

3) Word-of-Mouth

As part of the loyalty construct, word-of-mouth was operationalized as a three-item construct. Particularly the first and third items, adopted from the work of Bridson et al. (2008), were naturally destined to lead to low levels of agreement with customers of a fuel retailer. While owners of the newest sports car or electronic gadget would clearly have been more likely to “tell friends, family, or
colleagues about the positive experiences” with their recent purchase, patrons of a fuel station probably would not. Nevertheless, even Item 2, which queried customers whether they would recommend the fuel station upon being asked, led to rather low levels of agreement (with mean values of around 1.8 within the control groups and 2.4 within the main groups). Still, the data revealed some noteworthy differences. Similar to the attitudinal loyalty construct, both control groups were well below the Shell main group. This time, however, the Aral main group was only able to gain significant ground over the control groups with regard to Item 2. All in all, then, the Aral group received a significantly better response than the control groups (albeit by a comparatively low margin), but clearly failed to achieve the high levels of Shell. Altogether, the one-way ANOVA delivered highly significant p-values for all three items ($p < 0.001$; Duncan test-group assignment – Item 1: Group 1: Aral Control, Shell Control, Aral – Group 2: Shell; Item 2: Group 1: Aral Control, Shell Control – Group 2: Aral – Group 3: Shell; Item 3: Group 1: Aral Control, Shell Control – Group 2: Shell Control, Aral – Group 3: Shell).

Figure 39: Descriptive Statistics – Word-of-Mouth

4) Loyalty Scheme-Related Loyalty

Mixed into the section containing the items of the satisfaction, attitudinal loyalty and word-of-mouth construct was a single direct question asking customers whether they would continue to patronize the fuel station even if the loyalty
program did not exist. For control purposes (and despite the loss of content-wise relevance), this question was also included in the control group survey forms. Yet again, the values of the two control groups turned out to be fairly similar, with Aral one step and Shell two steps ahead. In this case, however, a high level of agreement signifies a lower dependency on the loyalty scheme, or in other words, a higher level of non-scheme-related loyalty. One possible source of error, discovered only after the collection of data, is that the phrasing of the statement asks whether customers would still “prefer” to refuel at the station, instead of “continue to patronize it the way have done so far” (which could be a problem for respondents who did not prefer to refuel there before either). This, in fact, is also the most probable reason for the low mean values within the control groups. To test this hypothesis, a one-way ANOVA was performed only with those respondents who had a share-of-wallet of 50% or higher at their respective chain. A p-value of 0.824 confirmed that all behaviorally loyal customers really do behave the same, as far as this issue is concerned. Only when using the full data set, did the one-way ANOVA return a highly significant p-value (p < 0.001; Duncan test-group assignment: Group 1: Shell Control, Aral Control – Group 2: Aral – Group 3: Shell) – supporting the hypothesis that it is indeed in relation to the behaviorally less loyal customers that the difference comes into play, as it is they who would have been affected by this phrasing problem. In any case, these limitations simply need to be kept in mind when interpreting the result that program members were characterized by a fairly high level of scheme-related loyalty.

6.2.4 Purchase Behavior

1) Share-of-Wallet

"Please estimate how your total expenditure for fuel is divided up among the following fuel stations. Please distribute 100% among the different chains (leave chains you do not visit blank)."
To determine the purchase behavior across the whole category, customers were asked to indicate how their spending on fuel is divided up between the different fuel chains. Next to the eight largest national competitors, respondents also had the option of picking an “other” category, summing up the remaining small, regional and other independent fuel chains or individual stations. Similar to the share of around 9% that Aral program members spent at Shell stations, Shell program members spent roughly 12% of their category expenditure at Aral stations. As far as the patronization of the own chain is concerned, things look different though. While the share-of-wallet allotted by the Aral main group to Aral stations equals 49% on average, members of the Shell main group spend a stunning 66% of their budget at Shell stations. Between the two control groups, only minor differences could be discovered (see Table 14) and it should also be emphasized, that no significant discrepancy in the availability of competitive options between the fuel stations where the survey was conducted could be noted.

<table>
<thead>
<tr>
<th></th>
<th>Aral</th>
<th>Shell</th>
<th>Esso</th>
<th>Jet</th>
<th>Avia</th>
<th>Total</th>
<th>Agip</th>
<th>OMV</th>
<th>Other</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aral</td>
<td>48.9%</td>
<td>9.3%</td>
<td>5.5%</td>
<td>8.8%</td>
<td>1.0%</td>
<td>1.2%</td>
<td>4.7%</td>
<td>6.9%</td>
<td>13.8%</td>
<td>100%</td>
</tr>
<tr>
<td>Shell</td>
<td>12.1%</td>
<td>65.6%</td>
<td>3.3%</td>
<td>4.7%</td>
<td>0.5%</td>
<td>1.1%</td>
<td>4.0%</td>
<td>2.1%</td>
<td>6.8%</td>
<td>100%</td>
</tr>
<tr>
<td>Aral Control</td>
<td>31.9%</td>
<td>13.7%</td>
<td>8.2%</td>
<td>9.9%</td>
<td>1.5%</td>
<td>3.4%</td>
<td>6.9%</td>
<td>8.9%</td>
<td>15.4%</td>
<td>100%</td>
</tr>
<tr>
<td>Shell Control</td>
<td>17.4%</td>
<td>30.9%</td>
<td>8.3%</td>
<td>9.1%</td>
<td>0.8%</td>
<td>1.6%</td>
<td>7.4%</td>
<td>5.9%</td>
<td>18.6%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 14: Descriptive Statistics – Share-of-Wallet
Note:  n = 1,065 (Aral: 297, Shell: 291, Aral Control: 236, Shell Control: 241)

2) Purchase Frequency

"Please estimate how often per month you visit a fuel station to refuel your vehicle."

In addition to share-of-wallet, purchase frequency was measured as another indicator for behavioral loyalty, with the data gathered revealing an unexpected picture. While the frequency of purchase was lower in the Shell control group as compared to the Shell main group, the opposite was found to be the case for Aral. At the same time, a notable difference turned out to exist between the two control groups – suggesting interferences by other variables. What is particularly startling about this is the fact that the purchase frequency is higher at the Shell main group as compared to the Aral main group, but lower at the Shell control group as compared to the Aral control group.
To determine the purchase behavior across the whole category, customers were asked to indicate how their spending on fuel is divided up between the different fuel chains. Next to the eight largest national competitors, respondents also had the option of picking an "other" category, summing up the remaining small, regional and other independent fuel chains or individual stations. Similar to the share of around 9% that Aral program members spent at Shell stations, Shell program members spent roughly 12% of their category expenditure at Aral stations. As far as the patronization of the own chain is concerned, things look different though. While the share -of-wallet allotted by the Aral main group to Aral stations equals 49% on average, members of the Shell main group spend a stunning 66% of their budget at Shell stations. Between the two control groups, only minor differences could be discovered (see Table 14) and it should also be emphasized, that no significant discrepancy in the availability of competitive options between the fuel stations where the survey was conducted could be noted.

![Table 14: Descriptive Statistics – Share-of-Wallet](image)

<table>
<thead>
<tr>
<th></th>
<th>Aral</th>
<th>Shell</th>
<th>Aral Control</th>
<th>Shell Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>48.9%</td>
<td>12.1%</td>
<td>9.3%</td>
<td>65.6%</td>
</tr>
<tr>
<td>Aral</td>
<td>4.7%</td>
<td>3.3%</td>
<td>8.8%</td>
<td>4.7%</td>
</tr>
<tr>
<td>Shell</td>
<td>13.8%</td>
<td>100%</td>
<td>1.2%</td>
<td>100%</td>
</tr>
<tr>
<td>Aral Control</td>
<td>1.0%</td>
<td>4.0%</td>
<td>1.5%</td>
<td>7.4%</td>
</tr>
<tr>
<td>Shell Control</td>
<td>6.9%</td>
<td>3.4%</td>
<td>1.6%</td>
<td>5.9%</td>
</tr>
</tbody>
</table>

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![Figure 41: Descriptive Statistics – Purchase Frequency](image)

3) Monthly Category Spend and Cost per Tank

"Please estimate how much money you currently spend on fuel per month."

"Please estimate how much you currently pay for an average tank of fuel."

Similar to the frequency of purchase, the mean values for the Shell main group clearly exceeded those of both the Aral groups as well as the Shell control group, while at the same time, the Aral control group exceeded the Shell control group. Although at least part of the high monthly spend of members of the Shell main group can be explained by the higher average fuel cost per tank in combination with the higher frequency of purchase, there appears to be more to it. This becomes apparent when looking at the Aral control group, where, as compared to the other three groups, the multiplication of purchase frequency times average fuel tank leads to the outcome with the biggest difference to the declarations for monthly fuel spend. It should be noted that while this calculation is never far from accurate (i.e. the difference equals around 14 EUR for all, except the Aral control group), individual respondents might nevertheless have misunderstood the question in that some indicated the average amount of fuel they usually fill into their tank (e.g. somebody might refuel exactly 20 liters every visit, no matter how empty the tank is), while others indicated the amount it would take to fill up a completely empty tank.
6.2.5 Common Loyalty Program Member-Specific Items

While the questions covered so far were the same for all four groups, there were some that only the survey form for the main group contained. Out of those questions on the “extra page” (control group forms were 3 pages and main group forms 4 pages long), some were tailored to the respective loyalty program, while others were identical for both main groups and thus allow for a comparison. This comparison will be presented in this section.

1) Place Where Loyalty Card is Kept

"Where do you usually keep your Payback/Clubsmart card?"

The wallet is, with 92% for Aral and 69% for Shell, the clear number 1 place to keep the loyalty card. Compared to Aral, however, Shell customers were significantly more likely to keep the card in the car. Two factors are assumed to be responsible for this: (1) the Aral Payback scheme is a loyalty coalition with other partner companies where customers do not necessarily go to shop at with their car. Keeping the loyalty card of a fuel station in one’s personal vehicle, however, ensures that it is always there when a purchase is made (with the exception of people owning more than one car). Furthermore, no wallet space is used up in that case. (2) The quota of women participating in the Payback scheme is higher than that in the Clubsmart program, and as women generally do not carry their
wallet in a pocket of their pants, they are also less likely to be bothered by a purse bloated with loyalty cards. Finally, it should be noted that the “other place” category also includes respondents who do not use the card anymore and, for instance, have it lying around somewhere at home. With 3.3% for Aral and 4.5% for Shell, these groups are not very large, however. Across both sample groups, the Pearson’s $^2$ value turned out to be highly significant ($p < 0.001$).

![Figure 43: Descriptive Statistics – Place Where Loyalty Card is Kept](image)

2) Reward Redemption Behavior

“Have you ever redeemed Payback/Clubsmart points for a reward?”

In the questionnaire, customers had to pick from the answer options presented in Figure 45 and thereby indicate both whether and where they had ever redeemed points for a reward. As these answer options are not comparable, however, yes/no categories were introduced ex post in order to engage in at least some degree of comparison. This comparison, illustrated in Figure 44, shows that the percentage of respondents in the Aral group who had at least once redeemed points for a reward exceeds that of Shell by a small, albeit significant margin. Specifically, the Pearson’s $^2$ test delivered a p-value of 0.045. While the Payback scheme offers a wider range of redemption options without connection to fuel retailing (due to its connection with a range of different partner companies),
Shell offers a narrower set of items overall with more (though not exclusively) firm-related rewards. Even more important, however, is the fact that Aral offers only three firm-related options to be redeemed at the fuel station (i.e. payment with points, a car wash, or coffee and a sandwich; see Table 10 in Chapter 5.1.3), while the majority of Shell’s rewards can be picked up at the station. While firm-related rewards have been found to generally be the better choice for a company running a loyalty program (see Chapter 3.3.8), the coalition scheme still appeared to be able to convince more customers to redeem their points (which customers did primarily via Payback directly or other Payback partners). Next to other things, different communication activities might have helped as well, of course, leaving it open how big a role the redemption options themselves really played.

![Figure 44: Descriptive Statistics – Reward Redemption Behavior](image)

*Note: Customers were asked whether they have ever redeemed points for a reward*
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Figure 44: Descriptive Statistics – Reward Redemption Behavior
Note: Customers were asked whether they have ever redeemed points for a reward

Figure 45: Descriptive Statistics – Reward Redemption Behavior (Details)
Note: Customers were asked whether and via what channel they have ever redeemed points for a reward

3) Patronization Prior to Program Membership

“Did you already visit Aral/Shell stations to refuel before you became a member of Payback/Clubsmart?”

“If yes (otherwise please skip question): Compared to today, did you refuel there … in the past?” [options: rather less frequently, about the same amount of times, rather more frequently]

Respondents were faced with these questions to determine two things: (1) whether the loyalty program might have caused them to start patronizing the fuel station and (2) whether the membership might have caused them to intensify the
patronization of the fuel station (e.g. by increasing the share-of-wallet). In case of question 1, no significant difference could be made out between the two groups. Within both the Aral and Shell main group, around 6% of respondents declared that they had not refueled their vehicle at these fuel stations prior to their loyalty program membership. In other words, roughly 6% of the chains’ customers can be considered new customers that were acquired through the loyalty program.

In case of question 2, significant differences do exist, however. While the amount of people indicating more frequent purchases in the past was found to be similar for both groups with a value of around 10%, 27% of Aral customers stated that they had purchased there rather less frequently in the past, as compared with 38% of Shell customers. The p-values calculated by Pearson’s χ² equaled 0.783 for question 1 and 0.012 for question 2.
4) Reaction to Up-Selling Incentives

"Have you ever been motivated by extra Payback/Clubsmart points to refuel with Ultimate 100 or Ultimate Diesel/V-Power Racing 100 or V-Power Diesel, even though you would have normally purchased regular fuel or diesel?"

It should be noted that the original Shell survey form contained an additional category for V-Power 95, which was listed separately to permit a clean comparison [V-Power 95 is a premium version of its regular fuel, but with the same octane number. Specifically, Shell offers (1) regular 95 octane fuel and (2) regular Diesel, plus (3) a premium fuel with 95 octane, (4) a premium fuel with 100 octane, and (5) a premium Diesel. Except for the premium fuel with 95 octane, Aral offers the same range at most fuel stations]. It can be seen in Figure 48 that as compared to the Aral main group, significantly more members of the Shell loyalty program declared that they had previously been persuaded by extra points to try out a premium fuel (26% as opposed to 7% at Aral). The Pearson's $\chi^2$ value turned out to be highly significant ($p < 0.001$) across these two groups.

In addition to the comparison given above, further details about (1) the answers of the Shell main group, as well as (2) the response to a follow-up question also belong in this paragraph. The more detailed view available for the Shell main group is presented in Figure 49. With around 20%, V-Power Diesel is clearly Shell’s most successful premium product, followed by V-Power 95 and Shell’s most expensive product – V-Power Racing 100. These figures need to be interpreted with care, however, as no information about the type of fuel the respondents’ cars require was captured. The only thing that can be added to this analysis are the statistics prepared by Germany’s Federal Motor Transport Authority (Kraftfahrt-
The Kraftfahrt-Bundesamt (2010) reported that the share of diesel cars on the road on January 1, 2010, equaled 25.9%, compared with 73% powered by regular fuel and 1.1% by gas, electricity, or a hybrid. Given the dominance of vehicles powered by regular fuel, the high proportion of people purchasing premium diesel is thus fairly impressive.

The follow-up question mentioned in the previous paragraph was whether customers who tried out premium fuels due to a point incentive continued to purchase them afterwards. The number of respondents listed in Figure 50 corresponds to those in Figure 48 who have tried out premium fuels (e.g. 303 * 6.9% = 21 in case of Aral). Like the higher percentage of customers persuaded to try these fuels at Shell, a larger percentage did stick with them later on. In the direct comparison with premium 100 octane fuel and premium diesel only (left two columns in Figure 50), Shell again clearly out-rivaled Aral. 31% of Shell customers, as opposed to around 5% of Aral patrons who have tried out the fuels (note: which equates to only one customer, due to the small sample of 21 users), decided to also buy them afterwards. A further point that should be noted is the fact that customers did not seem to be as convinced of V-Power 95 as they were of the other two types of premium fuels. While the overall sample size increases with the inclusion of V-Power 95 (see right column in Figure 50), the quota of people continuing to buy premium fuels decreases.
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Figure 49: Descriptive Statistics – Reaction to Up-Selling Incentives

"If yes (otherwise please skip question): Did you permanently stick with Ultimate/V-Power fuels afterwards?"

The follow-up question mentioned in the previous paragraph was whether customers who tried out premium fuels due to a point incentive continued to purchase them afterwards. The number of respondents listed in Figure 50 corresponds to those in Figure 48 who have tried out premium fuels (e.g. 303 * 6.9% = 21 in case of Aral). Like the higher percentage of customers persuaded to try these fuels at Shell, a larger percentage did stick with them later on. In the direct comparison with premium 100 octane fuel and premium diesel only (left two columns in Figure 50), Shell again clearly outrivaled Aral. 31% of Shell customers, as opposed to around 5% of Aral patrons who have tried out the fuels (note: which equates to only one customer, due to the small sample of 21 users), decided to also buy them afterwards. A further point that should be noted is the fact that customers did not seem to be as convinced of V-Power 95 as they were of the other two types of premium fuels. While the overall sample size increases with the inclusion of V-Power 95 (see right column in Figure 50), the quota of people continuing to buy premium fuels decreases.

5) Rating of Own Program

It can be seen in Figure 51 that as compared to the stand-alone solution, members of the coalition scheme were significantly more convinced of the quality of their loyalty program and the benefits it has to offer. Still, with values between 3.0 and 3.5 in the case of Shell and 3.5 and 4.0 in the case of Aral, both programs attain rather high levels of agreement to these statements on the 5-point Likert scale. The t-test delivered highly significant p-values (p < 0.001) for both statements.

"I think Payback/Clubsmart is good, compared to other loyalty cards."

"I find the advantages Payback/Clubsmart offers appealing."

Figure 51: Descriptive Statistics – Rating of Own Program

1 Excluding V-Power 95 (= clean comparison)
2 Including V-Power 95
6) Assessment of Point and Reward Structure

In all four areas – reward attractiveness, fairness of amount of points received, speed with which a good reward can be attained, and strenuousness of collecting points – the coalition scheme had the edge over the stand-alone program. For the first two statements, however, the difference proved to be insignificant. With mean values between 3.0 and 3.5 for both Aral and Shell, perception of reward attractiveness as well as the fairness of the amount of points received average to rather positive ratings. Clearer differences between the two groups become evident when looking at the latter two statements regarding the speed with which good rewards can be obtained and concerning the effort required to collect points. Members of the coalition scheme found it significantly easier to collect points and to quickly attain a good reward. Across these two groups, insignificant p-values for Item 1 (p = 0.078) and Item 2 (p = 0.150), but highly significant values for Item 3 (p < 0.001) and Item 4 (p = 0.002) were calculated by the t-test.

7) Regularity of Use

With mean values between 4 and 4.5, this statement inquiring about the respondents’ regularity of use of the loyalty card received some of the highest approval ratings in the study. In other words, both Payback and Clubsmart members used their loyalty card very regularly (albeit not always), although this time Shell turned out to have the lead over Aral. According to the t-test, which computed a p-value of 0.030, the difference is also significant.
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8) Alteration of Purchase Behavior Through Membership

Interestingly, no other Likert-scale question in the survey form revealed such big differences between the two main groups as these statements asking whether customers actively favored the fuel station since they became a member of that chain’s program or whether they were willing to make a detour or at least postpone their next fuel stop to reach another station of that chain. With these questions of high practical relevance, the stand-alone program comes out as the clear winner over the coalition. In fact, Shell even achieved slightly higher agreement values for Item 3 than Aral did for Item 1, or in other words, compared to the coalition, the stand-alone solution seems to be significantly more successful at causing customers to prefer to refuel at their stations. The t-test produced highly significant p-values for all three items (p < 0.001).
6.2.6 Remaining Coalition Scheme-Specific Items

1) Coalition Partner Where Membership was Concluded

"Where did you become a Payback member?"

With Payback founded in March 2000 and Aral having joined the loyalty coalition in May 2006, the quota of people having become a Payback member at Aral was expected to be comparatively low. Customers with membership concluded at a different company are not necessarily a bad thing. In fact, the high quota of around 78% of respondents holding a Payback card issued by another partner would theoretically speak for the ability of the multi-partner scheme to potentially stimulate cross-partner sales. Looking at section 3 in Chapter 6.2.5, however, it can be seen that no significant advantage of the coalition scheme over the stand-alone program was found to exist.

![Graph of descriptive statistics for coalition partner where membership was concluded.](image)

Figure 55: Descriptive Statistics – Coalition Partner Where Membership was Concluded

2) Number of Coalition Partners Patronized

"At how many partner companies of Payback have you shopped in the last year and used your Payback card during the purchase (including Aral; please estimate if necessary)."

The data resulting from this question confirms the impression given in the previous section on the company where the membership was concluded: for the most part, Payback members do patronize more than one partner company. Specifically, over 90% of Aral customers have collected points at at least one other coalition partner. With 38%, the biggest group was that with respondents shopping at three coalition partners, followed by 23% of customers patronizing four and 19% purchasing goods at two partners.
6.2.6 Remaining Coalition Scheme-Specific Items

1) Coalition Partner Where Membership was Concluded

"Where did you become a Payback member?"

With Payback founded in March 2000 and Aral having joined the loyalty coalition in May 2006, the quota of people having become a Payback member at Aral was expected to be comparatively low. Customers with membership concluded at a different company are not necessarily a bad thing. In fact, the high quota of around 78% of respondents holding a Payback card issued by another partner would theoretically speak for the ability of the multi-partner scheme to potentially stimulate cross-partner sales. Looking at section 3 in Chapter 6.2.5, however, it can be seen that no significant advantage of the coalition scheme over the stand-alone program was found to exist.

Figure 55: Descriptive Statistics – Coalition Partner Where Membership was Concluded

2) Number of Coalition Partners Patronized

"At how many partner companies of Payback have you shopped in the last year and used your Payback card during the purchase (including Aral; please estimate if necessary)."

The data resulting from this question confirms the impression given in the previous section on the company where the membership was concluded: for the most part, Payback members do patronize more than one partner company. Specifically, over 90% of Aral customers have collected points at at least one other coalition partner. With 38%, the biggest group was that with respondents shopping at three coalition partners, followed by 23% of customers patronizing four and 19% purchasing goods at two partners.

Figure 56: Descriptive Statistics – Number of Partner Companies Shopped at in the Past Year

3) Collection of Sticker Points Prior to the Coalition Start

"Have you ever collected sticker points at Aral prior to the introduction of Payback in May 2006?"

Around 26% of respondents indicated that they had already collected sticker points prior to the introduction of Payback. This promotional tool, which could also be called the simplest form of a loyalty program, was used by Aral before becoming a partner in the Payback coalition scheme.

Figure 57: Descriptive Statistics – Collection of Sticker Points Prior to the Coalition Start

4) Reaction to Cross-Selling Incentives

"Have you ever been motivated by extra Payback points to wash your car or purchase something at the fuel station’s store, even though you normally had not planned this?"

Figure 201
Like the question asking whether the customers were motivated by points to purchase premium fuels, this question was aimed at finding out whether respondents were motivated to wash their car or buy something at the shop. Clubsmart members received a comparable question, but without the segment on the car wash, as no points can be collected for that at Shell stations. Consequently, no comparison was made between the answers of Aral and Shell. Altogether, almost 19% of Aral customers stated that extra points had motivated them to wash their car or buy something at the shop without having normally planned to do so.

![Figure 58: Descriptive Statistics – Reaction to Cross-Selling Incentives (Coalition Scheme)](image)

Note: Incentives targeted at either store or car wash

### 6.2.7 Remaining Stand-Alone Scheme-Specific Items

1) **Membership in Special Program Tier**

"Are you, next to the regular Clubsmart program, also a member of the Shell V-Power Club?"

In addition to the regular Clubsmart program, Shell has introduced the so-called V-Power Club, which Clubsmart members are invited to join, once they have purchased 180 liters of V-Power premium fuels within 6 months. V-Power Club members then receive five points for every liter of V-Power fuel they purchase, as compared to one point per liter that normal Clubsmart members collect. Within the sample of 293 Clubsmart customers, 16% were members of the V-Power Club. The remaining 84% non-members were made up of 60% who at least knew of the 2nd tier club and 24% who had not heard of it before.
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Figure 58: Descriptive Statistics – Reaction to Cross-Selling Incentives (Coalition Scheme)

Note: Incentives targeted at either store or car wash

6.2.7 Remaining Stand-Alone Scheme-Specific Items

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Figure 59: Descriptive Statistics – Membership in Special Program Tier

2) Response to Specials From Stand-Alone Program Partner

"Have you ever used the special offers for ADAC members at Shell?"

Shell offers two types of specials to all members of ADAC (Germany’s main motoring club): (1) either a direct rebate of 1 cent per liter or (2) double Clubsmart points on the purchase. Given that the value of a point equals around 0.5 cents (see Table 10 in Chapter 5.1.3 for the exact calculation), regular Clubsmart customers would theoretically receive the same value with both options. V-Power Club members, on the other hand, could benefit more from the double point special when purchasing V-Power fuels. For every liter of premium fuel a V-Power Club member buys, he would receive a 1 cent discount plus 2.5 cents in points value if he makes use of the discount special (= 3.5 cents total value, as he still receives 5 points for that liter in addition to the discount), but 5 cent in points value if he capitalizes on the double points special (as he gets 10 points per liter). When interpreting Figure 60, it should be noted that multiple answers were possible only for the first two options (as a customer might have tried out both the rebate and the double points option), but not for the latter two. Altogether, 38% of all respondents were not a member of the ADAC, while 13% were members, but had no interest in the specials or had not heard of them. In other words, 49% of the respondents had already used either one or both of these specials, with the majority preferring the 1 cent rebate. As hypothesized before, this direction of preference turned out differently for V-Power Club members (who were also ADAC members). Out of 39 respondents falling into that category, 14 had used the rebate option, while 25 had used the double points option.
3) Reaction to Cross-Selling Incentives

"Have you ever been motivated by extra Clubsmart points to purchase something at the fuel station’s store, even though you normally had not planned this?"

As mentioned before in the section on coalition scheme-specific questions, no comparison can be made with the similar question for Aral, as they differ with regard to the car wash element (Aral customers can receive points at the car wash, while Shell customers cannot). Focused purely on the motivation to trigger purchases at the shop, roughly 17% of respondents declared that they had previously responded to such an incentive.

Figure 61: Descriptive Statistics – Reaction to Cross-Selling Incentives (Stand-Alone Scheme)

Note: Incentives targeted at store or only
6.3 Main Model Test

To test the hypotheses illustrated in Figure 62, an analysis of covariance (ANCOVA) was selected as the statistical method to be used. Essentially, the ANCOVA is a combination of an analysis of variance and a regression, in that it allows both categorical and metric independent variables to be included in one single model test (Hatzinger & Nagel 2009, Backhaus et al. 2011). Simply put, it was deemed the best statistical test to answer the questions discussed in this study and also, it is a method well proven and established in literature.

While taking a defensive position might be considered an uncommon or unnecessary thing to do, the option of using a structural equation model (SEM) shall nevertheless be commented on, as currently its use appears to be somewhat “trendy” in marketing research. In a range of cases, however, one might easily get the impression that, as the saying goes, a sledgehammer has been used to
crack the nut. In the context of this study, the ANCOVA was found to feature several distinct advantages over an SEM:

- With 20 variables (prior to any aggregating measures), it is unlikely that a model fit would be given in an SEM.
- The multivariate normal distribution required for an SEM might not be achieved by a study using questionnaires.
- Furthermore, SEMs have rarely been used in the field of loyalty scheme success research. For example, in the 23 studies reviewed in Chapter 2.3, structural equation modeling found application in only a few rare cases where it was used in an exploratory manner prior to the actual analytical work. The only exception was one instance, where an SEM was used to test a single hypothesis out of many others in that particular study. Consequently, no reference values would have been available if the model did not fit.

Thus, with the exception of Hypothesis 1, where a separate linear regression was performed due to a different dependent variable, all hypotheses were tested using the ANCOVA within a single model. As far as the dependent variable loyalty is concerned, the options of using a principal component analysis or possibly an index were evaluated to deal with the three dimensions underlying this construct. Eventually, however, it was decided that three separate tests would be carried out to discover potential differences (i.e. one each for behavioral loyalty, attitudinal loyalty, and word-of-mouth). To further mark out the differences between the two loyalty scheme types, these tests were performed once with the Aral data set (main and control group) and once with Shell data (main and control group), resulting in six individual tests altogether. Consequently, six p-values will be presented in the detailed evaluation of Hypotheses 2 to 6.

6.3.1 Reliability and Validity

Prior to the main model test, one last step needs to be taken and the reliability and validity of the employed constructs determined. Hereby, the measurement accuracy was captured by calculating the reliability coefficient Cronbach’s using SPSS 18 (see e.g. Schermelleh-Engel & Werner 2007 for further details). Whether or not the attribute that is supposed to be measured is actually measured (and not something else) is what a validity analysis generally seeks to find out (Hartig et al. 2007). The specific type of validity that was tested here is that of construct validity, which Moosbrugger & Kelava (2007) characterized as dealing with the theoretical foundations of the trait that is being measured. In other words, the question is whether the scale actually measures the theorized construct which it is supposed to measure (see Cronbach & Meehl 1955 for a look
on the origins of this topic). To determine whether a common factor really underlies the different measures performed by the individual items, a confirmatory factor analysis was performed using AMOS 18 (Thompson 2008, Backhaus et al. 2011). As far as the outcome is concerned, standardized regression weights will be presented for each item, together with the Normed-Fit-Index (NFI) as a baseline comparison for model fit. Devised by Bentler & Bonnet (1980), the NFI has been selected as one representative from a range of fit indicators due to its time-tested use in marketing research. While it can take on a value between 0 and 1, anything above 0.9 can be considered evidence of a good model fit (Backhaus et al. 2011).

Before continuing this chapter on reliability and validity tests, a brief excursion will be made on the subject of reflective and formative models. This distinction is of particular importance to structural equation modeling, which found application in the context of the confirmatory factor analysis to determine the validity of the constructs. As described in Chapter 5.5, three-item measures were used for construct operationalization, with the loyalty construct being special in that it appears to be a multidimensional, second-order model (see e.g. Albers & Götz 2006 for further details on multidimensional models). In the latter case, however, the decision was taken to conduct separate tests with each component of the loyalty construct (i.e. behavioral and attitudinal loyalty, as well as word-of-mouth; see introduction to Chapter 6.3).

As far as operationalizing a construct is concerned, the basic question is always that regarding the direction of the relationship with its indicators (i.e. items) (Götz & Liehr-Gobbers 2004). In reflective models, the observed variables (x) constitute a representation of the underlying construct ( \( \gamma \) ) and it is those variables that are afflicted with a measurement error ( \( \varepsilon \) ) (see Figure 63). Within these models, a change of the construct will automatically have a causal effect on the individual indicators (Hildebrandt & Temme 2006). Consequently, the correlation (r) between these items will generally be high. By contrast, in formative models, the construct is explained by the indicators, or as Eberl (2006) put it, each indicator represents one material component of the construct. In other words, the construct is made up by the entirety of indicators, meaning also that these items are not necessarily correlated.

Jarvis et al. (2003) have provided a useful list of criteria which can be used to determine the reflective or formative nature of a construct. Similarly, Coltman et al. (2008) summarized both the theoretical and the empirical considerations necessary to establish the nature of the measurement model. Some controversy has sprouted meanwhile as to whether certain constructs can actually be conceptualized as both reflective and formative or not. For example, while discussing Gaski & Nevin’s (1985) measure of coercive power, Wilcox et al. (2008) noted that “the same list of items might, depending on the wording of the general instructions, be conceptualized as either formative or reflective” (p. 1220). Building on this
and, among others, Diamantopoulos et al.’s (2008) contribution, Baxter (2009) concluded that “a construct is not intrinsically either formative or reflective: construct conceptualization determines the formative or reflective nature” (p. 1377). In response, Diamantopoulos (2010) agreed with this statement, but added that a controversy is often rooted in unclear conceptual definitions.

As far as the constructs employed in this study are concerned, a reflective nature was presumed. Specifically, both a reliability and a validity test were conducted with the following four constructs:

- Store satisfaction
- Economic shopping orientation
- Attitudinal loyalty
- Word-of-mouth

1) **Store Satisfaction**

Item 1: I am satisfied with Aral/Shell fuel stations
Item 2: Aral/Shell fuel stations match my expectations
Item 3: Aral/Shell fuel stations come close to my image of a perfect fuel station
and, among others, Diamantopoulos et al.’s (2008) contribution, Baxter (2009) concluded that “a construct is not intrinsically either formative or reflective: construct conceptualization determines the formative or reflective nature” (p. 1377). In response, Diamantopoulos (2010) agreed with this statement, but added that a controversy is often rooted in unclear conceptual definitions.

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   - Item 2: Aral/Shell fuel stations match my expectations
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   **Reliability**
<table>
<thead>
<tr>
<th>Cronbach’s $\alpha$</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Store Satisfaction</td>
<td>0.883</td>
</tr>
</tbody>
</table>

   **Figure 64: Validity/Reliability Test – Satisfaction Construct**
   Note: Validity figure shows standardized estimates

   As seen in Figure 64, the validity test delivered standardized regression weights between 0.72 and 0.94 for the three items (NFI = 1), while the reliability test turned out a Cronbach’s $\alpha$ of 0.88. Statistical significance was determined for the three regression weights, while the Cronbach’s $\alpha$ can be considered more than acceptable (Schermelleh-Engel & Werner 2007).

2) Economic Shopping Orientation
   - Item 1: I refuel at the fuel station which currently has the lowest prices
   - Item 2: I compare what I get for my money at different fuel stations
   - Item 3: You profit from comparing prices across different fuel stations

   **Reliability**
<table>
<thead>
<tr>
<th>Cronbach’s $\alpha$</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Econ. Shopping Orientation</td>
<td>0.815</td>
</tr>
</tbody>
</table>

   **Figure 65: Validity/Reliability Test – Economic Shopping Orientation Construct**
   Note: Validity figure shows standardized estimates
In case of the economic shopping orientation construct, standardized regression weights between 0.65 and 0.88 were calculated for the three items in the confirmatory factor analysis (NFI = 1). As far as the reliability test is concerned, a Cronbach’s \( \alpha \) of 0.82 was observed. Similar to the previous construct, statistical significance could be established for the three regression weights, while a Cronbach’s \( \alpha \) above 0.8 can be deemed satisfactory.

3) Attitudinal Loyalty

Item 1: I feel I am a loyal customer of Aral/Shell
Item 2: Because I feel a strong attachment to Aral/Shell, I remain a customer of Aral/Shell
Item 3: Because I feel a strong sense of belonging with Aral/Shell, I want to remain a customer of Aral/Shell

<table>
<thead>
<tr>
<th>Reliability</th>
<th>Cronbach’s ( \alpha )</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudinal Loyalty</td>
<td>0.924</td>
<td>1,055</td>
</tr>
</tbody>
</table>

Figure 66: Validity/Reliability Test – Attitudinal Loyalty Construct

Note: Validity figure shows standardized estimates

Evaluating the attitudinal loyalty construct, the confirmatory factor analysis found standardized regression weights between 0.80 and 0.98 for the three items (NFI = 1), while a Cronbach’s \( \alpha \) of 0.92 was determined in the reliability analysis. Given these high values, statistical significance was naturally given for the three regression weights and also a Cronbach’s \( \alpha \) of 0.92 can be considered very satisfactory.
4) Word-of-Mouth

Item 1: I often tell friends, family, or colleagues about the positive experiences with Aral/Shell
Item 2: I would recommend Aral/Shell to someone who seeks my advice
Item 3: Because of my experiences with Aral/Shell, I try to convince friends, family, or colleagues to switch to Aral/Shell

For the final construct of word-of-mouth, standardized regression weights between 0.67 and 0.88 were calculated for the three items (NFI = 1), with the reliability analysis showing a Cronbach’s of 0.79. Though not as high as with the attitudinal loyalty construct, statistical significance was nevertheless given for the three regression weights, while a Cronbach’s slightly below 0.8 can still be regarded as acceptable.
6.3.2 Hypothesis 1

“Loyalty program membership has a positive effect on store satisfaction”

<table>
<thead>
<tr>
<th>Membership</th>
<th>Test Group</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction</td>
<td>Coalition:</td>
<td>0.009</td>
</tr>
<tr>
<td></td>
<td>Stand-Alone:</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Coalition: Null hypothesis has been rejected  
Stand-Alone: Null hypothesis has been rejected

Figure 68: Main Model Test – Hypothesis 1  
Note:  n = 1,081 (Coalition: 544, Stand-Alone: 537)

As mentioned before, Hypothesis 1 is the only hypothesis that has not been evaluated by performing the ANCOVA with the main model. Instead, a separate linear regression was carried out to determine the effect of loyalty program membership on store satisfaction. As seen in Figure 68, this effect turned out to be highly significant for both the loyalty coalition and the stand-alone program. Clearly, these findings give further reason to believe that loyalty programs as a marketing tool do indeed have an effect on satisfaction with the store (which in turn is known to be an important antecedent to customer loyalty).
6.3.3 Hypothesis 2

“Loyalty program membership has a positive effect on loyalty”

<table>
<thead>
<tr>
<th>Membership</th>
<th>Test Group</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral Loyalty</td>
<td>Coalition:  &lt; 0.001</td>
<td>Stand-Alone:  &lt; 0.001</td>
</tr>
<tr>
<td>Attitudinal Loyalty</td>
<td>Coalition:  0.004</td>
<td>Stand-Alone:  &lt; 0.001</td>
</tr>
<tr>
<td>Word-of-Mouth</td>
<td>Coalition:  0.468</td>
<td>Stand-Alone:  &lt; 0.001</td>
</tr>
</tbody>
</table>

Constituting the core of this work, Hypothesis 2 dealt with the question of whether loyalty program membership has an effect on customer loyalty or not. As mentioned in the literature review of Chapter 2.3, previous evidence on this matter is somewhat mixed. Summarizing that evidence, it was concluded that a positive effect can be expected for behavioral loyalty, while the opposite is true for attitudinal loyalty (depending on program and industry structure).
Particularly in the case of the stand-alone scheme, evidence indicated a highly significant relationship between loyalty program membership and all three dependent variables (including attitudinal loyalty). Thus, contradictory to the general reasoning in Chapter 2.3, evidence points towards the ability of loyalty schemes to engender attitudinal loyalty in the fuel retailing industry. It has been said that a program’s ability to do so is dependent on both its configuration and the industry and apparently, these conditions were both favorable for the subjects of study.

While all tests delivered positive results for the stand-alone solution, particularly with regard to word-of-mouth, things turned out differently for the coalition, where that test was clearly insignificant with a p-value of around 0.47. Positive word-of-mouth, a measure often named in connection with attitudinal loyalty, can arguably also be caused by non-attitudinal motivation (e.g. one might recommend a fuel station to a friend simply because the chain’s loyalty program offers attractive rewards and not because of attitudinal loyalty to that chain). As seen in the results for word-of-mouth in the case of the coalition, there seems to be more to it, however. While the effect on both the behavioral and the attitudinal indicators was significant, this was not the case for word-of-mouth. It has already been demonstrated in the descriptive statistics section that within the three items making up the construct of word-of-mouth, only one of them showed a significant difference between the multi-partner main and control group. It is difficult to interpret why this is the case, but it is possible to ascertain one thing: the stand-alone program seems to be better able to stimulate its members to engage in positive word-of-mouth.
6.3.4 Hypothesis 3

“Store satisfaction has a positive effect on loyalty.”

![Diagram of the model]

<table>
<thead>
<tr>
<th>Satisfaction</th>
<th>Test Group</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral Loyalty</td>
<td>Coalition:</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>Stand-Alone:</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Attitudinal Loyalty</td>
<td>Coalition:</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>Stand-Alone:</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Word-of-Mouth</td>
<td>Coalition:</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td></td>
<td>Stand-Alone:</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>

Figure 70: Main Model Test – Hypothesis 3

Note: $n = 742$ (Coalition: 377, Stand-Alone: 365)

Whether or not satisfaction has an effect on loyalty has been the subject of many pieces of research (see e.g. Homburg et al. 2008). Even though this relationship might not always be present (Jones & Sasser 1995), it certainly is more often than not. In any case, previous studies set in the context of loyalty schemes found differing magnitudes of this effect (e.g. Mägi 2003 for a grocery retailer or Bridson et al. 2008 for a health and beauty retailer). In this study covering the fuel retail industry, results were outright positive for all three elements making up the loyalty construct. With p-values of less than 0.001 for both the multi-partner and the stand-alone program in every single test performed, it seems
clear that store satisfaction indeed has a highly significant effect on customer loyalty in the fuel retailing industry.

6.3.5 Hypothesis 4

“Shopper characteristics influence the degree of developed loyalty”

<table>
<thead>
<tr>
<th>Loyalty</th>
<th>Behavioral Loyalty (Share-of-Wallet)</th>
<th>Attitudinal Loyalty</th>
<th>Word-of-Mouth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shopper Characteristics</td>
<td>Socio-Economics/ Demographics</td>
<td>Economic Shopping Orientation</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>Test Group</th>
<th>p-value</th>
<th>Gender</th>
<th>Test Group</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral Loyalty</td>
<td>Coalition: 0.175</td>
<td>Stand-Alone: 0.547</td>
<td>Behavioral Loyalty</td>
<td>Coalition: 0.223</td>
<td>Stand-Alone: 0.801</td>
</tr>
<tr>
<td>Attitudinal Loyalty</td>
<td>Coalition: 0.384</td>
<td>Stand-Alone: 0.393</td>
<td>Attitudinal Loyalty</td>
<td>Coalition: 0.814</td>
<td>Stand-Alone: 0.292</td>
</tr>
<tr>
<td>Word-of-Mouth</td>
<td>Coalition: 0.397</td>
<td>Stand-Alone: 0.238</td>
<td>Word-of-Mouth</td>
<td>Coalition: 0.588</td>
<td>Stand-Alone: 0.458</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education</th>
<th>Test Group</th>
<th>p-value</th>
<th>Prof. Position</th>
<th>Test Group</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral Loyalty</td>
<td>Coalition: 0.198</td>
<td>Stand-Alone: 0.208</td>
<td>Behavioral Loyalty</td>
<td>Coalition: 0.911</td>
<td>Stand-Alone: 0.213</td>
</tr>
<tr>
<td>Attitudinal Loyalty</td>
<td>Coalition: 0.249</td>
<td>Stand-Alone: 0.011 *</td>
<td>Attitudinal Loyalty</td>
<td>Coalition: 0.712</td>
<td>Stand-Alone: 0.140</td>
</tr>
<tr>
<td>Word-of-Mouth</td>
<td>Coalition: 0.052</td>
<td>Stand-Alone: 0.047 *</td>
<td>Word-of-Mouth</td>
<td>Coalition: 0.011 *</td>
<td>Stand-Alone: 0.073</td>
</tr>
</tbody>
</table>
Intentionally formulated in a very broad manner, Hypothesis 4 encompasses a range of five individual demographic and socio-economic variables as well as the construct termed economic shopping orientation (i.e. price consciousness). Thus, while the null hypothesis has been rejected, it is still necessary to review in detail which particular shopper characteristics have turned out to influence customer loyalty. When looking at the overview of all calculated p-values (Figure 71), it can be seen that age, gender, and income had no significant effect, while at least with regard to one of the three dependent variables and at least one of the two test groups, education, professional position, and economic shopping orientation did have such an effect.

In the case of the coalition, the type of professional position held significantly influenced the degree to which customers engaged in positive word-of-mouth. To be specific, employees and civil servants without leadership responsibilities showed the highest level of word-of-mouth behavior, followed by employees and civil servants with leadership responsibilities, and finally freelancers exhibiting the lowest level. Interestingly, this effect could not be observed for either behavioral or attitudinal loyalty indicators. The second variable where a significant effect on loyalty could be noticed was that of economic shopping orientation. This effect was observed for both behavioral and attitudinal loyalty, with loyalty naturally declining with an increase in economic shopping orientation (i.e. with higher price consciousness).

For the stand-alone program, the effect of economic shopping orientation corresponded to that of the multi-partner solution, but things looked somewhat different in relation to the other variables. At a 5% level, professional position was insignificant, while education was significant for determining both attitudin-
al loyalty and word-of-mouth behavior. For the purpose of the model test, educational background was compressed to the two levels of basic education (anything below university/college level) and higher education (university/college level) and results have shown that those respondents with a lower level of education exhibited a higher level of loyalty.

To determine whether any interaction effects between education and professional position exist, a $\chi^2$ test for independence was performed. With a Pearson’s $\chi^2$ value of 0.020, the null hypothesis that these two variables are unrelated had to be rejected. When interpreting the results of the model test with regard to Hypothesis 4, it should thus be kept in mind that the notion that educational background correlates with professional position has been confirmed.

### 6.3.6 Hypotheses 5a + b

5a: “Shopper characteristics moderate the effects of loyalty program membership on loyalty”

5b: “Shopper characteristics moderate the effects of store satisfaction on loyalty”

Due to the issues associated with interpreting any significant effects with multiple interactions (i.e. anything more than 2-way), the decision has been made to focus on 2-way interactions only. As all of these effects, multiplied by three tests for the different dependent variables, multiplied by the two fuel station data sets
equal a fairly high number of p-values, it has been decided to omit the overview tables for Hypotheses 5a and 5b. One further reason that contributed to this decision was the fact that none of the 2-way interaction effects between the six shopper characteristics variables and either loyalty program membership or store satisfaction turned out to be significant. This proved to be the case for all three dependent variables and both the multi-partner and the stand-alone scheme. In other words, no moderating effects could be observed.

6.3.7 Hypothesis 6

“Memberships in competing loyalty programs have a negative effect on the relationship between loyalty program membership and loyalty”

Contradictory to previous studies in the field (e.g. Mägi 2003 or Meyer-Waarden 2007, who discussed this issue in relation to lifetime duration), competing loyalty schemes were not found to have a moderating effect on the relationship be-
tween loyalty program membership and loyalty in the case of the coalition. While it sounds perfectly logical in theory that the effects of multiple competing loyalty cards would cancel each other out (Dowling & Uncles 1997), this need not necessarily be the case in practice. As far as Aral is concerned, possible reasons for this include the following: (1) weak competitive programs in the industry (with the exception of Shell Clubsmart), (2) a relatively low percentage of multiple card holders (among Payback members, only 19.5% held at least one competitive card – and in most cases it was not more than one), (3) a strong program of its own with an attractive configuration.

Nevertheless, what may come as a surprise is the fact that a significant moderating effect of competitive programs on the relationship between membership in the own loyalty scheme and attitudinal loyalty could be observed during the evaluation of the stand-alone program data (p = 0.020). This is even more curious, as it is this dependent variable where the smallest possible interaction effect was found for the coalition (p = 0.999). In any case, for the stand-alone solution, the moderating effect of memberships in competing loyalty schemes on the relationship between program membership and attitudinal loyalty turned out to be significantly negative. The reasons behind these discrepancies between the test groups are not fully known. However, what should be taken into account when interpreting these findings is the fact that the percentage of competitive card holders was lower among the coalition than among the stand-alone members. To be precise, 34.8% of Shell Clubsmart card holders were members in at least one other fuel station scheme (i.e. Aral Payback, in the majority of cases), while only 19.5% of Aral Payback members held at least one other competitive loyalty card (i.e. predominantly the Shell Clubsmart card). In other words, stand-alone scheme members had more opportunities to be disloyal due to temptation through a competitive scheme. Still, why this affected attitudinal loyalty in particular is not entirely clear. In any case, one thing is apparent: while the attitude of stand-alone program members might be negatively influenced by competitive card ownership, actual behavior is not!

6.3.8 The Multi-Partner vs. Stand-Alone Comparison

Up to now, the main model has been separately fed with two data sets consisting of a main and a control group each. In doing so, the question of whether multi-partner or stand-alone schemes really work better has not been addressed yet. In order to answer this question, a one-way ANOVA was performed for each of the three dependent loyalty-variables with the data of all four study groups. In addition to that, a post-hoc test (Duncan) was carried out to discover potential differences and determine homogeneous sub-groups.
While it sounds perfectly logical in theory that the effects of multiple competing loyalty cards would cancel each other out (Dowling & Uncles 1997), this need not necessarily be the case in practice. As far as Aral is concerned, possible reasons for this include the following: (1) weak competitive programs in the industry (with the exception of Shell Clubsmart), (2) a relatively low percentage of multiple card holders (among Payback members, only 19.5% held at least one competitive card – and in most cases it was not more than one), (3) a strong program of its own with an attractive configuration.

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![Table 15: Program Type Comparison – Determination of Homogeneous Sub-Groups](image)

It can be seen in Figure 74, that the four sample groups differ significantly. Referring to the output of the Duncan test illustrated in Table 15, it can further be noted that no significant differences were found to exist between the control groups – no matter what dependent variable the test was performed with. When turning to the main groups, however, things look different. With regard to both behavioral and attitudinal loyalty as well as word-of-mouth, the multi-partner group differs significantly from the stand-alone group.

So which program type performs better? As mentioned in Chapter 4 (and section 4.5 in particular), the majority of both practitioners and academics have praised multi-partner schemes as being superior to stand-alone programs. While it is certainly true that loyalty coalitions feature certain distinct advantages, light still
needed to be shed on the question as to which type really offers the better performance in terms of influencing customer loyalty. The answer to this question is illustrated in Figure 75 (representing a graphic summary of the data presented in Table 15): the stand-alone scheme outperforms the multi-partner solution in all three areas! Figuratively speaking, the multi-partner program managed to take an effective step in the direction of manipulating customer loyalty. At the same time, however, the stand-alone solution was able to take two.

![Figure 75: The Multi-Partner vs. Stand-Alone Comparison – Findings](image)

Naturally, the next question that comes to mind is that of the “why.” At this point, no empirically validated answer can be given, but nevertheless, possible options can be discussed. It might very well be, for instance, that customers who participate in a multi-partner program simply are not that eager to earn the maximum number of points with every single partner they patronize from time to time, because either way they will be earning points somewhere else sooner or later. For example, a customer who became a Payback member at the German grocery chain “real,-” (which also results in him receiving a Payback card branded with that company’s logo) might not be all that motivated to pool his fuel spend at Aral stations to earn points, because he will earn points during his next visit at real,- anyway. On the other hand, if a member of Shell’s stand-alone program was driven to collect points, perhaps to receive a specific award, he inevitably has to make sure to refuel his car at that chain as often as possible. In that sense, the more focused nature of a stand-alone program might be paying off!

222
6.4 Qualitative Study Roundup

As discussed in Chapter 5.1.1, the purpose of the qualitative component of this empirical study was twofold: (1) to serve as a source of input for the creation of the consumer survey, but also (2) to hear about the views and decisions of loyalty executives regarding a variety of subjects linked to the customer loyalty schemes they used. While the first point needs no further explanation, it is particularly the second one which shall not go completely unnoted in this paper.

![Figure 76: Sample Expert Interview Quotes](image)

Note: Translated from German to English
Three personal interviews lasting between 1 ½ and 2 hours each resulted in a total transcript length of 84 single-spaced pages written in font size 11. As both space constraints as well as the focus on the main model do not permit presenting these in their entirety, the decision has been made to summarize the interview output and depict it selectively. To be specific, findings from the interviews found their way into this paper in one of two places: (1) in the program overview of the subjects of study in Chapter 5.1.3 and (2) in the elaborations presented within this section. As far as this chapter is concerned, a few sample quotes are illustrated in Figure 76 in order to get a feeling for how these dialogues went, while the more comprehensive Table 16 contrasts the interviewees’ statements concerning a selected range of subjects in a succinct form. To prepare this table, 14 topics were chosen based on their degree of perceived interest, given that at least two of the three interview partners had commented on the issue.

<table>
<thead>
<tr>
<th>Aral (partner in a coalition)</th>
<th>Shell (operator of a stand-alone scheme)</th>
<th>Loyalty Partner (administrator of a coalition)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Advantages of Loyalty Coalitions Over Stand-Alone Programs</td>
<td>Higher customer interest in the case of a strong partner portfolio (as points can be collected at different partners through regular every-day shopping behavior)</td>
<td>Access to a higher number of customers and a bigger amount of data</td>
</tr>
<tr>
<td>• Immediate market penetration upon joining the program</td>
<td>• Theoretically, the ability to run cross-selling promotions</td>
<td>• Higher attractiveness for the customer (more collection, but also redemption options)</td>
</tr>
<tr>
<td>• Higher point value perceived by customer (due to the lack of transparency caused by the differing point values given out by each partner). “As opposed to a stand-alone program, I can probably save 30-40% of the costs per point handed out, simply because I suggest a higher value”</td>
<td>• Consequently lower variable cost</td>
<td>• Ability to induce cross-selling</td>
</tr>
<tr>
<td>• Consequently lower variable cost</td>
<td>• Immediate access to know-how concerning data mining, CRM and communication activities, etc.</td>
<td>• Lower costs for the same output</td>
</tr>
<tr>
<td>• Immediate access to know-how concerning data mining, CRM and communication activities, etc.</td>
<td>• Regular access to a high number of customers via the account statement with costs being shared among partners (in case of Payback sent out four times a year)</td>
<td>• Competitive advantage if an exclusive partnership with each industry’s market leader is formed in a coalition</td>
</tr>
<tr>
<td>• Regular access to a high number of customers via the account statement with costs being shared among partners (in case of Payback sent out four times a year)</td>
<td>• Advantages bigger when the partner company starts from scratch and has no stand-alone program in place already</td>
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in a tril.

### 2) Disadvantages of Loyalty Coalitions in Comparison to Stand-Alone Programs

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<tr>
<td>Need for coordination in the steering committee when own ideas are to be implemented (delays might arise)</td>
<td>Own experiences with Payback during a previous job with the former coalition partner DEA have shown that the partners’ focus on their own goals often causes cross-selling efforts to mis-carry</td>
<td>Smaller amount of flexibility</td>
</tr>
<tr>
<td>In absolute terms, more expensive than a stand-alone scheme in the long run (although at the same time higher volume gains can be realized)</td>
<td>Smaller amount of flexibility and consequently a longer time for implementation of innovation</td>
<td>Customers could become loyal to the coalition instead of the partner brand</td>
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<tr>
<td>Marketing activities less effective</td>
<td>Marketing activities less effective and consequently a longer time for implementation of innovation</td>
<td>IT systems need to be compatible to introduce a coalition scheme</td>
</tr>
<tr>
<td>Difficult for customer to focus on a single brand, due to a big clutter of program partners</td>
<td>Difficult for customer to focus on a single brand, due to a big clutter of program partners</td>
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<tr>
<td>Expensive address list rental for big mailings</td>
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### 3) Ability of Loyalty Programs to Alter Customer Behavior

- Increase of share-of-wallet
- Acquisition of new customers (whereby these need to overcompensate the negative effect on the profit margin caused by existing customers)
- Cross- and up-selling effects can be realized (customer development)
- Churn prevention possible
- The initial effect of an increase in market share from 22.5% to 23% as reported by Aral upon the start of its Payback partnership deemed realistic
- Increase of share-of-wallet
- Acquisition of new customers (e.g. around 1 million new customers through the partnership with the German Motoring Association ADAC)
- Cross- and up-selling effects can be realized (20-30% uplift effect for premium fuels with customers who respond well)
- Aral’s reported rise in market share from 22.5% to 23% and also the increase in purchase frequency observed with around 20% of Aral Payback members since the introduction of the program deemed realistic. “In the case of Shell, this latter figure is certainly more like 30%”

- A bump in sales can be realized with any program type, although it is more sustainable in a loyalty coalition, as compared with a stand-alone program that does not continue to invest. The bump “won’t be 10% of turnover, but you will clearly notice it in the [development of] market share”
- Acquisition of new customers
- The initial effect of an increase in market share from 22.5% to 23% as reported by Aral upon the start of its Payback partnership deemed realistic
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<td>(administrator of a coalition)</td>
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<tr>
<td>4) Ability of Loyalty Programs to Alter Customer Attitude</td>
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<tr>
<td>▪ Expected to be the case, but it is unclear whether customers really respond that way</td>
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<tr>
<td>▪ It is a clear goal of the program to cause a stronger identification with Shell and increase loyalty to the brand (e.g. in the case of the V-Power Club with strong emotional value)</td>
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<tr>
<td>▪ Not only simple incentives, but also emotions are part of the strategy</td>
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<td>▪ Payback aims to build up relationships</td>
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<td>5) Measurement of Success</td>
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<td>▪ There is no long-term control/measurement mechanism possible</td>
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<td>▪ No control group exists (except for specific promotional activities)</td>
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<tr>
<td>▪ However, groups are sometimes formed from Payback members who appear to act like non-members (as indicated by their past purchase behavior)</td>
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<td>▪ The only thing that can be measured: uplift effect upon introduction of the program (e.g. one day or 2 months after)</td>
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<tr>
<td>▪ Still, Aral has reports based on all Payback customers where customer life cycles are modeled, where one can see how many customers have stopped patronizing the company, etc.</td>
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<tr>
<td>▪ Also, one piece of market research was conducted monthly over a period of years (plus a conjoint analysis), where Aral could experiment with different scenarios, see what the drivers of value are, and how they influence market share</td>
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<tr>
<td>▪ In the end, however, “it is partly about gut feeling!”</td>
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<tr>
<td>▪ Market research is conducted</td>
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<tr>
<td>▪ Regular tracking in the form of cost effectiveness studies: standardized across all countries, conducted to capture the volume uplift in connection with the current margin per liter and, of course, the costs</td>
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<tr>
<td>▪ Calculations take place with a particular “experience value,” a percentage derived from loyalty measures</td>
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<tr>
<td>▪ Control groups are used</td>
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<tr>
<td>▪ Except for the beginning, the effect caused by the loyalty program is difficult to separate from other variables</td>
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<td>▪ Effects derived from loyalty measures only measurable by stopping the program</td>
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<tr>
<td>▪ Possibly, small geographic areas could be excluded from the program, although this would be problematic</td>
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<tr>
<td>▪ Test groups are used for promotional activities</td>
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<tr>
<td>▪ Groups are formed from Payback members who are expected to act like non-members (i.e. who behave as if they were in a stand-alone program and patronize only one partner company) and compared against the other customers: how many new customers could be won for the other partners, how many reacted to promotions, has the average spend increased, etc.</td>
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6) Data

- The level of detail at which Payback or emnos (the Payback subsidiary dealing with data mining requests) capture and store data varies between partner companies.
- Emnos is heavily used by Aral due to the small size of the loyalty department.
- Aral possesses all data at article-level for both shop items and fuel sales.
- To conduct analyses, Payback receives data only at a higher level of aggregation.
- Each partner only has direct access to its own data, but via Payback, the data of different members can be analyzed together upon request.
- According to the general terms and conditions, Payback is the owner of the complete set of data.

- Shell captures data at article-level for both shop items and fuel sales.
- Data analysis is conducted by a Shell business unit in Hungary, but at the same time, all data can be accessed and viewed online by Shell Germany (e.g. by the call center staff, etc.).

- Four of the Payback partner companies can also issue cards branded with their name: in these cases the customer is more or less “shared” between Payback and the respective company.
- Payback possesses the registration data, transaction data is owned both by Payback and the partner.
- All partners can store transaction data at article-level, but for analysis, data is pretty much always dealt with at a lower level of detail (which level that is, is decided individually by each partner).
- Data analysis generally happens at Payback, with the subsidiary emnos only active upon request.
- Payback partners do not have direct access to each others’ data.

7) Tiering

- Unknown whether this has ever been discussed.
- Shell V-Power Club for customers of “differentiated fuels:” membership upon invitation after 180 liters of V-Power fuel have been purchased within 6 months.
- No additional measures planned.

- Status is an important element of loyalty, but difficult to implement in a multi-partner program due to its heterogeneous nature.
- Marketing research shows that being a member of a loyalty scheme and showing your card during a regular act of purchase has a status element to it.
8) Industry-Specific Success

- Particular industries can certainly benefit more from a loyalty scheme, because they follow a different business model (e.g. retailers with many articles from different manufacturers can sell data to these companies and thus probably recuperate most of the costs of the program)
- Information about other industries unknown
- Unsure, but what is important for becoming a partner in a coalition scheme is a certain industry-specific purchase frequency (e.g. for a manufacturer of windows to become a partner would not make a lot of sense)

9) Costs and Other Financial Aspects

- In the long run, looking at fixed costs only (and disregarding effectiveness, efficiency, etc.):
  - Stand-alone version (with an existing system that can be adapted – e.g. the scheme is already in place in a different country): cheapest
  - Stand-alone version (from scratch): second-cheapest
  - Multi-partner version: most expensive
- For Shell, the break-even point was reached after around 3 years (adaptation of existing stand-alone version vs. multi-partner program)
- Costs of 20-40 million GBP for the conception from scratch in the case of Shell’s program in the United Kingdom sound plausible (this figure was reported by Berman 2006)
- The biggest cost-component are the points (= variable cost)
- It is “probably not wrong” that multi-partner programs are more expensive than stand-alone solutions when only looking at the bottom-line
- Given a particular output, however, the multi-partner solution will be cheaper, as point costs, redemption channel management costs, communication costs, etc. can all be shared by the program partners
- Variable (i.e. point) costs will be lower in a coalition, as each partner can afford to hand out fewer points to achieve the same effect as a stand-alone program would have achieved (due to the fact that either way, customers collect a high number of points by patronizing different partners; i.e. the perceived value per point is higher for the customer)
- In any case, it is important to employ a holistic perspective when looking at costs (loyalty programs have a lot of hidden costs as well, such as left over rewards, etc.)
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### 10) Are Loyalty Coalitions the Next Evolutionary Step?
- When talking about technical complexity and possibly also scientific relevance: yes
- Developing the transparent customer, engaging in cross- and up-selling, etc. is highly interesting in theory, but often limited by privacy regulations in practice
- Strong partners are important for growth, as you get access to unused customer potential
- Shell has realized this, begun to develop in this direction, and will increasingly build on partnerships in the future (though not in the form of a coalition scheme, where brand awareness might be lost among a whole range of partners)

### 11) Success Factors for a Loyalty Scheme
- Strong partner network (if possible with market leaders, characterized by high purchase frequency), good communication measures, high perceived value
- Continuous good brand position and brand building, strong partners

### 12) Program Types Used in Other Countries
- BP/Aral with coalition schemes in Germany and UK, simple promotions in Austria, Switzerland, and Turkey, and stand-alone schemes in a range of other countries: based on the belief that customers in each country are different in terms of their loyalty behavior (e.g. the convenience retail business is different: in Germany, car wash and shops are very strong, but there are other countries where that is not the case)
- Furthermore, profit margins are different in every country, which in turn determines what program BP/Aral can afford (e.g. as the output volume of refineries cannot be
- Fairly standardized approach across countries with stand-alone scheme (possibly coupled with promotions; coalition scheme membership in the S’Miles program in France was terminated at the end of 2009)
- Unknown why the Shell Smart Program (today called Driver’s Club) failed to set up a form of multi-partner solution (see e.g. Tapp & Stone 2004)
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<tbody>
<tr>
<td>easily reduced or increased, it might make more business sense to sell excess volume on the German market with a rebate in the form of loyalty points as opposed to shipping it to the USA, for example)</td>
<td>“We believe that we have a positive effect, that new customers have overcompensated the cannibalization effect with existing customers” (data concerning this issue cannot be made public, however)</td>
<td>“Shell has analysts dealing with this”</td>
</tr>
</tbody>
</table>

13) Threat of Cannibalization

- “We believe that we have a positive effect, that new customers have overcompensated the cannibalization effect with existing customers” (data concerning this issue cannot be made public, however)
- “Shell has analysts dealing with this”

14) The Fuel Chain DEA’s Decision to Leave Payback (Thereby Making Aral’s Membership Possible)

- DEA’s termination of its Payback membership following its acquisition by Shell probably caused by a different strategy, where a uniform European strategy has trumped a localized approach
- Limited flexibility, access to customer data from other program partners only temporary and costly
- That was a simple strategic decision. For Shell, “control comes first. He [the Shell CEO] probably wouldn’t say it like that, but control comes before customer offer”

Table 16: Comparison of Statements from Expert Interviews

Note: Quotes were translated from German to English; statements included in this table were not subjected to criticism by the author