

A STUDY IN BUSINESS-TO-BUSINESS COMPLAINING BEHAVIOR: YELLOW PAGES ADVERTISERS

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ABSTRACT

Complaining behavior between business suppliers and customers tends to emphasize somewhat different facets than the well-explored retail customer-to-business dynamic. In the telephone directory publishing business, advertiser-publisher relationships often persist over multiple, well-defined buying periods, and generally exist on a person-to-person basis at some level of intimacy. This leads to a multiplicity of purchases per period, with a variety of complaining modes both within and across purchase periods. Advertiser perceptions of this relationship, and their reporting of complaint episodes, are explored through an extensive point-in-time survey of advertisers. Additionally, by following the behaviors of a cohort of 86,000 Yellow Pages advertisers for the first seven years of their relationship with their publisher, this paper points out modifications needed to the classic consumer complaining models, and also quantifies some of the relationships indicated by those models. Among other results, we find evidence for the form in which the action of complaining alters triggers for complaining in subsequent years, and how patterns of complaints over time affect churn probabilities.

THE BUSINESS SITUATION

Telephone directory publishers in the United States produce books of telephone numbers, generally on an annual basis. In addition to (mostly) one-line number listings ("White Pages") these books produce revenue by selling advertising space in a "Yellow Pages" section. Area businesses which choose to advertise in the Yellow Pages can purchase a multiplicity and wide variety of items, from simple one-line

listings to page-size display ads. Each ad appears, of course, in a book which is generally published annually, and advertisers are contacted by telephone or a "premise" (an on-site) visit by sales representatives in an effort to persuade the advertiser to re-advertise for the ensuing year. Sales representatives are strongly motivated to increase revenue from each advertiser each year, and an interesting sales tactic is to offer one of a set of discount programs for a given advertisement, the discount rate of which decreases from one year to the next.

A small fraction of these advertising transactions result in formal complaints being lodged with the publisher. About two-thirds of these complaints are filed with a customer service representative, and about one-third are made to the advertiser's sales representative. The following table shows some of the major complaint types as reported by advertisers:

Type	Percent of Total
Billing Issue	19.1
Information in Ad Not Correct	16.1
General or Unspecified Errors	15.8
Ad Placement	6.5
Wrong Phone Number in Ad	6.0
Ad Placed in Wrong Heading	3.8
Cost of Ad/High Rates	2.5

This distribution of complaint type varied somewhat by the directory contact to whom the complaint was directed. Only 4.7% of all complaints made to sales representatives concern billing issues, while errors in the ad account for over 40% of all complaints. In contrast, complaints made to general customer service were 20.8% error-centered and over 25% billing-centered.

LITERATURE REVIEW

A variety of models of consumer complaining behavior have evolved in the literature. Some emphasize the different modes in which customers can complain, others delineate the customer affects (e.g. post-purchase dissatisfaction) lying at the source of complaining behavior, and still others have explored the factors (triggers) which mediate between affect and the act of complaining. There have been ever more extensive models describing and testing the relationships and temporal flow among these general areas.

Complaining behavior takes on several different types (see, e.g. Singh, 1988), which have often been placed in a two-dimensional matrix of behavior X involvement level:

	Voice	Private Action	Third Party Action
Involved	Complaint to Company	Negative Word-of-Mouth	Legal Action
Uninvolved	Complaint to 3 rd Party	Exit	Complain to consumer organization

Huefner and Hunt (1992) point out that exit can have the deeper affect and temporal variations of retaliation and grudgeholding. An important aspect of this latter behavior is its persistence over time.

In an early work, Day and Landon (1977) related complaining behavior to the individual characteristics of (1) propensity to complain and (2) individual knowledge, and to the situational variables of (3) opportunity to experience dissatisfaction and (4) opportunity to complain. As part of a more extensive model, Blodgett and Granbois (1992) further delineated the "triggers" that mediate between dissatisfaction and redress behavior. They include

- a. Stability attribution ("Is the cause of the dissatisfaction likely to be recurring?")
- b. Likelihood of success ("Will complaining do me any good?")

- c. Attitude toward complaining ("How generally willing am I to complain?")
- d. Store loyalty ("Do I intend to shop at this store in the future?")
- e. Controllability attribution ("Was this the store's fault?")
- f. Cost of complaining ("How hard is it to complain?")

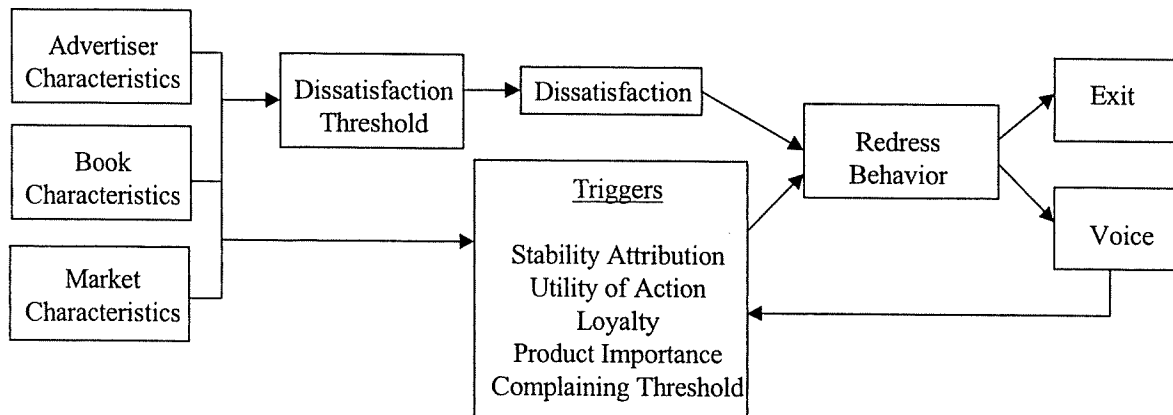
They also acknowledged Hirschman's (1970) contention that product importance is a likely determinant of complaining probability. Boote (1998) extends this list of triggers, including consumer characteristics (e.g. age) and the company/consumer relationship.

Wright and Larsen (1997) gave an example of complaining behavior where little or no personal dissatisfaction is required, even when the complaining takes on the extreme forms of retaliation and grudgeholding. They point to Kowalski's (1996) contention that customer's have both a dissatisfaction threshold and a complaining threshold, and that the act of complaining requires sufficient customer self-focus for him/her to have set these thresholds, as well as the knowledge to discern when both the dissatisfaction and complaining thresholds have been breached. These two thresholds need not be strongly related: a high dissatisfaction threshold and low complaining threshold would result in complaint not preceded by much dissatisfaction.

MODEL

The following conceptual model incorporates many of the features of the above models in describing how customer redress patterns are thought to be generated for Yellow Pages advertisers. An important characteristic of advertisers is the extent of their advertising and their resulting opportunity to experience the conditions that would generate redress behavior.

Figure



A feature of this model which we will emphasize is the feedback loop from Voice on one occasion back to the triggers of Exit/Voice on subsequent occasions. Our cohort of advertisers followed through many sales cycles will illuminate aspects of this loop.

DATA AND ANALYSIS

The data used in this analysis were compiled from two sources: (1) the Verizon Information Services internal customer database and (2) an advertiser satisfaction research study conducted in 2000. From the company database, we drew a cohort sample of roughly 86,000 Yellow Pages advertisers in order to observe complaint, purchase and churn behavior, along with covariates, for a period of seven years. Additionally, a stratified, random sample of 8,350 Yellow Pages advertisers were interviewed over the telephone in 2000 to obtain attitudinal measures of satisfaction with their Yellow Pages advertising purchase. The combination of observed behavioral and attitudinal data allow us to understand not only the complaint behavior that may ultimately give rise to churn, but also the underlying causes of the dissatisfaction which is the basis for complaining.

From the survey data come the following results.

Complaints are quite strongly associated with advertiser satisfaction and behavioral intentions, and this pattern depends on whether a sales representative was contacted in the complaint process. Satisfaction was measured on a ten-point scale (1=Not At All Satisfied and 10=Extremely Satisfied). The following table shows the percentages of satisfaction responses for the bottom-two and top-two box scores, depending on whether there was a complaint, and to whom the complaint was directed:

	No Complaint	Complaint to Customer Service	Complaint to Sales Rep.
Top Two Boxes	23.8%	9.0%	14.2%
Middle Six Boxes	61.4%	70.7%	66.0%
Bottom Two Boxes	4.8%	20.3%	19.8%

Complaints greatly increase the probability of a low satisfaction score, regardless of where the complaint is made. On the other hand, high satisfaction is least likely for those who complain to customer service, while a complaint to one's sales representative is somewhat less likely to produce high satisfaction. Presumably, the sales representative can find compensating ways to engender high satisfaction, even in the face of a

complaint.

Future advertising intentions are also affected by the complaint process, and here too the company representative at whom the complaint is directed plays a role. An advertiser could intend to maintain, increase, decrease or stop his or her future advertising. The following table shows the distribution of those responses based on the complaint direction:

	No Complaint	Complaint to Customer Service	Complaint to Sales Rep.
Increase Advertising	4.3%	3.9%	5.6%
Maintain at Current Level	69.2%	51.1%	51.4%
Reduce Advertising	15.6%	24.5%	30.8%
Stop Advertising	4.3%	13.3%	7.5%

The dual problems of advertisement reduction and stoppage are collectively increased for those with complaints. Advertisers complaining to a sales representative are more likely to merely reduce advertising than stop altogether, while the priorities are reversed for those complaining to customer service. It may be that sales reps can dissuade complete stoppage. It also may be that those companies important enough to command sales representatives may be reluctant to stop advertising altogether, but there is no evidence from these data that larger companies are less likely than others to stop. Therefore, it appears that the sales rep. does play a role in parlaying complaints into advertising reduction rather than termination.

These results are consistent with the basic features of the model described in the previous section: dissatisfaction is associated with complaining, and there appears to be a dissatisfaction threshold, as not all complaints spring from reported dissatisfaction. For each potentially dissatisfying incident the advertiser makes a complaint/exit decision, but the process of complaining feeds back into the triggers of exit/voice, so that complaint is associated with

intentions about future actions. The future consequences of current complaint are further considered below.

Analysis of the internal company database yielded the following insights.

The propensity of an advertiser to complain is a function of book, market and advertiser characteristics, as suggested by the leftmost boxes in the conceptual model. To identify these specific characteristics, a logistic regression was fit for a dichotomous variable indicating whether a complaint was made in 1996 (one of the first years complaints were regularly included in the database.) The coefficients, their standard errors and their significance levels are shown in the table below. Complaining is coded so a positive coefficient denotes an increase in complaining as the associated variable increases, and vice versa.

Variable	Coefficient (Standard Error)	Significance Level
Log(ITEMS)	0.0690 (0.0356)	0.0528
Log(Revenue)	0.0381 (0.0180)	0.0000
Age		
Age=4	0.4220 (0.0679)	0.0000
Age=5	0.2626 (0.0767)	0.0012
Age=6	0.2414 (0.0903)	0.0269
Age=7	0 (0.000)	NA
Discount Type		
Shallow Decrease	0.5326 (0.0873)	0.0000
Steep Decrease	0.3540 (0.0746)	0.0000
Constant	0.6088 (0.0711)	0.0000
No Discount	0 (0.0000)	NA
Market Penetration	-0.3201 (0.1545)	0.0383

The advertiser-specific variable log(ITEMS), the log of the number of directory items purchases, and Age (years since first ad) perform as the complaint triggers of the conceptual model would suggest. The greater the number of items, the more chances for the publisher to make a

complaint-worthy mistake, and hence the positive sign of this variable. On the other hand, as Age (and presumably loyalty) increases, the probability of complaining drops off monotonically. (Note that the complaint database was not available for the years 1993-5 and thus for the ages 1-3.)

It is interesting to note that both the number of items purchased, and the total revenue paid, are both positively associated with complaint. The positive sign of revenue may be an indication that the more complicated (and expensive) is each item, the more likely that a complaint-worthy mistake will be made. This finding is also consistent with the Hirschman notion that complaining increases as exit becomes less feasible. In this situation, high revenue suggests advertiser perception of Yellow Pages (YP) importance, under which condition exit becomes less feasible than does complaining. As an example, Joe the plumber invests heavily in YP advertising, knowing that it is his prime source of new business; if he has a problem with the YP publisher's service, YP cancellation is not a realistic possibility for him, but complaint certainly is.

In corroboration of this point, a more sophisticated model for the number of complaints was constructed using a decision tree. It extends the notion that complaining intensity (there measured as the number of complaints) is a function of both number of YP items, and also the number of YP books in which the advertiser appears.

The advertiser-book variable indicating the advertiser's discount program also plays a role in complaint activity. (When an advertiser is put on a discount program, either the discounted rate is constant from year to year, or the discount rate decreases either in a shallow or steep way. Each of these programs generates more complaints than no program. Interestingly, the steep discount decrease program yields fewer complaints than either the constant program or the shallow decrease. To become part of this type of discount program, the advertiser generally has a closer and continuing relationship with a salesperson, and that closeness may forestall many potential complaint-generating situations.

Finally, the market has a say in complaint rates: a book's higher market penetration is associated with a lower complaint rate. Generally, it is more useful for an advertiser to be in a high penetration book than a low penetration book.

Note how these variables are associated with the complaint trigger concepts of product importance and company loyalty. As Day and Landon (1977) suggested, complaints are also here associated with the opportunity to experience dissatisfaction. Book loyalty is indicated by the advertiser's Age (their continuous tenure with Directories) and also by market penetration (in the sense that high market penetration books tend to engender continued patronage.)

One of the most striking analytical results is the propensity of complainers to complain again. 1995 is the first year in which complaints are generally recorded. In 1996, as an example, about 6% of the customer base complained. The single best predictor of complaint in 1996 (among advertisers who had not churned and were thus available to complain) was the number of complaints in the previous year, 1995. The following series of tables, generated by decision tree data mining techniques, shows the proportion of 1996 complainers for three levels of 1995 complaints.

Observe that the probability of 1996 complaint is 5.16% for those advertisers who had not complained at all in 1995, but the probability rises to 23.85% if five or fewer 1995 complaints were made. If 6 or more complaints were made in 1995, the probability of a 1996 complaint rises still further, to 53.57%.

In terms of the model developed earlier, there are two main explanations for the propensity of complainers in one year to complain in the next year. One complaining trigger is the utility of the act of complaining which, given the nature of business-to-business complaints here, would likely be measured by the existence an advertisement credit resulting from the complaint. A second trigger is the breaching of the complaining threshold. The simple act of a prior complaint would lower this threshold by familiarizing the advertiser with the publisher's complaint process, and this would have little to do with the credit-

Figure 1
1996 Complaints as a Function of Complaints in 1995

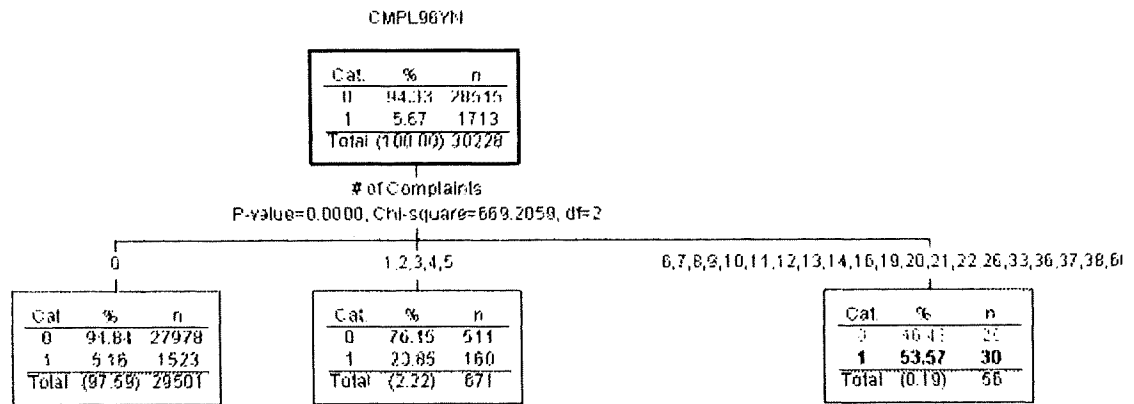
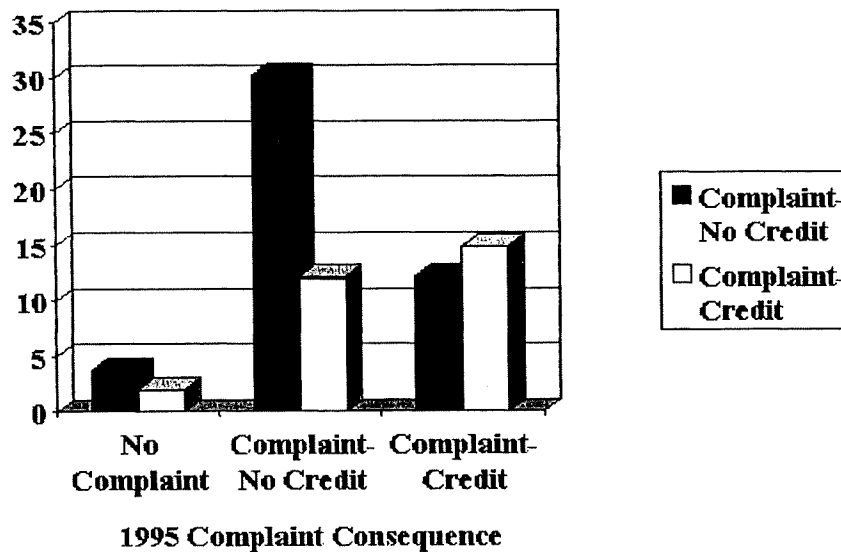


Figure 2
1996 Complaint Probabilities



based utility of the complaint. An important piece of analysis in assessing these two potential triggers is the subsequent-year complaint rate when credits were, or were not given in the preceding year.

Our database gives whether a credit was given and its amount for each complaint. Consider

Figure 2, which shows 1996 complaining percentages among the 30,228 advertisers active in 1995-6, based on their 1995 complaints:

Note that as stated before, a 1995 complaint of either type strongly increases the likelihood of complaining in 1996. Further note that even when the 1995 complaint did not result in a credit, the

1996 complaint likelihood was still much larger than the overall complaint rate (6.4%). This chart also suggests that the form of the 1996 complaint tends to be like the 1995 behavior: a no-credit complaint in 1995 tends to lead to a 1996 complaint that is more likely than not to again not result in a credit. (Similarly for complaints resulting in credits.) These two points indicate that it is the act of complaining that begets more of the same in the next year. (We do not show here the very similar charts for later pairs of consecutive years.

We have seen that complaints have two different levels of severity. A complaint may warrant a credit (e.g. for a serious typo in the YP ad) or it may not. One may then ask if these two types of complaints, along with the "action" of no complaint, has an effect of churn in a later year. When one's year's complaining behavior is considered in isolation, there appears to be no effect. Table 1 shows 1996 churn proportions among advertisers alive in 1995 who participated in one of these three complaining types:

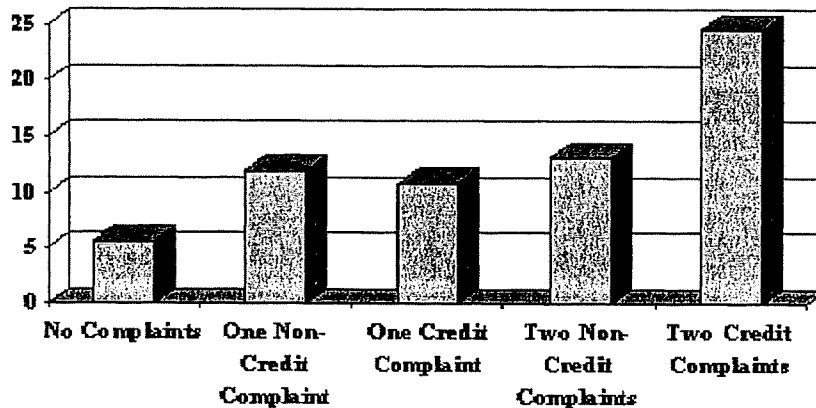
Table 1

1995 Complaint Behavior	Percent Churning in 1996 (Total number in complaint category)
No Complaint	19.4 (36,367)
Complaint-No Credit	20.5 (765)
Complaint-Credit	22.0 (391)

The nature of one's complaining behavior has no discernable effect on next-year churn rates. Over the course of one year, then, complaints and exit are apparently independent.

A different picture emerges when the complaining behavior of two consecutive years is related to churn in a third year. The following chart shows the 1997 churn rates for several combinations of 1995/96 complaint combinations:

Figure 3
1997 Churn Probabilites Based in 1995-6 Complaint Histories



The churn rate for just one complaint of either type is about 11%, roughly twice as high as the rate when there are no complaints for two consecutive years. The subsequent year churn rate, though, for those having two complaints serious enough to warrant credits, is near 25%, almost five-fold higher than the no complaint advertisers. Apparently, there is a price to be paid for two consecutive years of serious complaints.

THEORETICAL CONSEQUENCES

The analysis of our advertiser satisfaction survey and the complementary analysis of the panel data from internal records have yielded information about the theoretical complaining model we suggested in sections II. and III, although it is not possible with these secondary data sources to trace each of the model's features.

- a) First, dissatisfaction is associated with complaining behavior, some of which is recorded as a formal complaint and some of which is not.
- b) That complaining behavior in turn is linked to the advertiser's intention to reduce or cancel future advertising, although the relative likelihood of these actions depends on the person to whom the complaint was directed.
- c) Not all complaints, however, result in an unfavorable satisfaction rating; indeed about 10-15 percent of all complainers still give the highest possible overall satisfaction scores.
- d) Complaining in a given year changes the complaint triggers for subsequent years. This is true even when there is no financial reward (i.e. a credit) for complaining, so the trigger is related more to a lowering of the complaining threshold than a belief in the utility of complaining.
- e) A single year's complaint has little effect on advertiser exit, but complaints in consecutive years increase subsequent exit, especially when each complaint was

sufficiently severe to require a credit.

The combination of the last two points lays the foundation for the reduction of all complaints and special vigilance in later years when a complaint has been registered in a given year.

BUSINESS CONSEQUENCES

Responding to complaints is very expensive for Yellow Pages publishers, even without considering the administrative costs of operating a customer service center. Over half of all complaints result in the granting of a credit on the advertiser's bill, and this loss alone amounts to over \$10M per year in just one of this company's major divisions. Moreover, it was shown above that complaining is associated with a cancellation rate in excess in the baseline experienced during the normal course of business. Finally, although it is difficult to quantify in terms of revenue lost, complaints are associated with substantial increases in unfavorable satisfaction ratings and increased intentions of reducing or canceling future advertising.

The revenue loss associated with credit grants is over \$10M per year. The losses associated with customer cancellation are very large. We have shown above that the consequence of an advertiser's single complaint is to increase his/her cancellation probability by about 6 percentage points over the baseline churn rate. Roughly one-fifth of all complainers are complaining for (at least) a second time, and their cancellation probability is higher than the baseline by about 20 percentage points.

This excess cancellation results in an additional annual loss of over \$5M. Managerial action to lessen this loss is clearly worthwhile.

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