

**THE EFFECTIVENESS OF GROUPON
PROMOTIONS FOR MERCHANTS**

by

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THESIS

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I've never let my school interfere with my education.

Mark Twain

Abstract

The effectiveness of Groupon promotions is a function of their long-term profit and alternative cost. In an email survey of Swedish merchants, 63 % reported that their campaign was profitable and 27 % that they made a loss. The average cost of running a Groupon promotion is roughly estimated to be $0.77v$ per coupon, where v is the value or list price. Effectiveness in bringing in new customers who repurchase at full price is found to be an important driver of profitability.

A simple model of the expected profit from running a Groupon promotion is developed and applied in a detailed case study. The results suggest that businesses may not understand the profitability of their promotions.

Keywords: Groupon, price promotion

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Preface

In the name of full disclosure, I am the co-founder and CEO of a startup that directly competes with Groupon. Some people have suggested that this creates a conflict of interest, and they are absolutely right. All I can say is that I have done my best to stay objective.

What motivated me to study the effectiveness of Groupon promotions for merchants is a hunch that local businesses don't get a fair share of the pie. Therefore I suspect that the business model of my company Gruppi (and Groupon) is not sustainable. Needless to say, I wouldn't mind being wrong.

Shahan Lilja
June 2011

Chapter 1

Introduction

Online social commerce is quickly changing offline consumer buying behavior. In 2010, group buying or daily deal services in the US had revenues of \$1.1 billion, a number which is expected to more than double in 2011 (Local Offer Network, 2011). The largest of these services and pioneer of the category is Groupon. Launched in November 2008, the company has more than 70 million users and offers deals in more than 500 cities across the world. It had revenues of \$33 million in 2009 which surged to a staggering \$760 million in 2010 (Hickins, 2011).

Each day Groupon features a deal from a local merchant, typically at 50% off or more. The merchant gets hundreds to sometimes tens of thousands of new customers in a single day. Groupon keeps about half of the money in commission and pays the rest to the merchant.

Despite the unparalleled success of Groupon's business model, some have recently questioned its sustainability (Dholakia, 2010). It is clear that consumers and Groupon benefit, but not obvious how or if merchants as a group benefit in the long-term. Is Groupon win-win-win or win-win-loose?

Examining the effectiveness of Groupon promotions for merchants is a difficult and important problem. It is difficult because most local businesses do not track the performance of their promotion, and such data is not easy to obtain. It is an important problem because online promotions are changing the way consumers buy local goods and services – the arena where most economic activity takes place.

1.1 Purpose

This work has both an empirical and a theoretical purpose.

Empirical purpose: To examine the effectiveness of Groupon promotions for merchants.

To this end, two research questions underlie this study:

1. Which factors drive profitability of Groupon promotions for merchants?
2. What is the alternative cost of running a Groupon promotion?

Theoretical purpose: To gain a deeper understanding of how Groupon promotions deliver value to businesses.

A theoretical framework is developed that has three parts. The first part establishes some of the mechanisms by which Groupon promotions benefit merchants. For example, price discrimination and advertising are two such mechanisms. In the second part we develop a model of the long-term profitability of Groupon promotions. We account for first-time customers converting to repeat customers, cost of cannibalizing existing sales, and other interesting factors that impact the overall profit. In the third and final part we examine how the value of the discounted good or service is split between merchants, consumers and Groupon. This turns out to be one way of thinking about the alternative cost of running a promotion.

1.2 Delimitation

Only Groupon promotions in Sweden are considered. The initial reason for this choice was convenience. It turns out, however, that there is an interesting difference between Groupon in the US and Groupon in most of Europe, including Sweden. US merchants get to keep all the money from unredeemed coupons, whereas in Sweden, it is pocketed by Groupon. This means that Groupon promotions are relatively more expensive for Swedish merchants (and more profitable for Groupon). A positive side-effect of limiting the study to the Swedish market will be to shed some light on this issue.

1.3 Expected contribution

One contribution will hopefully be a more clear way of thinking about the long-term profitability of Groupon promotions, which is somewhat muddy

waters. A simple merchant profit model is introduced along with a common vocabulary and symbols. This model can be used to predict and evaluate the effects of running a promotion. For example, merchants can apply it to calculate their expected return on investment.

The theoretical framework and empirical results of this thesis may also help in answering other questions such as

- Which type of merchant stands to gain most from Groupon promotions?
- What can merchants do to maximize their benefits from Groupon promotions?
- How can we design a better Groupon promotion?

1.4 Definitions

Table 1.1 defines the symbols used in this thesis.

Symbol	Definition
v	Coupon value (undiscounted price)
p	Coupon price (discounted price)
d	% discount
c	% Groupon commission
N	Number of coupons sold
α_{nc}	% new customers
α_{ec}	% existing customers
α_{uc}	% unredeemed coupons
α_{ncr}	% new customers who repurchase at least once
α_{cnb}	% existing customers who would have purchased at full prize
α_{ovg}	% customers spending above coupon price
ω	% overage (money spent above v)
m	% merchant margin
n_v	Average number of repeat visits per customer

Table 1.1: Definitions.

Chapter 2

Method

2.1 Overview

Table 2.1 gives an overview of the method used to answer the two research questions that underlie this thesis.

Research question	Approach	Data source
1. Which factors drive merchant profitability?	A. Study which factors correlate with merchant <i>perception</i> of profitability	Survey, Groupon.se
	B. Develop and estimate parameters of profitability model	Case study
2. What is the alternative cost for merchants?	Develop and estimate parameters of alternative cost model	Groupon.se, Survey

Table 2.1: Overview of general method used to answer research questions.

2.2 Research design

A quantitative approach is used to examine the effectiveness of Groupon promotions. The variables measured take on numerical values, and the research questions have quantitative answers. There is no established model to use or test, and a theoretical framework has to be synthesized.

The research design is fixed and non-experimental. A fixed research design, as opposed to a flexible one, is defined before and does not change during the main data collection phase (Robson, 1993). It is non-experimental in the sense that the survey conducted measures a situation without attempting to control or manipulate it.

2.2.1 Choice of relevant data

The basic unit of data under consideration is a Groupon promotion that have taken place. The goal is to measure a set of variables for lots of promotions and collect the data as shown in table 2.2. Some of this information may be gathered in an automated way, e.g. price, discount and number of coupons sold. This data need to be complemented with information that reside inside the heads of business owners, for instance, the margin on the good or service offered.

Promotion	Variable 1 (Price)	Variable 2 (Discount)	Variable 3 (Coupons sold)	...
Groupon promotion 1	125	0.50	683	...
Groupon promotion 2	399	0.65	1220	...
⋮	⋮	⋮	⋮	

Table 2.2: Format of the data collected.

2.3 Data collection

Three sources of primary data are used: public data on Groupon promotions, a merchant survey, and a case study of a single merchant. Sources of secondary data are used mainly to develop the theoretical framework and include academic research and industry reports.

2.3.1 Public data on Groupon promotions

A script was written that automatically parsed data from daily deals on `Groupon.se` between November 15 and March 31 2011. Groupon often runs the same deal in multiple cities and sometimes multiple deals from one merchant. For merchants who have run multiple deals only the first was retained. Data from promotions that offered the same deal in different cities were merged. Deals that did not run in Stockholm, Gothenburg or Malmö were discarded.

The resulting data set contained 90 promotions from 90 unique merchants. Six variables were measured: coupon price (p), coupon value (v), discount (d), number of coupons sold (N), start date and end date.

2.3.2 Merchant Survey

The 90 merchants were contacted via email and asked to take a survey. Additional data collected in this phase were variables that only the business could know. The survey was divided into three parts with questions about (a) the merchants perception of the promotion, (b) its outcome, and (c) the product sold.

In the first part, the merchants were asked about whether they thought the promotion was profitable or not (yes or no), and their overall satisfaction with the promotion (on a scale from 1-7, ranging from very dissatisfied to very satisfied).

In the second part, merchants were asked to estimate the number of coupons redeemed; percentage of Groupon customers who were new customers to the business; percentage of these who repurchased at least once; percentage of customers who spent money above their coupon; and the average additional amount spent by these customers.

In the third part, merchants were asked about their margin and average number of repeat visits per customer per year.

2.3.3 Case study

The case study zooms in on the Groupon promotion of one single merchant, a restaurant offering a brunch at 51 % off. The same variables as in the survey are measured and used to compute the expected long-term profitability of the Groupon promotion. This particular merchant was selected for two reasons: (a) the business owner tracked the Groupon promotion, and (b) all the customers have had the chance to redeem their coupons.

Chapter 3

Literature review

Not much academic research has been done on Groupon promotions. Dhoklania (2010) reports that the most important driver of merchant perception of profitability is employee satisfaction, which may be somewhat surprising. Edelman et al. (2010) suggests two mechanisms by which Groupon promotions deliver value to merchants: price discrimination and advertisement. Arabshahi (2010) adds a third category: Groupon is also a prepayment service.

Reading papers about price promotions and coupon marketing will make you wonder why a company such as Groupon was not founded earlier. It has long been known that price promotions is an effective tool for bringing in new customers (Walters and MacKenzie, 1988). In his seminal paper *A Price Discrimination Theory of Coupons*, Narasimhan (1984) describes how coupons can be a highly effective price discrimination mechanism.

Once you get customers in the door there are all kinds of things merchants can do to increase their profits. For example, cross-selling has been shown to be quite effective (Kamakura et al., 2004). Mulhern and Padgett (1995) argues that the effectiveness of price promotions is all about gaining repeat customers. Some, however, have seriously questioned the long-term positive effects of price promotions (Pauwels et al., 2002).

Chapter 4

Theoretical framework

The theoretical framework has three parts that (a) examines the mechanisms by which Groupon promotions benefit merchants, (b) models their profitability, and (c) provides a way to compute their alternative cost.

4.1 Mechanisms of Groupon promotions

Arabshahi (2010) suggests that Groupon provide three kinds of services to merchants:

1. Price discrimination
2. Advertising
3. Prepayment

4.1.1 Price discrimination

Price discrimination occurs when customers pay different prices for an identical good or service from the same producer. Perfect price discrimination, also called first degree price discrimination, occurs when each customer is charged their reservation price, i.e. the maximum price they are willing to pay. The consequence of this will be to increase profits for sellers because they are charging the maximum amount that the market can bear. In practice, however, there is no perfect price discrimination because it is not possible to know the reservation price of each customer.

Groupon offers a third degree price discrimination service to merchants. Price is then a function of some attribute of customers, in this case whether

they are coupon using members of Groupon or not. When the attribute in question is membership of a submarket, this is a flavor of third degree price discrimination called multiple market price discrimination, illustrated in figure 4.1. The figure shows how a merchant can increase their profits by charging a higher price P_a to one customer segment (the existing customers) and a lower price P_b to another segment (the Groupon customers).

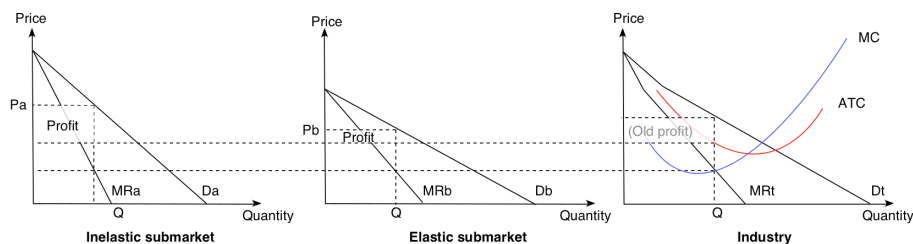


Figure 4.1: Multiple market price discrimination (Wikipedia, 2010).

4.1.2 Advertising

The primary advertising service provided by Groupon is to inform consumers about the existence of the merchant. This may or may not include the consumers buying a coupon. The cost of this advertisement for the merchant is (a) the discount given to consumers and (b) the commission charged by Groupon. According to Arabshahi (2010), merchants gain as long as the discounted price is higher than the marginal cost of delivering the good or service. This is not strictly true. A more precise statement is the following one:

If the revenue per coupon is larger than the marginal cost of delivering the good or service, *and provided that not too many of the coupon users are already customers of the merchant*, then it is profitable to run a Groupon promotion.

This may be intuitive and is actually proved formally in the model developed by Edelman et al. (2010). Note that if every Groupon user is already a customer of the merchant, not only would there be cannibalization of sales, but also, the merchant would gain no new customers. This suggests that Groupon is a more effective advertising service for small local merchants than, say, national brands.

4.1.3 Prepayment

We can also think of Groupon as a prepayment service for merchants (Arabshahi, 2010). Consumers pay Groupon and Groupon pays merchants their cut in advance. Theoretically, there are two ways in which the merchant may benefit from this. First, merchants benefit from the time value of money. Money now is worth more than the same amount of money in the future. This is because money in the present has the potential to earn more money over time, e.g. from interest. Second, merchants may keep revenues from unredeemed coupons.

At present, Groupon in Sweden cannot be considered a prepayment service. Swedish merchants are only paid for redeemed coupons, which means that they are not paid in advance.

4.2 The Groupon Merchant Profit Model

Let P be the expected long-term profit (or loss) per sold coupon for a merchant running a Groupon promotion. P can be broken down into five sources of profit: redeemed coupons (P_{cpn}); overage (P_{ovg}); repeat visits (P_{rpv}); cannibalization (P_{cnb}); and unredeemed coupons (P_{uc}). Overage is the average extra amount of money spent by coupon users. Cannibalization refers to the loss of revenue due to existing customers of the business buying coupons instead of paying full price. Table 4.1 gives an overview of the sources of profit of a Groupon promotion.

Each profit component in turn is a function of a set of variables (e.g. v , d and c). These variables are defined in table 1.1. A derivation of the GMP Model can be found in appendix A.

The GMP Model

$$P = (1 - \alpha_{uc})(P_{cpn} + \alpha_{ovg}P_{ovg} + \alpha_{nc}\alpha_{ncr}P_{rpc} + \alpha_{ec}\alpha_{cnb}P_{cnb}) + \alpha_{uc}P_{uc}$$

where

$$P_{cpn} = (1 - c)p - (1 - m)v$$

$$P_{ovg} = \omega vm$$

$$P_{rpv} = n_v(1 + \omega)vm$$

$$P_{cnb} = -dv - c(1 - d)v$$

$$P_{uc} = (1 - c)p$$

Symbol	Source of profit
P	Groupon promotion
P_{cpn}	Redeemed coupon
P_{ovg}	Overage
P_{rpv}	Repeat visits
P_{cnb}	Cannibalization
P_{uc}	Unredeemed coupon

Table 4.1: Sources of profit (or loss) of Groupon promotions.

4.3 Alternative cost of Groupon promotions

A simple way to think about the alternative cost of running a Groupon promotion is what the money could have been used for instead. The merchant normally sells their good or service for v . When they have a Groupon promotion they give a discount dv to consumers and a commission $c(1 - d)v$ to Groupon. The cost for the merchant of running a Groupon promotion is effectively $dv + c(1 - d)v$ per redeemed coupon. For example, if $d = 0.50$, $c = 0.50$ and $v = \$50$, this cost is $\$0.75v = \37.5 . All else being equal, if the merchant could acquire a customer for less than $\$37.5$, e.g. via online advertising, then that would have been a more effective use of resources.

Table 4.2 shows Groupon's, the merchant's and consumers' share of the undiscounted price v , assuming that there are no unredeemed coupons. Consumers' share of value is the discount offered. Groupon's and merchants' share come from the revenue paid by consumers.

Party	% of v
Groupon	$(1 - d)c$
Merchant	$(1 - d)(1 - c)$
Consumers	d

Table 4.2: How the coupon value v is split between Groupon, the merchant and consumers, assuming no unredeemed coupons.

Now, if we take unredeemed coupons into account, things get slightly more complicated, but not much. Table 4.3 shows how the undiscounted price v is split between Groupon, consumers and merchants when α_{uc} of the coupons are unredeemed. In Sweden and Europe, revenue from unredeemed coupons is pocketed by Groupon (the first column in the table). In the US, it is pocketed by the merchant (the second column). We are primarily

concerned with the former.

Party	% of v (EU)	% of v (US)
Groupon	$(1 - d)(c + \frac{\alpha_{uc}}{1 - \alpha_{uc}})$	$(1 - d)c$
Merchant	$(1 - d)(1 - c)$	$(1 - d)(1 - c) + \frac{\alpha_{uc}}{1 - \alpha_{uc}}(1 - d)$
Consumers	$d - \frac{\alpha_{uc}}{1 - \alpha_{uc}}(1 - d)$	$d - \frac{\alpha_{uc}}{1 - \alpha_{uc}}(1 - d)$

Table 4.3: How the coupon value v is split between Groupon, the merchant and consumers when α_{uc} of the coupons are unredeemed.

Chapter 5

Results and analysis

The email survey was sent to 90 Groupon merchants, out of which finally 28 responded. This 31 % response rate may be regarded as high for an email survey, but clearly we should be worried about the small sample size and its effect on the generalizability of the results.

5.1 Drivers of merchant perception of profitability

Table 5.1 shows the correlations between a binary variable – whether the merchant thinks that the Groupon promotion is profitable or not (yes or no) – and potential drivers of profitability.

Variable	Correlation coefficient	p-value
<i>MS</i>	0.79	0.00
<i>v</i>	-0.15	0.48
<i>d</i>	-0.34	0.10
<i>N</i>	0.29	0.17
α_{nc}	0.57	0.00
α_{ncr}	0.32	0.13
α_{ovg}	0.08	0.74
<i>m</i>	0.02	0.95
<i>n_v</i>	-0.49	0.03

Table 5.1: Correlations with merchant’s belief of whether the Groupon promotion was profitable or not.

A strong correlation was found between merchant satisfaction MS and profitability ($\rho = 0.79$ and p -value < 0.01). It is not surprising that people who think that they made a profit are satisfied, but the causality might work in both directions. Perhaps merchants think that their promotion is profitable because they are satisfied for some other reason, e.g. the boost of customers.

The promotions effectiveness in bringing in new customers, as measured by the share of new (first-time) customers α_{nc} , has a moderate positive correlation with perception of profitability ($\rho = 0.57$ and p -value < 0.01). Merchant's who saw many of their regular customers use a coupon were more likely to believe that they made a loss.

No statistically significant correlation could be found between profitability and merchant margin m . One would expect a positive correlation, which is also suggested by the Groupon Merchant Profit Model developed (see section 4.2). The result might of course be due to the small sample size, or merchants' ignorance of their margin.

There is a moderate negative correlation of -0.49 between n_v – the average number of visits per year from a regular customer – and the merchants' perception of profitability. Businesses where customers purchase relatively frequently, e.g. restaurants, were less likely to think that their promotion was profitable. Perhaps n_v correlates with some underlying property of the business that causes such merchants to be more likely to think that their promotions are profitable.

5.1.1 Difference between profitable and unprofitable promotions

Table 5.2 shows the difference between merchants who think their Groupon promotion was profitable and those who do not. The presentation of the results in this form was inspired by Dholakia (2010).

27 % of merchants thought their Groupon promotion was unprofitable. The Groupon promotions of these merchants (a) attracted fewer new customers (78 % instead of 93 %), and (b) were significantly less effective in converting coupon users to repeat customers (7 % instead of 21 %). These differences could be due to properties of both the merchant and the user base of Groupon. For example, the failure to gain repeat customers may be due to the poor performance of the merchant, the high price sensitivity of Groupon customers, or a combination of both.

Variable	Profitable promotion	Unprofitable promotion
% of sample	63	27
% new customers	93	78
% new customers repurchasing at full price	21	7
% customers spending above coupon price	35	36

Table 5.2: The difference between profitable and unprofitable Groupon promotions.

5.2 Alternative cost of Groupon promotions

Referring back to section 4.3, to compute the cost per coupon of running a Groupon promotion, three parameters need to be estimated: d (consumer discount), c (Groupon commission) and α_{uc} (rate of unredeemed coupons).

The average promotion in the study sample offered a 62 % discount and had 42 % unredeemed coupons. The number of unredeemed coupons is likely to fall, though, given that the promotions ran one to five months prior to measurement. According to one industry report the percentage unredeemed coupons are 10-20 % (Moran, 2010). Groupon’s policy is a 50 % commission rate, but some businesses can negotiate a lower rate.

We will use the estimates $d = 0.62$, $\alpha_{uc} = 0.15$ and $c = 0.40$. Table 5.3 then shows how the coupon value v is split between Groupon, merchants and consumers. The cost (in this special sense) for Swedish merchants of running a Groupon promotion is estimated to be $(1 - 0.23)v = 0.77v$ per sold coupon.

Party	% of v (EU)	% of v (US)	% of v ($\alpha_{uc} = 0$)
Groupon	22	15	15
Merchant	23	30	23
Consumers	55	55	62
All	100	100	100

Table 5.3: How value is split between Groupon, merchants and consumers.

5.3 Case study

This section zooms in on the Groupon promotion of a restaurant offering a brunch at 51 % off. We should be careful to generalize these results, and rather see it as an illustration of how the theoretical framework can be applied.

The case study has three parts:

1. The variables measured
2. The promotion profitability (based on the Groupon Merchant Profit Model)
3. The merchant's perception of the promotion, including perception of profitability

5.3.1 Variables measured

Table 5.4 presents values of all the variables measured.

Variable	Symbol	Value
<i>Promotion terms</i>		
Coupon value (SEK)	v	255
Coupon price (SEK)	p	125
Discount (%)	d	51
Commission (%)	c	50
<i>Promotion outcome</i>		
Number of coupons sold	N_s	780
Number of coupons redeemed	N_r	680
Number of customers per coupon	n_c	1
Unredeemed coupons (%)	α_{uc}	13
New customers (%)	α_{nc}	86
New customers repurchasing (%)	α_{ncr}	8
Customers spending above coupon price (%)	α_{ovg}	4
Overage (SEK)	o	30
<i>Properties of the good sold</i>		
Margin (% of coupon value)	m	30
Average number of repeat visits	n_r	4

Table 5.4: Values of variables tracked for the Groupon promotion of a restaurant offering a brunch at 51 % off.

5.3.2 Merchant profitability

Next, we plug in the values in table 5.4 in the GMP Model. Table 5.5 shows the resulting streams of revenue and cost per coupon, and how much they contribute to the expected long-term profit.

Variable	SEK	% of v
<i>Revenues</i>		
Coupon revenue	63	25
Overage revenue	1	0
Repeat visits revenue	79	31
<i>Costs</i>		
Cost of goods sold	-235	-92
Cost of cannibalization	-7	-3
Profit per coupon	-99	-39

Table 5.5: Profit per coupon for the merchant in the case study, broken down into sources of revenue and cost.

Here is the story behind the results. A brunch, normally SEK 255, is sold for SEK 125. The business gets to keep SEK 62.5 per redeemed coupon. Only 4 % of coupon users purchase for an average of SEK 30 above their coupon price. This contributes an additional SEK 1 per coupon. 8 % of customers from the promotion become repeat customers, expected to return about 4 times. This will contribute SEK 79 in revenues over time. The bottom line says that the business can expect to lose SEK 99 on each coupon sold during the campaign, totally $SEK\ 99 \times 680 \approx SEK\ 67,000$.

Note that these results are sensitive to (a) the margin m of each brunch sold and (b) the parameters affecting the revenue from repeat visits (α_{nc} , α_{ncr} and n_v). For example, if the margin was $m = 0.50$ (instead of $m = 0.30$) and the share of customers returning and repurchasing at full price was $\alpha_{ncr} = 0.20$ (instead of $\alpha_{ncr} = 0.08$), then there would have been a profit per coupon of SEK 31, instead of a loss of SEK 99.

Incidentally, the results are not sensitive to Groupon's commission c . In fact, the restaurant would have made a loss even if Groupon charged no commission at all.

5.3.3 Merchant perception of promotion

The merchant believed that the Groupon promotion was profitable; would happily recommend it to a friend with a business; and would like to run

another promotion in the future (see table 5.6).

Moreover, the restaurant owner was overall *satisfied* with the promotion (ranking it 6 on a 1 – 7 scale), although, the Groupon customers were rated as overall *somewhat worse* relative to regular customers (3 on a 1 – 7 scale).

If the margin reported is accurate, it is hard to see how the promotion actually could have been profitable, or positive for the business. Perhaps it is difficult for merchants to understand the effectiveness of Groupon promotions. And maybe running a promotion, getting lots of attention and a boost of new customers simply feels good.

Question	Answer
Was promotion profitable?	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Recommend for friend's business?	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Want to run another one in the future?	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no

Table 5.6: Merchant answers.

Chapter 6

Conclusion and discussion

6.1 Conclusion

Two aspects of the effectiveness of Groupon promotions are their profitability and alternative cost. Profitability is arguably a necessary but not sufficient condition for effectiveness. Alternative cost also matters. Even if a Groupon promotion is profitable, it can cost more than alternative ways to get the same number and quality of customers.

6.1.1 Drivers of profitability

A simple model of the profit from running a Groupon promotion suggests that converting coupon users to repeat customers may be an important driver of profitability. Applying the model to the campaign of a restaurant showed that, indeed, the largest source of revenue and only source of profit were repeat visits.

Since few merchants track and evaluate their Groupon promotions, it is difficult to accurately estimate their long-term profit. A less precise but more robust measure than is the merchant's perception of profitability. When asked, 63 % of merchants believed that their campaign was profitable, whereas 27 % did not. Merchants in the former group saw a significantly higher percentage of new customers from the promotion, but only a slightly higher conversion rate to repeat customers.

Combining the results of the survey with the theoretical model developed and the case study, may lead us to conclude the following:

Driver of Groupon promotion profitability: Effectiveness is bringing in new customers who repurchase at full price in the future.

6.1.2 Alternative cost

The average effective discount merchants give to run a Groupon promotion is found to be about $0.77v$ per coupon, where v is the value or undiscounted price of the good or service. All else being equal, if the same amount of money could get more than one customer to buy at full price, Groupon promotions are not effective in comparison.

6.2 Discussion

The weakest part of this work is the small sample size of the survey. Drivers of profitability may have been overlooked because of this. For example, the theoretical model (and intuition) suggests that the merchant margin and percentage of customers who spend extra money should be important, but no support could be found for this. Also, the small sample arguably makes it less appropriate to use measures such as correlation to begin with.

A related problem is that there may be a sampling bias in the form of self-selection; merchants who choose to answer might be different from those who do not.

It is difficult for merchants to reliably know the effectiveness of their Groupon promotion, especially if they do not track it. The case study suggests that even informed merchants may not be able to understand the profitability of their promotions.

A shortcoming of the research design itself is its reliability. Reliability can loosely be defined as the degree to which measurements are consistent. Would merchants give the same answers if asked in a slightly different way? To what degree do they know the answers? The reason why we should be worried about this is that some of the questions asked of merchants are hard or impossible to answer accurately unless the merchant have tracked and evaluated their promotion. For example, estimating how many customers repurchased a second time or how much extra they spent is difficult. More low-quality information is not necessarily better.

Appendix A

Derivation of the Groupon Merchant Profit Model

The derivation of the model is divided into two steps.

GMP Model

$$P = (1 - \alpha_{uc})(P_{cpn} + \alpha_{ovg}P_{ovg} + \alpha_{nc}\alpha_{ncr}P_{rpc} + \alpha_{ec}\alpha_{cnb}P_{cnb}) + \alpha_{uc}P_{uc}$$

where

$$P_{cpn} = (1 - c)p - (1 - m)v$$

$$P_{ovg} = \omega vm$$

$$P_{rpc} = n_v(1 + \omega)vm$$

$$P_{cnb} = -dv - c(1 - d)v$$

$$P_{uc} = (1 - c)p$$

Step 1 The first equation above follows immediately from the definitions of the parameters (see table A.1). For instance, consider the contribution to the total profit from repeat visits. If α_{nc} of the customers are new customers, α_{ncr} of these return, and the profit from one returning customer is P_{rpc} , then the profit *per redeemed coupon* from returning customers is $\alpha_{nc}\alpha_{ncr}P_{rpc}$. Now, only $1 - \alpha_{uc}$ of the coupons are actually redeemed so the expected profit *per sold coupon* from future repeat visits is $(1 - \alpha_{uc})\alpha_{nc}\alpha_{ncr}P_{rpc}$. The reasoning is similar for the other components.

Step 2 Next, the five profit components are expressed in terms of the basic parameters of the Groupon promotion. The profit from an unredeemed coupon is the price of the coupon minus Groupon’s commission, $P_{uc} = p - cp = (1 - c)p$. The remaining four profit components are derived by considering the revenues and costs involved:

$$\begin{aligned}
P_{cpn} &= R_{cpn} - C_{cpn} = (1 - c)p - (1 - m)v \\
P_{ovg} &= R_{ovg} - C_{ovg} = \omega v - (1 - m)\omega v = \omega vm \\
P_{rpv} &= R_{rpv} - C_{rpv} = n_v(1 + \omega)v - (1 - m)n_v(1 + \omega)v = n_v(1 + \omega)vm \\
P_{cnb} &= R_{cnb} - C_{cnb} = 0 - dv - c(1 - d)v = -dv - c(1 - d)v
\end{aligned}$$

Note that m is the margin of the good or service, which means that the cost of earning some revenue R is $C = (1 - m)R$. This is used in the first three equations.

In computing P_{rpv} , the expected life time revenue from a repeat customer is approximated as $n_v(1 + \omega)v = n_v(v + \omega v)$. This is a simple model of a customers who returns n_v times and purchases at full price v plus an extra amount ωv .

The loss from a cannibalized existing customers is the discount given to that customers, dv , plus Groupon’s commission, $cp = c(1 - d)v$.

Symbol	Definition
v	Coupon value (undiscounted price)
p	Coupon price (discounted price)
d	% discount
c	% Groupon commission
α_{nc}	% new customers
α_{ec}	% existing customers
α_{uc}	% unredeemed coupons
α_{ncr}	% new customers who repurchase at least once
α_{cnb}	% existing customers who would have purchased at full prize
ω	% overage (money spent above v)
m	% merchant margin
n_v	Average number of repeat visits per customer

Table A.1: Parameters of the Groupon Merchant Profit Model.

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