Price Mark-Ups and Dispersion for Online Air Tickets: An Empirical Investigation into Scandinavian Online Travel Agencies

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Abstract

This essay investigates the prices quoted by online travel agents and airline companies for the same flight tickets. The theory of information and search cost would predict that prices should converge on the internet. This prediction is tested using data from six online travel agents and the airline companies quoted as having the cheapest prices for the corresponding dates and destinations. The results show that online travel agents consistently charge significantly higher prices than the airline companies, with substantial dispersion. This suggests that online search cost is not as low as had previously been assumed, at least for a proportion of searchers.

Keywords: Price dispersion, search costs, product differentiation, online travel agents

Table of Contents

List of Tables

List of Figures

1 Introduction

Air travel has always been a big-ticket item, one that the consumer devotes a significant amount of time planning and researching, which include price comparisons. With the increasing use of the internet to find information, it is inevitable that the air travel industry has also expanded online. Customers now have the possibility of requesting flight details and prices from an individual airline's website. Furthermore, many travel agents have also flourished online, making it even easier for the customer to compare prices from several different airlines at once.

In the physical market it would be more common to go directly to a travel agent, where the prices quoted would rarely be questioned. Even if several agents quote different prices for the same ticket, the price difference would be dismissed as a result of search cost – it is not practical to visit all travel agents to get a quote, and the agents know this – thus having an incentive to insert a mark-up over the base airline ticket price.

On the internet, however, search cost has significantly been reduced and one would therefore expect prices quoted by sellers for the same item – whether they are airline companies or online travel agents selling the same ticket – to be the same, or at least converge. If customers do value the agent's search service enough to attach a premium to their ticket prices, it is only expected to be a slight mark-up, even so, there is little stopping the customer to simply visit the airline's website and make the purchase there, after using the travel agent's search engine. To sustain their places in the market, they would have to quote prices lower than or equal to the airline itself. Despite the low operating cost on the internet, quoting prices too low is not profitable either. The a priori hypothesis, therefore, would be that the travel agents quote prices which are not too different from the airline prices.

In this essay, the above hypothesis will be tested using data on flight tickets obtained online from six different travel agents and the respective airline companies that are quoted as having the cheapest tickets. The results are unexpected as they show the travel agents consistently charging significantly higher prices for the same ticket as the airline company. Prices also vary widely across travel agents for the same ticket. Several potential explanations are investigated, including the possibility that not all customers have the same search behaviour, hence creating the price dispersion.

The remainder of this essay will be organised as follows: Section 2 outlines the theoretical framework and literature review on search cost and its application to the online travel market, whilst Section 3 contains the empirical analysis, describing the data, methodology and results. Section 4 discusses and analyses the results, and Section 5 concludes the essay.

2 Theoretical Framework

2.1 Economics of Information and Search

Despite the common assumption of perfect knowledge often quoted in analysis of microeconomic models, it is clear that such a situation rarely exists in practice. The infinite number of buyers and sellers in the market means that it is impossible for a buyer to be fully informed about all the possible sellers they could make their purchase from. That is, they cannot know the locations of all the sellers, nor the prices at which the good would be sold by the different sellers. On the seller's side, they equally have insufficient information to locate all the buyers or each buyer's valuation of the good in order to get the highest selling price, although in most cases – and in the one studied in this paper – it is the buyer that locates the seller and makes a purchase. To gain information about locations and prices, it is necessary that the buyer undertakes a search process to locate sellers and find their prices, which is a time-consuming endeavor. It necessitates such efforts as visiting a shop, queuing and asking for the price, browsing the internet to locate sellers, and in some cases, it may even involve paying for catalogues to show what products are available and at what prices. These are termed search costs. Because of decreasing marginal benefits and increasing marginal costs, it is not optimal to perform an endless amount of search to be fully informed. Due to bounded rationality, it is impossible to learn all the information available in the market, and with more information gained, it becomes harder to locate new information and recall previously gained information, while the new information may not prove to be useful. Moreover, by the time the search process concludes prices may have been updated and some sellers may have entered or exited the market, prompting yet another search process. Hence the buyer trades off these costs and benefits to arrive at the utility maximizing amount of search.

As the buyer performs a limited amount of search (or no search at all), firms have an incentive to raise prices to trap the less informed buyer, hence the existence of price dispersion.

Nonetheless, the realisation that such dispersion is caused by the lack of information may lead some sellers to actively advertise their existence and prices, in order to inform buyers and gain sales. Aggregators and agents may also enter the so-called information market, performing some of the search efforts in return for a fee paid either by the sellers or buyers. The latter, in particular, have had enormous growth on the internet in the past decade.

In this paper, three different models for the effects of the spread of information on internet prices – and thus customers' search behavior – will be presented and analysed using the data.

2.1.1 The Bertrand Equilibrium

A natural consequence of the spread of information is that prices converge to the marginal cost. A seminal paper by Stigler (1961) proposes that price dispersion can be seen as a measure of ignorance in the market. If it was possible for a buyer to search and become fully informed of all the possible sellers and prices, prices would converge in the market according to the Bertrand equilibrium. No firm would risk losing all its customers by increasing its price, while setting price less than marginal cost yields negative profits. The application of this hypothesis on the internet has been extensively covered in literature[1], and no further exposition will be given here besides in relation to the data.

2.1.2 A Model of Sales (Varian, 1980)

An explanation for the commonly observed price dispersion online or otherwise is the model of sales proposed by Varian (1980). In this model, the existence of price differences is due to a mixed strategy equilibrium of the firms, price-discriminating between the informed

[1] See for example: Bailey (1998), Brynjolfsson and Smith (2000), Clemons, Hann and Hitt (2002)

and uninformed consumers. For simplicity, the analysis will be conducted with two stores. The following are also assumed:

I = number of informed consumers, who know the lowest price charged

2U = number of uninformed consumers, who choose a store at random

r = reservation price of each consumer

Therefore each store gets U uninformed consumers for certain, and it will get the informed consumers only if it charges the lowest price.

Further assume:

Marginal Cost = 0

Fixed Cost = k

F(p), the probability that a store's chosen price is less than or equal to p

f(p), the probability that a store charges price p, assumed to be continuous to avoid the possibility of a tie in prices

Every period a store randomly chooses a price p according to f(p). If p happens to be the lowest price offered, this store will get U+I consumers. Otherwise it will only get U, its share of uninformed consumers.

There are then two possible events that can occur:

- The store succeeds in having the lowest price, which happens with a probability 1-F(p). Its revenue is thus p*(U+I).
- The store's price exceeds its rival, which happens with a probability F(p). Its revenue is p*U

The expected profit is thus:

$$\bar{\pi} = \int_0^{\infty} \{(1 - F(p)) * p * (U + I) + F(p) * p * U - k\} f(p) dp$$

For the mixed strategy to be an equilibrium, the expected profit must be the same for all prices. Hence,

$$\left(1 - F(p)\right) * p * (U + I) + F(p) * p * U - k = \bar{\pi}$$

Therefore,

$$F(p) = \frac{p(U + I) - k - \bar{\pi}}{pI}$$

(1)

As no consumer would purchase the good at p > r, F(r)=1. Substituting into equation (1) yields:

$$\bar{\pi} = rU - k$$

Substituting back into equation (1),

$$F(p) = \frac{p(U + I) - rU}{pI}$$

This gives the equilibrium mixed strategy for each firm, as they are symmetrical. That is to say, each firm will maximise its profit by randomising prices to discriminate between informed and uninformed consumers.

2.1.3 Two Price Equilibrium (Salop & Stiglitz, 1977)

A paper by Salop and Stiglitz (1977) presents an alternative explanation for the existence of price dispersion in a market, specifically an equilibrium with two prices. A central assumption in the paper is that consumers differ in their costs of becoming perfectly informed, and it is the existence of these costs that results in an equilibrium where prices are not perfectly competitive.

Salop and Stiglitz's paper assumes the following:

L = number of consumers, each demanding one unit of the good

u = reservation price of the consumer

n = number of stores

$\underline{p} = \{p_1, p_2, \ldots, p_n\}$ = price vector, known to both consumers and firms

$\underline{l} = \{l_1, l_2, \ldots, l_n\}$ = location vector, unknown to consumers

α = the proportion of consumers with search cost c_1

$1-\alpha$ = the proportion of consumers with search cost c_2

$c_1 < c_2$, search costs differ due to factors such as differences in analytic ability, opportunity cost of time, and preference for reading and processing information

Firms have increasing marginal cost and u-shaped average cost curves

Each consumer i can do either of the following:

- Perform the search at a cost of c_i, become fully informed of the location of the store with the lowest price p^{min} and therefore make their purchase there. Their total expenditure is $E_S^i = p^{min} + c_i$
- Perform no search, make their purchase at a randomly selected store and pay an expected price of $\bar{p} = \frac{\sum_1^n p_j}{n}$. Their total expenditure is $E_N^i = \bar{p}$

Therefore the consumer will search only if $p^{min} + c_i < \bar{p}$, and will enter the market if $\min(p^{min} + c_i, \bar{p}) \leq u$.

The firm's behaviour can be characterised by the following:

- Nash price-setting with respect to other firms' prices: $\max_p \pi^j(p|\underline{p}^{-j})$, where $\underline{p}^{-j} = \{p_1, p_2, \ldots, p_{j-1}, p_{j+1}, \ldots, p_n\}$
- Stackelberg strategy with respect to the consumers' search rule, whereby the firm takes into account how its chosen price affects the consumers' decision to search if:

$$c_i < \bar{p} - p^{min}$$

and $\bar{p} = \frac{1}{n}p_j + \frac{1}{n}\sum_{i \neq j} p_i$ and $p^{min} = \min\{p_j, \underline{p}^{-j}\}$

Hence the demand curve for firm j given the prices of the remaining n-1 firms is $D\left(p_j \middle| \underline{p}^{-j}\right)$.

The equilibrium price vector $\underline{p}^*$ satisfies the following equilibrium conditions[2]:

- Profit maximisation: $\max_p \pi \left(p_j \middle| \underline{p}^{*-j}\right)$,
- Zero profit condition: $\pi \left(p_j^* \middle| \underline{p}^{*-j}\right) = 0$
- Search equilibrium – consumers gather information optimally: $0 < \alpha < 1$ iff $c_1 < \bar{p} - p^{min} \leq c_2$

In the model, summarised in Figure 2-1 below, the high-price stores sell q_h at price p_h, while the low-price stores sell q_l at price p_l with $q_h < q_l$. All stores earn zero profit as p = AC. In equilibrium, the (1-α)L consumers with higher search cost c_2 choose to remain uninformed as the cost of becoming informed outweighs the expected savings from searching. They will therefore make their purchase at a store selected at random, and end up paying either p_l or p_h. The αL consumers with lower search cost c_1 choose to become informed and make their purchase at a p_l store.

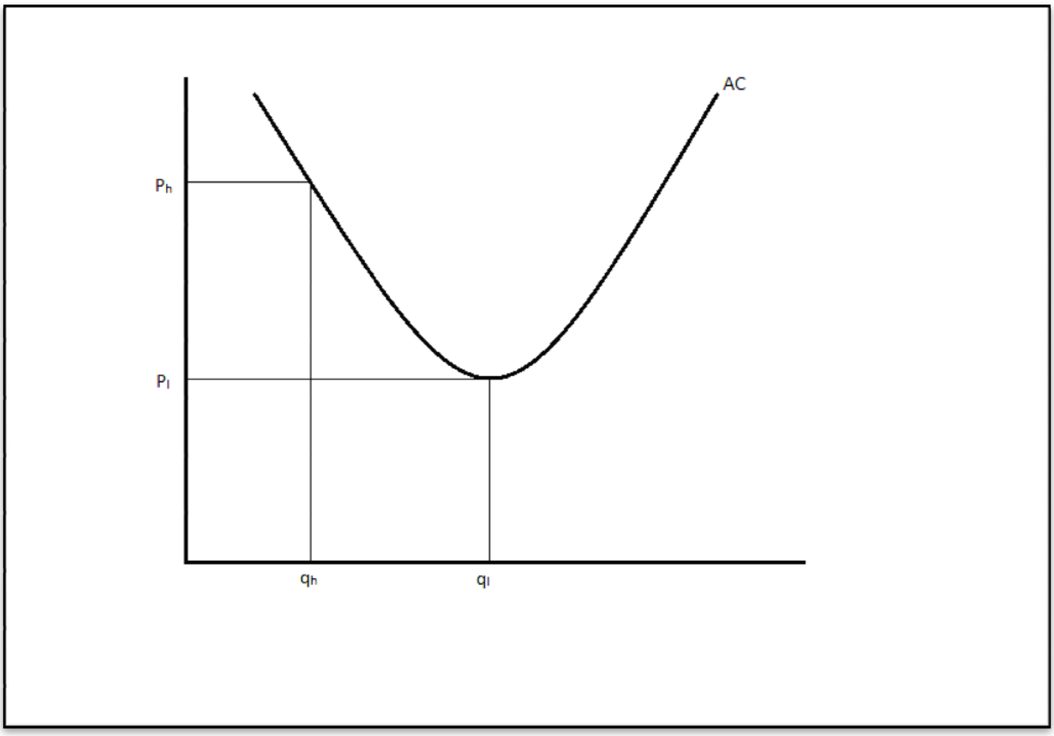

Figure 2-1 - Two-Price Equilibrium

[2] For the complete proof, please see Salop, S., & Stiglitz, J. (1977). Bargains and ripoffs: A model of monopolistically competitive price dispersion. Review of Economic Studies , 44, 493-510.

Let β be the proportion of total stores n which is low-price in equilibrium. To satisfy the search equilibrium condition, $c_1 < \bar{p} - p^{min} \leq c_2$, substitute $\bar{p} = \beta p_l + (1-\beta)p_h$ and $p^{min} = p_l$ to yield the expected gains from search $(1-\beta)(p_h - p_l)$. Hence the following holds:

$$c_1 < (1-\beta)(p_h - p_l) \leq c_2$$

(2)

Only (1-β)(1-α)L uninformed consumers buy from the high-price stores, of which there are (1-β)n. Therefore we have

$$q_h = (1-\alpha)\frac{L}{n}$$

(3)

The other β(1-α)L uninformed consumers are "lucky" and buy from the low-price stores. There are also αL informed consumers who buy from the low-price stores, of which there are βn. Therefore

$$q_l = (1-\alpha)\frac{L}{n} + \frac{\alpha L}{\beta n}$$

(4)

Zero profits condition implies:

$$p_h = AC(q_h)$$

$$p_l = AC(q_l)$$

(5)

Let $p*$ be the competitive price. For profit maximisation, $p_l = p^*$ must necessarily be true. If $p_l > p^*$, a firm can deviate by lowering their price, capturing all the informed consumers and obtaining π > 0.

To capture the uninformed consumers, p_h must be such that the high-cost consumer is indifferent between searching and making their purchase randomly. If the high search-cost consumer decides to search, their expenditure is $c_2 + p_l$. If they do not search, their expected expenditure is $\beta p_l + (1-\beta)p_h$. Indifference implies:

$$c_2 + p_l = \beta p_l + (1-\beta)p_h$$

Hence

$$p_h = p_l + \frac{c_2}{1-\beta}$$

Therefore, the profit maximisation condition yields:

$$p_l = p^*$$

$$p_h = p^* + \frac{c_2}{1-\beta}$$

(6)

This vector of two prices is the equilibrium solution in the model.

2.2 Application to Online Travel Market

The internet has played the role of an electronic market since its increasingly popular usage in the 1990s. Bakos (1991) described it as an intermediary between buyers and sellers, reducing the costs of search mentioned above. Its benefits are numerous: to locate a seller and find a price, the buyer simply needs to type in the name of the good into a search engine, click on the resulting website of the seller, and browse to find the price of the good. If the price is not displayed, the buyer has the possibility of calling or visiting the seller to ask, however the process of locating the seller even in this case has been shortened to a matter of minutes if not seconds. For this reason, prices of various sellers are expected to converge on the internet, at least to a larger extent than is seen in the physical market.

The travel industry in particular has been significantly transformed with the use of electronic market. As noted by Law, Leung and Wong (2004), the internet provides “an effective means for developing a single and sustainable electronic infrastructure for information gathering and business transactions for both travellers and suppliers" – thus decreasing costs for both parties as tourism suppliers have a way to sell their products to any potential traveller anytime, anywhere.

With the introduction of the Computer Reservations System (CRS), all airline companies now have the facilities whereby customers can request flight details, make a booking, buy the ticket, which is delivered as electronic ticket (e-ticket), all of which make the purchase considerably simpler than it might have been with travel agents and paper tickets. Furthermore, the expansion of the industry and the increasing number of tickets sold online have resulted in the establishment of many so-called aggregators or Online Travel Agencies (OTAs) which enable the customer to search for flights across many airline companies and choose the most suitable product. In a way the CRS has created a model of electronic marketplace in a differentiated consumer market, which lowers operating cost for airline companies through improved monitoring of operations and access to better demand data (Bakos, 1997).

All these benefits have made air travel an ideal example of an online industry to analyse, and it is likely that the combination of lower search costs and existence of OTAs would result in the elimination of price dispersion online. As Bakos (1991) reasoned, the presence of the online booking system is expected to promote price competition, reduce airlines' market power and result in more demanding customers who are less willing to compromise on their preferred product. Bakos remarked on several airlines' attempt to bias the CRS screen display to discourage price comparisons and the offer of thousands of active fares and promotions to confuse these comparisons, as a testimony to the increasing competition brought about by the OTAs and lower search costs online in general.

Lang (2000), on the other hand, questioned the effectiveness of OTAs, and suggested that security concerns and data overload lead to confusion and the "possibility of missed opportunities and/or higher costs", resulting in customers searching on the internet, but booking through a physical travel agent. Security concern was also cited by Athiyaman (2002) as a possible barrier to the success of OTAs on the internet. Öörni and Klein (2003) found several other barriers to search online, such as those related to information content, finding and selecting the right web services, technical problems and problems related to search engine or interface design. They concluded that overall there is little evidence that the electronic market leads to significantly lower search cost and increased price competition.

In a related study, Öörni (2003) compared the search process both in conventional market and on the internet for a package holiday, and found that due to the fairly low search costs online customers do indeed tend to construct a larger consideration set than in conventional markets. Lehmann (2003) conducted research comparing the purchase of holiday packages across conventional and internet channels. He found that the internet has lower average price, but more price dispersion compared to the physical market. As the expected savings from search are greater for highly priced goods, they are more searched on the internet. Controlling for vertical product differentiation thus gives the result of more intense price competition and hence less dispersion relative to lower priced goods.

Overall, the availability of information online at lower costs of search should mean that the electronic market for air travel is reasonably competitive and OTAs and airline companies should be expected to have the same price for the same products.

What is unclear, however, is why there should be numerous OTAs serving a particular market online, when they all collect information about the same sellers. Nor is it obvious why prices still differ even across OTAs displaying the same airline companies. While much research has been done comparing electronic markets and physical markets[3], few studies are available investigating prices across sellers and aggregators on the electronic market. One example is the paper by Clemons, Hann & Hitt (2002) which conducted an empirical research into the price dispersion and differentiation in the online travel industry. They found substantial price dispersion across the different agencies, with up to 28% variation. When controlling for differences in ticket characteristics (such as on time departures and number of connections) the dispersion decreased but was still high at 18%.

Klein (2002) also analysed the changing role of travel agents, both physical and online, with the use of the internet. He agreed with Lang (2000) that “initial expectations for huge online revenues have been modified recently as it has become apparent that many travellers

[3] See also Bailey (1998), Brynjolfsson and Smith (2000) and Lee (1998)

consult the web for information but conduct purchases offline", but concluded in the end that travel agents needed to go online to stay competitive.

Klein (2002) also remarked on the unique nature of the relationship between airline companies and OTAs, both as suppliers and also as competitors. Airlines often compete against OTAs by reducing commissions or offering exclusive products such as ticket auctions, to varying degrees of success. Hence these dynamics in the online market do not directly imply a simple price convergence on the internet.

3 Empirical Analysis

3.1 Data Collection

The data was collected over a period of two months. To simplify the search process, only one-way direct flights from Copenhagen's Kastrup airport would be considered, as this is the largest airport in Scandinavia by passenger number[4]. These are further narrowed down to international European destinations that appear in the list of top 50 European airports[5], yielding 43 airport destinations in total (see Table 7-1). The dates considered are all in week 19, spanning May 9th 2011 to May 15th 2011, to enable sufficient time for the completion of the data collection process and to get a reasonably random sample selection of data without the effect of the summer holidays in Europe. Five days are chosen, Monday, Wednesday, Friday, Saturday and Sunday to capture both weekday and weekend effects of flight selection.

The search engines are chosen based on popularity. A simple search of "billiga flyg" ("cheap flights" in Swedish) results in many OTAs. However they are to be separated into two groups, one of typical OTAs, and another one consisting of those which can be termed "Super OTAs" that search all other agencies (Clemons, Hann, & Hitt, 2002) such as SkyScanner. Only the former will be considered for the purpose of this research. The top six are then Seat 24, TravelPartner, Flygvaruhuset, MrJet, Travellink, and Supersavertravel. Seat24, TravelPartner, Flygvaruhuset and Supersavertravel are owned by the Scandinavian

[4] Airports Council International Europe 2007 Airport Traffic Statistics
[5] Airports Council International Europe 2007 Airport Traffic Statistics

company eTRAVELi, the OTA with the highest market share in the Nordic countries[6]. Travellink is part of the Opodo group owned by GDS and Amadeus[7], while MrJet is owned by the American company Orbitz Worldwide[8].

For each date-destination combination input into the OTAs' search engine, the lowest priced flight is chosen. The corresponding airline's website is then searched for the same date and destination, and the price for the same flight is noted. All taxes and fees are included in the comparison, and any fares in foreign currency are immediately converted into SEK[9]. To minimise price volatility, the search on both OTA and airline websites always took place within the same day.

3.2 Methodology and Results

Searching on all six OTA websites, the cheapest flight recommended are the same 66% of the time. Out of all airlines recommended, SAS comes out on top with 451 date-destination recommendations, Norwegian (DY) is second with 271 and Cimber Air (QI) follows at 111. The full list appears on Table 7-2.

The OTA prices show an average dispersion of 31% for each date-destination combination. This immediately eliminates the convergence to a Bertrand equilibrium as a possible result of the lower search cost online.

As shown in Figure 3-1 below, the prices quoted by the OTAs are also consistently higher than those quoted by the airline, by 169SEK on average. Taking the OTAs collectively as one firm and the airlines as another, therefore, rules out the mixed strategy equilibrium and hence Varian's model of sales as a possible explanation for the price dispersion.

[6] http://www.etraveli.com/
[7] http://promos.opodo.co.uk/about_us/
[8] http://www.mrjet.se/info/page?id=OmMrJet
[9] The online currency converter Oanda (http://www.oanda.com/currency/converter/) is used for this purpose.

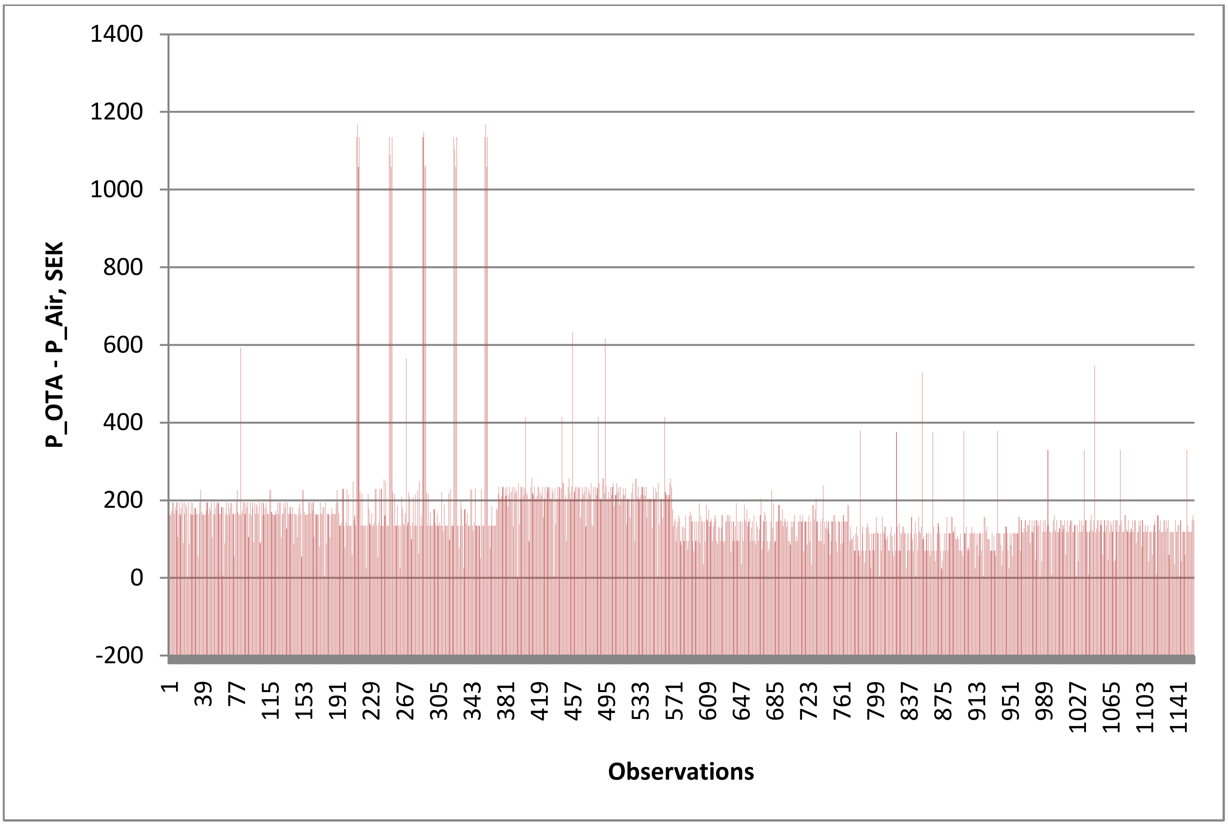

Figure 3-1 - Graph of Price Difference between OTA and Airlines

This paper will therefore proceed with Salop and Stiglitz's two price equilibrium model as the possible explanation for the price difference between OTAs and airlines, as will be further discussed in Section 4–1. In the meantime, the data will be explored to determine what factors cause the dispersion in the mark-ups across OTAs.

3.2.1 OTA-Induced Price Dispersion

To capture the effect of each OTA on the mark-up, dummy variables OTA_i according to Table 3-1 are used in the following regression equation:

$$P_{OTA} - P_{AIR} = \alpha + \sum_{i=1}^{5} \beta_i * OTA_i + \varepsilon \tag{7}$$

Table 3-1 - DV for OTAs

OTA	DV
Seat24	OTA_1
Travelpartner	OTA_2
Flygvaruhuset	OTA_3
Mrjet	OTA_4
Travellink	OTA_5

To investigate the effect of airline companies in the pooled data, the three most common airlines are included as dummy variables in the following equation:

$$P_{OTA} - P_{AIR} = \alpha + \sum_{i=1}^{5} \beta_i * OTA_i + \gamma_1 * SK + \gamma_2 * DY + \gamma_3 * QI + \varepsilon$$

(8)

It is also reasonable to consider vertical product differentiation among flight selections. Hence I will consider another dummy variable EXC for flights which cost more than 1,000SEK to represent "exclusive" flights, whether due to distance or flight quality (non-budget flight, for example). This is done to avoid taking the variable P_{Air} directly as an explanatory variable which would have resulted in perfect autocorrelation with the dependant variable into which P_{Air} also enters.

$$P_{OTA} - P_{AIR} = \alpha + \sum_{i=1}^{5} \beta_i * OTA_i + \gamma_1 * SK + \gamma_2 * DY + \gamma_3 * QI + \delta * EXC + \varepsilon$$

(9)

Another variable which could explain the variation in mark-ups over airline price is distance. Distance is calculated in kilometers between CPH and the destination airport. It will therefore be included in the following model:

$$P_{OTA} - P_{AIR} = \alpha + \sum_{i=1}^{5} \beta_i * OTA_i + \gamma_1 * SK + \gamma_2 * DY + \gamma_3 * QI + \delta * Dist + \varepsilon$$

(10)

The following results are obtained for regression models (7)-(10):

Table 3-2 - Results for Pooled Regression Models (7)-(10)

	Model (7)	Model (8)	Model (9)	Model (10)
Intercept	128.67***	118.06***	109.24***	94.27***
OTA_1	40.24***	39.78***	39.42***	39.19***
OTA_2	133.51***	134.95***	134.27***	133.77***
OTA_3	89.33***	89.47***	89.47***	89.40***
OTA_4	3.85	5.09	5.88	5.48
OTA_5	-19.80	-19.74	-19.69	-20.07
SK		9.13	13.39	15.77
DY		17.49	23.10*	19.48
QI		26.88	28.07	13.62
EXC			16.72*	
Dist				0.02***
R^2-Adj	14.13%	14.26%	14.48%	14.81%

Significant levels: * : 5% ** : 1% *** : 0.5%

Compared against the baseline DV Supersavertravel, those OTAs belonging to the same owner eTRAVELi are significant. In particular Travelpartner (OTA_2) has the highest level of mark-ups while Supersavertravel has the lowest mark-ups. Outside the eTRAVELi group, Travellink (OTA_5) has the overall lowest level of mark-ups. When controlled for individual OTAs as above, the role played by individual airline companies seems to be less significant. The DV EXC is weakly significant, however the Dist DV is highly significant though only increasing the R-square value to 14.81%.

To determine the existence of possible relationships between particular OTA and Airline, interaction terms are also introduced to the regression model. However due to the limited number of allowed explanatory variables, only SK and DY, the two most quoted airlines, are used:

$$P_{OTA} - P_{Air} = \alpha + \sum_{i=1}^{5} \beta_i * OTA_i + \sum_{i=1}^{5} \gamma_i * OTA_i * SK + \sum_{i=1}^{5} \delta_i * OTA_i * DY + \varepsilon$$

(11)

With the inclusion of interaction terms, the results in Table 7-3 in the Appendix show that none of the interaction terms is significant at the 1% level. The interaction term between Travellink and DY is weakly significant at the 5% level. The R-square however only shows a slight increase to 14.77%.

3.2.2 Airline-Induced Price Dispersion

For each OTA, it is suspected that the price difference is also partly dependant on the airline company quoted, for reasons such as special commission arrangements. As a result, only the few most quoted airline companies are considered in the following model:

Price difference regressed against the Dummy Variables (DV) of most quoted airlines (defined as more than 20 outputs per OTA according to Table 3-3 below)

Hence for Seat24 the regression equation is:

$$P_{OTA} - P_{Air} = \alpha + \beta_1 * SK + \beta_2 * DY + \beta_3 * QI + \varepsilon$$

(12)

Table 3-3 - Most quoted airlines for each OTA (number of quotes)

OTA	Most quoted #1	Most quoted #2	Most quoted #3	Total quotes
Seat24	SK (80)	DY (46)	QI (22)	192
Travelpartner	SK (88)	DY (49)		181
Flygvaruhuset	SK (72)	DY (46)	QI (22)	196
Mrjet	SK (65)	DY (40)	QI (22), DS (22)	201
Travellink	SK (74)	DY (44)	QI (22)	193
Supersavertravel	SK (72)	DY (46)	QI (23)	196

The results are presented below:

Table 3-4 - Regression results for Model (12)

	Seat24	Travelpartner	Flygvaruhuset	Mrjet	Travellink	Supersavertravel
Intercept	133.93***	260.20***	199.34***	124.15***	119.96***	113.64***
SK	36.04***	-18.05	19.41	20.38***	-2.60	11.31
DY	60.76***	39.73	36.62***	-19.50***	-49.96***	35.36***
QI	47.16***		26.21	41.94***	11.36	22.02
DS				9.80		
R^2-Adj	18.27%	-0.49%	2.97%	26.01%	10.39%	4.53%

In general, the coefficients are significant and positive. This means that compared to the baseline variable, those airlines which are not quoted as often, those with market power (SK, DY and QI for example) tend to have higher mark-ups over the base airline price. The R-square values show that this model does not explain much of the variation of mark-ups across airlines.

It is worth noting that for Mrjet and Travellink, the two aggregators not belonging to the eTRAVELi group, the coefficients for DY (Norwegian) are negative and significant. This may suggest that the two aggregators have different commission arrangements with Norwegian, allowing them to charge lower mark-up.

The day of flight is also a possible explanatory variable to explain the mark-up over airline price. The next model to consider is thus:

Price difference regressed against the DV of most quoted airlines and the DV of days of flight

Taking Seat24 as an example again, the regression equation is thus:

$$P_{OTA} - P_{Air} = \alpha + \beta_1 * SK + \beta_2 * DY + \beta_3 * QI + \gamma_1 * MON + \gamma_2 * WED + \gamma_3 * FRI + \gamma_4 * SAT + \varepsilon \quad (13)$$

In the regression for model (13), the coefficients for days are found to be insignificant. Adding DV for days also does not add much explanatory power to the model. Days are subsequently excluded from the rest of the regression equations. As expected, however, Friday is the most expensive day to travel. The results for Model (13) appear in Table 7-4 in the Appendix.

The exclusivity and distance variables will also be considered in the following models, for Seat24 as an example:

$$P_{OTA} - P_{Air} = \alpha + \beta_1 * SK + \beta_2 * DY + \beta_3 * QI + \gamma * EXC + \varepsilon \quad (14)$$

$$P_{OTA} - P_{Air} = \alpha + \beta_1 * SK + \beta_2 * DY + \beta_3 * QI + \gamma * Dist + \varepsilon \quad (15)$$

The results can be seen in the following tables:

Table 3-5 - Regression results for Model (14)

	Seat24	Travelpartner	Flygvaruhuset	Mrjet	Travellink	Supersavertravel
Intercept	137.55***	165.69***	209.37***	125.27***	129.06***	125.83***
SK	33.69***	21.34	14.32	19.91***	-7.20	5.01
DY	58.19***	91.81	30.25*	-20.26***	-56.41***	27.54*
QI	45.95***		24.69	8.69***	9.82	19.54
DS				41.76		
EXC	-5.30	173.28***	-18.73	-2.07	-16.62	-22.35***
R^2-Adj	18.07%	6.05%	4.29%	25.70%	11.36%	7.72%

EXC only adds significant explanatory power to the model for Travelpartner, whose R-square increases to 6.05%. Travelpartner seems to charge even higher mark-ups for tickets which are already highly priced, while the other OTAs reduce their mark-ups to varying amounts as the Airline ticket prices increase.

Table 3-6 - Regression results for Model (15)

	Seat24	Travelpartner	Flygvaruhuset	Mrjet	Travellink	Supersavertravel
Intercept	139.38***	52.44	209.67***	128.88***	132.82***	130.26***
SK	34.14***	25.35	16.40	19.06***	-6.25	6.55
DY	59.82***	41.20	35.62**	-19.88***	-51.39***	33.88***
QI	49.40***		31.83	44.54***	18.05	31.13*
DS				8.82		
Dist	-0.004	0.17***	-0.01	-0.004	-0.01	-0.01*
R^2-Adj	18.06%	9.38%	3.04%	26.01%	10.81%	6.16%

Except for Travelpartner, whose Dist coefficient is significant and whose R-square increases again to 9.38%, this model with distance does not explain the mark-ups more than Model (14) above. The positive coefficient reveals that Travelpartner charges 0.17SEK more mark-up for each km increase in distance to destination, consistent with Model (14) where this OTA charges an extra 173SEK mark-up for ticket prices exceeding 1,000SEK.

3.2.3 Vertical Product Differentiation

To analyse vertical product differentiation based on ticket prices, the pooled data is separated into two groups – group (1) with base airline price exceeding 1000kr, and group (2) with base airline price less than and equal to 1000kr. According to Lehmann (2003), as the expected savings from search are greater for highly priced goods, they are more searched on the internet. Controlling for vertical product differentiation should therefore result in more intense price competition and hence less dispersion. For my pooled data, the dispersion is measured using Coefficient of Variation:

$$c_v = \frac{\sigma}{|\mu|}$$

The descriptive statistics for P_{OTA} and the corresponding mark-up P_{OTA} - P_{Air} are presented below for Groups (1) and (2):

Table 3-7 - Dispersion Statistics for Groups (1) and (2)

	Group (1)		Group (2)	
	P_{OTA}	P_{OTA}-P_{Air}	P_{OTA}	P_{OTA}-P_{Air}
Mean	1795.08	177.95	749.61	163.80
Standard Deviation	640.09	193.31	202.61	102.72
Coefficient of Variation	0.36	1.09	0.27	0.63
Count	399	399	760	760

Contrary to Lehmann (2003), the "exclusive" flights in group (1) do not show less dispersion than those in group (2). This could be due to a number of reasons: passengers do not seem to conduct more search effort for these flights, the small number of players in this market keeping prices high, and the unusual behaviour of Travelpartner which increases the mark-up as ticket prices increase.

4 Discussion

As the results above show, in nearly all cases the price obtained from the OTA is higher than that from the airline website. The prices also vary remarkably amongst the different OTAs. These results are contrary to a priori expectations. This section will explore some possible explanations for the consistently high mark-ups over airline prices and the reasons for the price dispersion across OTAs.

4.1 Price Difference between OTAs and Airlines

Applying Salop and Stiglitz's (1977) two-price equilibrium model to the data, further assumptions are made:

$p_l = p^* = P_{Air}$, the competitive price

$p_h = \overline{P_{OTA}}$, the expected price when purchasing a particular ticket from an OTA

m = the number of alternative tickets for each date-destination combination[10]

[10] m=7 if all six OTAs and the airline offer tickets for a particular date and destination

$\beta = \frac{1}{m}$, as only the airline is defined to have competitive pricing without mark-up

From equation (6), it is possible to calculate c_2, the higher search cost procured by (1-α) proportion of consumers to become fully informed about the location distribution of sellers.

$$c_2 = (p_h - p^*) * (1 - \beta)$$

(16)

The resulting average search cost c_2 is 143SEK. c_2 for each destination is shown below:

Table 4-1 - Average Search Cost per Destination

Destination	Average c_2
LONDON	146
PARIS	185
FRANKFURT	123
MADRID	130
AMSTERDAM	136
LONDON	142
MUNICH	127
ROME	125
BARCELONA	133
PARIS	143
ISTANBUL	81
MILAN	141
LONDON	86
DUBLIN	133
MANCHESTER	142
ZURICH	135
OSLO	135
VIENNA	83
STOCKHOLM	140
BRUSSELS	128
DÜSSELDORF	135
ANTALYA	141
ATHENS	136

MOSCOW	229
MÁLAGA	274
LISBON	203
BERLIN	257
HELSINKI	131
HAMBURG	126
PRAGUE	117
GENEVA	126
TEL-AVIV	149
COLOGNE	209
NICE	139
GRAN CANARIA	133
STUTTGART	127
MILAN	129
WARSAW	70
BIRMINGHAM	127
EDINBURGH	153
GLASGOW	167
BUDAPEST	133
LYON	146

The following plot shows how the search cost c_2 varies for different "products" with distance from CPH:

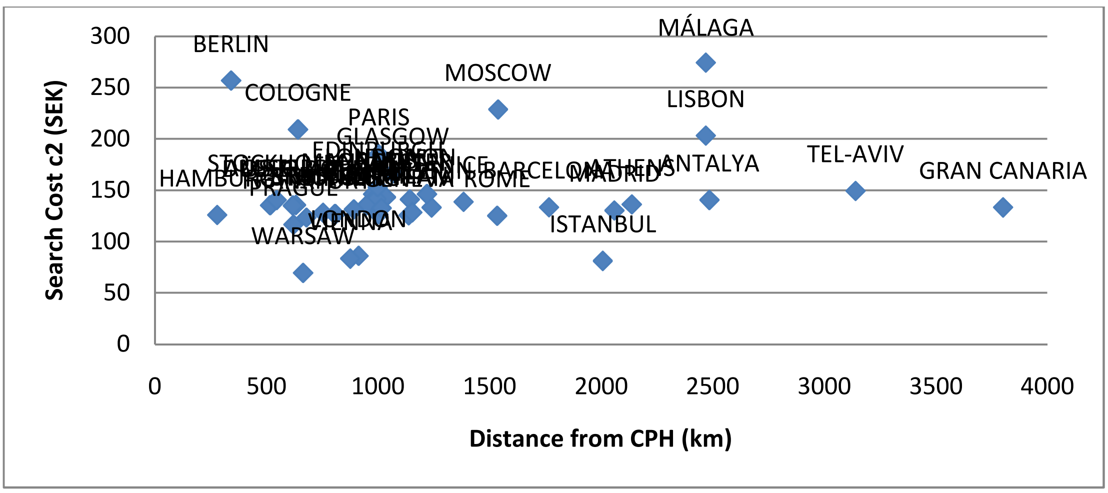

Figure 4-1 - Scatter Plot of Distance and Search Cost

As seen above, there is a weak positive correlation (0.15) between distance and c_2. The highest search costs apply to destinations including Malaga, Moscow and Lisbon. These are places which are relatively far from CPH and arguably rarely visited. In comparison, destinations such as Warsaw, London and Vienna are closer to and more likely to be visited from Copenhagen. The information gained by travellers from previous visits makes it easier for them to be fully informed for future visits, hence lowering the search cost. The potential for repeat visits also increases the likelihood that the benefits from search will outweigh the cost. However in this model these consumers with c_2 search costs still choose to remain uninformed and end up buying their tickets from the OTAs. Only the informed and "lucky" uninformed customers buy their tickets more cheaply from the airline website.

4.1.1 Opportunity Cost of Search

The above results for search cost can be interpreted as the opportunity cost of search. Given an average hourly wage of 143.2SEK[11], the average c_2 search cost of 143SEK roughly equates to just under one hour of search effort to become fully informed of all the different alternatives available for purchasing flight tickets. This is clearly prohibitive for some who choose to remain uninformed and purchase their flight tickets from the first seller encountered; for example, those who have higher wages or are busier and thus have higher opportunity costs of time (Brynjolfsson & Smith, 2000).

However, it is often not necessary for a consumer to be fully informed of all the alternative ways to find a cheaper flight ticket. Ultimately all that is required to obtain the cheaper price is a few more clicks to reach the airline website, which will take no longer than a few minutes. This points to the irrationality of some consumers who choose not to take the extra time to explore other sites, as well as to the model's limitations in explaining human behaviour in practice.

4.2 Price Dispersion

[11] Hourly earnings of manual workers in the private sector as at Dec 2010, http://www.scb.se/Pages/FigureList____4000.aspx

The previous section grouped the OTAs together as one entity to be compared with the airlines as a group. However, as the regression results show, prices also vary across OTAs – on average by 31%, but up to as high as 194%.

Klein (2002) proposed that OTAs provide one-stop shopping and significantly improved usability and interaction design on the web, which is appreciated by the consumer who would then be willing to pay a premium. However it is arguable that technology and website design have improved a long way since then and it is no longer more difficult to book a ticket on the airline website than it is on the agency's website. Hence a premium would only be reasonable for the *possibility* of one-stop shopping[12]. This can be considered as a form of advertising, which the buyer is willing to pay for as modelled by Stigler (1961). However as he conceded, this kind of advertising is impractical as sellers have the incentive to supply excess information to what is desired by the consumer.

Brynjolfsson & Smith (2000) also proposed that price dispersion may be caused by product heterogeneity, in this case, the different characteristics of tickets sold by the different OTAs. However controlling for date and destination (and in most cases airline companies), observed services do not vary significantly across OTAs. All offer the possibilities to book hotels and rental cars on their websites. Moreover, as noted above, these services are purely informational and can be separated from the purchase of the single ticket. Therefore the provision of these services should not lead to price dispersion. Instead, heterogeneity in other unobserved retailer characteristics may be the likely source of price dispersion, as suggested in the same paper by Brynjolfsson & Smith.

As shown in Table 3-2, the two OTAs not owned by eTRAVELi – Mrjet (OTA_4) and Travellink (OTA_5) – offer relatively low levels of mark-ups compared to the rest. eTRAVELi being the largest OTA by market share in the Nordic countries, it is arguable that their OTA companies command a higher level of trust and brand recognition through reputation for reliability, word of mouth, advertising and links from other sites (Brynjolfsson & Smith, 2000). Indeed,

[12] All requests analysed are for one-way flight tickets only, without any additional service such as hotel or car rental. Hence a premium is not paid for these services, but only for the possibility of purchasing them, either through advertised links on the sidebar or through the ability to check prices for these services.

the top three OTAs suggested by Google search engine were Seat24, Travelpartner and Flygvaruhuset – all belonging to eTRAVELi[13].

Travelpartner is the OTA with the highest level of mark-ups compared to the baseline DV for Supersavertravel. As they both belong to eTRAVELi, this could be a tactic employed by the company to price discriminate between different groups of customers by operating several different retail channels (Clemons, Hann, & Hitt, 2002). From the OTA names it is clear that Supersavertravel is targeted at price conscious customers, while Travelpartner is not. The website interfaces also display several differences, with Travelpartner's seemingly targeted at less price conscious older audience with clearer texts and pictures of beach resorts and lavish hotel reception areas. There is also a photo of the company founder Leif Lundin together with his signature, as an attempt to reassure customers of the website's quality and security – factors which are arguably important to their target audience. Supersavertravel's website on the other hand has smaller texts and shows more pictures of young people, with Facebook social plug-in on the sidebar showing a link to the popular social networking site for young people[14]. This price discrimination tactic ensures that the parent company still gets revenues from both channels and target customers.

Besides price dispersion across OTAs, there also exists significant price dispersion across airlines with bigger airline companies seemingly attracting a premium over smaller rivals. This is shown by the positive coefficients for the DVs SK, DY and QI in Table 3-4 which represent the most frequently quoted airlines by the OTAs. They are the major airlines serving CPH airport, and hence have market power in this region compared to the baseline variable which represents all other (smaller) airline companies. A possible explanation is that airlines without market power such as Malev Hungarian (MA), Aeroflot Russian Airlines (SU) and Turkish Airlines (TK) need to compete for sales and hence give more commissions to the OTAs, allowing them to charge lower mark-ups compared to SK, DY and QI.

Related to the market power argument is the general commission arrangement between the OTA and airline. The variable commission structure[15] gives the agency an incentive to

[13] "billiga flyg" searched on http://www.google.se on 6 February 2011
[14] http://www.travelpartner.se/ and http://www.supersavertravel.se/ as accessed on 21 April 2011
[15] In the study by Clemons, Hann, & Hitt (2002), commissions ranged from 5%-8% of ticket price, capped at USD50. However a fixed commission schedule was becoming more common. No commission data was

sell more expensive tickets – the agency optimally trades higher revenue of offering higher priced ticket against reduced probability of sale at higher price. This may explain the observed high prices quoted by OTAs relative to the airline websites. As OTAs also have to pay a fee to the CRS for each search request made by a customer – while airline websites are exempt from paying this fee – the higher price also acts as an incentive to discourage search which does not lead to bookings (Clemons, Hann, & Hitt, 2002). Machlis (1997) found that only 1%-5% of browsers actually make reservations through OTAs. Hence a high price strategy that targets a particular group of customers with increased likelihood of purchase is optimal to maximize profits for the OTA.

However, another explanation posed by Clemons, Hann & Hitt (2002) cannot fully justify the price dispersion observed in the data. They propose that certain parameters of the search requests to the CRS will affect which tickets are displayed to the customer, based on the decision rules used by individual OTAs. These parameters include: permitted deviation from requested departure or return time, minimum savings required to justify a connection, maximum duration of a connection, and minimum distance before a connection is considered. As the OTAs analysed here display the same cheapest flights 66% of the time, the search engine parametrisation could only explain the remaining 34% cases of price dispersion. The criteria suggested above will not be considered as no request was made for time of departure or arrival and all flights are direct without connections. Instead it is arguable that the different OTAs have different decision rules regarding which airline companies will be displayed or hidden upon a customer's search request, based on an individual OTA's agreements with the airline companies. Table 4-2 below shows the variation in airline companies displayed across the six OTAs, for airlines that are hidden by at least one OTA.

Table 4-2 - OTA Decision Rule based on Airline Companies

Airline	OTA_1	OTA_2	OTA_3	OTA_4	OTA_5	OTA_6
DS				x	x	
QI	x		x	x	x	x

available for the OTAs studied in this paper, therefore a variable commission structure cannot be eliminated as a possible reason for the price dispersion.

TK	x		x	x	x	x
HG			x	x		x
SN		x	x	x	x	x
SU	x		x		x	x
KF			x			x
4U			x	x		x

"x" shows that the airline is displayed at least once by the OTA

As shown above, the four OTAs owned by eTRAVELi clearly agree not to display flights by Easyjet (DS). This, for example, results in a smaller choice set, particularly for Seat24 (OTA_1) and Travelpartner (OTA_2) which also hide several more flights compared to Mrjet (OTA_4) and Travellink (OTA_5), causing the price dispersion. In support for the price discrimination hypothesis presented above, Travelpartner (OTA_2) has the smallest choice set of airlines. In particular, Travelpartner excludes Easyjet and Cimber Air (QI) which are quoted as the cheapest airlines in many occasions by its rival OTAs. This contrasts with eTRAVELi's cheaper brand Supersavertravel (OTA_6) which, along with Flygvaruhuset (OTA_3), has the biggest choice set, though also excluding Easyjet.

Also contrary to Clemons, Hann & Hitt's research (2002), ticket terms and conditions regarding rebooking or cancellation of flight are not found to explain any price dispersion in the data. The terms and conditions are the same across all sellers, regardless of whether the ticket is bought directly from the airline or through any of the OTAs, as the OTAs simply follow the terms and conditions imposed by the airline company.

5 Conclusion

The results in this essay suggest that despite the efficiency of the internet in reducing search cost, prices for the same ticket do not necessarily converge online. There are significant mark-ups over the airline's price when OTA search engines are used. In addition, OTA prices also vary widely even among those belonging to the same owner. As argued above, the mixed strategy equilibrium of Varian's model of sales does not seem to explain the consistent nature of the price mark-up. It can however be explained by Salop and Stiglitz

(1977)'s Two Price Equilibrium Model, where the different search capacity across travellers is responsible for different search effort. Those who have low search cost will put in the effort to search and be completely informed, and will therefore purchase their tickets from the lowest price seller – the airline. Others with prohibitively high search cost do not search at all, and the unlucky ones out of this group purchase their tickets from the OTAs at much higher prices.

The price dispersion in the mark-ups across OTAs can be attributed to several different reasons. Heterogeneity in seller characteristics seems to be the basis of customers attaching a premium to Scandinavian-owned OTAs. Even among these Scandinavian OTAs, there exists price discrimination between Travelpartner and Supersavertravel, the latter being aimed at more budget-conscious travellers. Search engine parameters determine the size of the choice set for each OTA, hence also bringing about price dispersion. The rest of the dispersion in prices can be explained by variable commission structure and CRS fees.

Price dispersion also exists across airlines, mainly due to the market power of companies such as SK, DY and QI in the region. These airlines do not need to compete for sales as much as the smaller airlines. The OTAs are therefore able to negotiate higher commissions with the smaller airlines, and can then charge lower mark-ups for their air tickets.

For the benefit of potential air travellers among the readers, it is notable that Travellink is the OTA that charges the lowest mark-ups on average, while Flygvaruhuset and Supersavertravel have the biggest choice set of airlines. Travelpartner is dominated in both categories, as they charge the highest mark-ups and have the smallest choice set. As has been pointed out numerous times, however, the airlines themselves are still the cheapest source of tickets.

While this essay has attempted to investigate and explain the price differences across ticket prices online, it has by no means asked nor answered all the important questions. Directions for future research include the potential externalities caused by the search behavior of customers with low search cost on others who have higher cost, as well as incorporating time into the model to capture the effect of factors such as loyalty programs and the entry and exit of firms.

Nevertheless, this paper has shown that the internet is not a perfect medium for information sharing. OTAs have been able to capitalize on that, coupled with the fact that consumers differ in their search costs, and make profits in the online market. In the end, it is up to the consumer to maximize their own surplus by performing search, even simply by going to the airline website, to get a cheaper price.

6 References

Athiyaman, A. (2002). Internet users' intention to purchase air travel online: An empirical investigaton. *Marketing Intelligence and Planning , 20* (4), 234-242.

Bailey, J. P. (1998). Electronic commerce: Prices and consumer issues for three products: Books, compact discs, and software. *Working paper OECD/GD(98)4* . Organization for Economic Co-Operation and Development.

Bakos, Y. J. (1991). A strategic analysis of electronic marketplaces. *MIS Quarterly , 15* (3), 295-310.

Bakos, Y. J. (1997). Reducing buyer search costs: Implications for electronic marketplaces. *Management Science , 43* (12), 1676-1692.

Brynjolfsson, E., & Smith, M. D. (2000). Frictionless commerce? A comparison of internet and conventional retailers. *Management Science , 46* (4), 563-585.

Clemons, E. K., Hann, I.-H., & Hitt, L. M. (2002). Price dispersion and differentiation in online travel: An empirical investigation. *Management Science , 48* (4), 534-549.

Klein, S. (2002). Web impact on the distribution structure for flight tickets. In K. Wöber, A. J. Frew, & M. Hitz, *Information and communication technologies in tourism 2002* (pp. 219-228). Wien/New York: Springer.

Lang, T. C. (2000). The effect of the internet on travel consumer purchasing behaviour and implications for travel agencies. *Journal of Vacation Marketing , 6* (4), 368-385.

Law, R., Leung, K., & Wong, J. (2004). The impact of the internet on travel agencies. *International Journal of Contemporary Hospitality Management , 16* (2), 100-107.

Lee, H. G. (1998). Do electronic marketplaces lower the price of goods? *Communications of the ACM , 41* (1), 73-80.

Lehmann, E. E. (2003). Pricing behavior on the web: Evidence from online travel agencies. *Empirica , 30*, 379-396.

Machlis, S. (1997, December 28). Profits elude travel sites. *Computerworld* , pp. 53-54.

Öörni, A. (2003). Consumer search in electronic markets: An experimental analyses of travel services. *European Journal of Information Systems , 12*, 30-40.

Öörni, A., & Klein, S. (2003). Electronic travel markets: Elusive effects on consumers' search behaviour. *Information Technology & Tourism , 6*, 3-11.

Salop, S., & Stiglitz, J. (1977). Bargains and ripoffs: A model of monopolistically competitive price dispersion. *Review of Economic Studies , 44*, 493-510.

Stigler, G. J. (1961). The Economics of information. *The Journal of Political Economy , 69* (3), 213-225.

Varian, H. R. (1980). A model of sales. *The American Economic Review , 70* (4), 651-659.

7 Appendix

Table 7-1 - List of Airports

City	Code
LONDON	LHR
PARIS	CDG
FRANKFURT	FRA
MADRID	MAD
AMSTERDAM	AMS
LONDON	LGW
MUNICH	MUC
ROME	FCO
BARCELONA	BCN
PARIS	ORY
ISTANBUL	IST
MILAN	MXP
LONDON	STN
DUBLIN	DUB
MANCHESTER	MAN
ZURICH	ZRH
OSLO	OSL
VIENNA	VIE
STOCKHOLM	ARN
BRUSSELS	BRU
DÜSSELDORF	DUS
ANTALYA	AYT
ATHENS	ATH
MOSCOW	SVO
MÁLAGA	AGP
LISBON	LIS
BERLIN	TXL
HELSINKI	HEL
HAMBURG	HAM
PRAGUE	PRG
GENEVA	GVA
TEL-AVIV	TLV

COLOGNE	CGN
NICE	NCE
GRAN CANARIA	LPA
STUTTGART	STR
MILAN	LIN
WARSAW	WAW
BIRMINGHAM	BHX
EDINBURGH	EDI
GLASGOW	GLA
BUDAPEST	BUD
LYON	LYS

Table 7-2 - List of Recommended Airlines and IATA Codes

Airline	IATA Code	Count
Scandinavian Airlines	SK	451
Norwegian	DY	271
Cimber Air	QI	111
British Midland	BD	70
Spanair	JK	42
Airberlin	AB	33
TAP Portugal	TP	30
Easyjet	DS	27
Turkish Airlines	TK	25
Malev Hungarian	MA	24
LOT Polish Airlines	LO	18
Czech Airlines	OK	12
Germanwings	4U	12
Niki	HG	9
Aeroflot Russian Airlines	SU	9
Austrian Airlines	OS	6
Brussels Airlines	SN	5
Blue1	KF	4

Table 7-3 - Regression results for Model (11)

	Model (11)
Intercept	128.67***
Seat24	20.98
Travelpartner	131.53***
Flygvaruhuset	78.06***
Mrjet	7.34
Travellink	-5.38
Seat24*SK	20.32
Travelpartner*SK	-18.05
Flygvaruhuset*SK	12.02
Mrjet*SK	8.53
Travellink*SK	-5.93
Seat24*DY	45.04
Travelpartner*DY	39.73
Flygvaruhuset*DY	29.23
Mrjet*DY	-31.36
Travellink*DY	-53.29*
R^2-Adj	14.77%

Table 7-4 - Regression results for Model (13)

	Seat24	Travelpartner	Flygvaruhuset	Mrjet	Travellink	Supersavertravel
Intercept	126.64***	259.36***	191.54***	126.18***	116.02***	109.48***
SK	36.84***	-17.40	20.06	20.30***	-1.86	11.77
DY	60.45***	39.96	35.44**	-19.73***	-50.85***	34.51***
QI	47.48***		26.50	42.38***	11.40	22.16
DS				9.94		
MON	3.24	-3.40	3.02	-3.85	1.79	2.14
WED	4.52	-4.76	2.73	-5.16	3.68	2.85
FRI	20.51*	11.55	30.50*	2.82	15.08	16.85
SAT	7.03	-0.67	2.92	-3.86	-1.40	-1.23
R^2-Adj	18.70%	-2.48%	4.19%	26.79%	9.33%	4.02%