Causes of Disputes in Online Auctions

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INTRODUCTION

While much research has been done about security, trust and reputation in electronic transactions, we do not know if people are actually engaging in fraudulent behaviour or if their undesirable behaviour is simply a matter of irresponsibility or mistakes. Most scholars and auction companies have assumed that given the features of virtual asynchronous transactions, people are likely to cheat. Previous studies have analysed the importance of reputation mechanisms to deter the likelihood of inappropriate or fraudulent activities but there has been little analysis of the nature of disputes, which are an important factor in the success of an electronic marketplace. To this author’s knowledge no study has been done to reveal the nature of disputes that occur in an auction. We do not know the type of disputes that emerged in online transactions nor the factors that contribute to these disputes.

The purpose of this paper is thus to understand the nature of disputes that occur in online transactions. It is an exploratory study of online auctions to determine first the nature of disputes and second whether factors such as the number of bids, the reputation of the seller, the length of the auction, and the final price are more likely to lead to a particular type of dispute.

LITERATURE REVIEW

Before proceeding with the analysis it is important to specify what is meant by disputes. In the context of this research an online dispute can occur when either the buyer or the seller is dissatisfied with the transaction. To be considered a dispute either the buyer or the seller would have graded the transaction as negative or neutral. Thus a formal dispute resolution process is not necessary for this research to consider a transaction to be under dispute.

To our knowledge there have not been any academic studies that help us understand the nature of disputes. The few studies related to this issue include reports prepared by the National Consumers League (‘Internet Fraud’ 2004) and by the FBI Internet Fraud Complaint Center (‘IC3 2002 Internet Fraud Report’ 2003). Both of these find that auctions are the largest source of Internet fraud with 46% of complaints. Other causes of Internet fraud include non-delivery of merchandise with 31% of the complaints (‘IC3 2002 Internet Fraud Report’ 2003). Beyond these statistics there is little information about the factors that lead to these types of disputes. This study thus is an attempt to fill this gap.

Unlike previous research it is not assumed in this paper that a dispute
is the result of fraudulent activity. There are several actions that can be classified as disputes. These could be outright fraud such as lack of payment or lack of delivery of a paid good/service, as well as misrepresentation. Other disputes can result from slow product delivery, slow payment, miscommunication, and misinterpretation of the terms of the exchange or the product. We have termed these non-fraudulent activities as undesirable transaction behaviour (UTB).

Since no previous study has been done on the issue of disputes this paper presents a self-constructed model that takes into consideration the potential sources of disputes. These are related to the product itself, the individual and the process. From this basic framework we then rely on existing scholarly research to determine the factors that could lead to the different types of disputes. It is important to note nonetheless that many of the relationships analysed in this study do not have scholarly precedent. Under these circumstances the hypotheses are the result of intuition and logical argumentation. Figure 1 is an illustration of the basic model. The following sections will follow the order of the framework.

CAUSES OF AUCTION DISPUTES

When people engage in transactions there is an expectation that they will benefit from the exchange and that the transaction will be smooth. Classic economic theory suggests that people enter into trades because the utility that they derive from what they are receiving exceeds that of what they are giving up.

Most transactions are routine and do not result in problems. Previous work on electronic commerce trust and reputation has shown that interaction with people in real time increases the level of trust when conducting electronic transactions (Basso et al. 2001). Trust develops over time as people interact with one another and incrementally develop trust (Meyerson et al. 1995). In a physical interaction, Ekman and Friesen (1974) find that facial expressions help individuals form either trust or deceptive impressions. Similarly in a physical transaction, where both the buyer and the seller are present, the exchange of goods and payment take place simultaneously at the time of purchase. If there are any problems with quality or payment, these can be immediately resolved. The buyer in a physical trade has the opportunity of inspecting goods and deciding if they fulfil expectations. Similarly if the payment is incomplete or a credit card is not accepted, again the problem can be solved at that moment making the transaction satisfactory for both parties. There are thus several built in factors in a physical trade that make it less likely for a transaction to result in a dispute. The transaction is simultaneous; payment and receipt is done at the time of purchase; if there are any problems with the product the buyer can locate the seller and request repair or exchange; and transactions are often done at established retail stores that have a reputation to protect.

Creative entrepreneurial initiatives, advances in technology and the desire to facilitate the exchange of goods and services led to the development of asynchronous transactions in the form of catalogues, for example, and recently virtual marketplaces. Transactions in these environments have inherently greater risks and the

Figure 1. Factors that lead to different types of fraudulent and non-fraudulent (UTBs) disputes
likelihood that a trade will result in a dispute is thus increased.

There are several factors that make an asynchronous online transaction more prone to disputes. First, asynchronous transactions are inherently riskier than a simultaneous trade. The buyer finds a product that he desires or needs, orders it, pays for it, and waits for delivery. The anonymous identities of the parties as well as the uncertainty about the quality of the product are two of those factors that make online transactions more problematic (Ba et al. 2003). In a virtual environment the investment necessary to set up a retail outlet on the Internet is much smaller than the investment for paper catalogues. This has resulted in the emergence of many micro enterprises that allow individuals to sell things. On eBay, for example, there are millions of individuals selling products and services. There are also countless numbers of micro retailers who are unknown to buyers. The existence of these one-person sellers can potentially result in a market of lemons where low quality goods are exchanged in most transactions (Akerlof 1970).

In this study we analyse Internet auctions, specifically eBay. The reason why we choose auctions is because these are, according to the US Federal Trade Commission, the area where the greatest volume of fraudulent activity on the Internet occurs. We also emphasize consumer-to-consumer transactions because this type of transaction poses the greatest difficulties due to the fact that individuals, unlike business, do not have a strong need to protect their name and reputation.

This study analyses 129 transactions. In order to determine the type of disputes the author and a PhD graduate student coded all of the data points, which led to the classification of disputes listed in Table 1. Miscommunication, lack of payment, and poor quality were the three most common sources of disputes.

**FACTORS THAT LEAD TO DISPUTES**

There are a number of independent variables that we include in this study to determine the factors that lead to different types of disputes. The factors are divided according to the model in three categories: individual, product and process.

**Individual related factors**

In this research we consider three individual factors that could lead to different types of disputes, these are reputation, experience and communication.

**Reputation.** There is a wealth of research regarding the impact of reputation on prices and the reason why reputation mechanisms are necessary. In general it is assumed that, in the absence of a social or legal mechanism to prevent dishonest behaviour, people find it in their best interest to cheat, particularly when repeated transactions are unlikely. In this respect, Resnick and Zeckhauser (2002) report that during their five-month eBay data collection period, ‘89.0% of all seller-buyer pairs conducted just one transaction, and 98.9% conducted no more than four’. Because individuals are unable to form long-term relationships and because it is not possible to develop impressions from physical and facial cues, online auction sites have used technology to try to mimic the peer pressure and social constraints that exist in the physical world. One such mechanism is reputation, which is generally created by traders providing feedback and rating to an individual with which they have had a transaction. This collective set of information is expected to provide future traders with information about the likelihood of cheating given the reputation or history of feedback of the individual they are about to trade with.

We know that reputation mechanisms have been implemented to alleviate the information asymmetries that are prevalent in electronic transactions. Based on research related to reputation we know that only the expectation of repeated transactions will deter an individual from engaging in a fraudulent trade. As stated by Dellarocas, if a seller receives a single negative feedback it could lead to lower bids from buyers. This negative outcome will thus motivate the seller to cooperate (not to cheat) continuously. In a similar vein

<table>
<thead>
<tr>
<th>Type of dispute</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality</td>
<td>“Received my money promptly, delivery of item weeks later, item in need of repair”</td>
</tr>
<tr>
<td>Slow shipping</td>
<td>“Took over a month to send item; but once contacted, very helpful.”</td>
</tr>
<tr>
<td>Seller withdrawal</td>
<td>“Won bid, paid, and had to wait 3 weeks for seller to say ‘sorry, no sale’”</td>
</tr>
<tr>
<td>Fraud</td>
<td>“BEWARE: no contact since payment, no response to emails, phone disconnected”</td>
</tr>
<tr>
<td>Poor communication</td>
<td>“Ignored multiple emails. Tried to contact – wrong #. Beware!”</td>
</tr>
<tr>
<td>Misunderstanding</td>
<td>“Refused to pay by cashier’s cheque/money order as auction terms required”</td>
</tr>
<tr>
<td>NPB (non-paying bidder)</td>
<td>“Placed the Bid, closed auction and after started to research what he bought.”</td>
</tr>
</tbody>
</table>
Keser (2002) argues that the presence of feedback mechanism increases trust and trustworthiness.

As reported by several scholars, reputation ratings are imperfect. Resnick and Zeckhauser (2002) find that ratings are used as a means to reciprocate and retaliate. Individuals can also create new identities and eliminate bad ratings from their history (Friedman and Resnick 2000). It is possible as well for people to conspire against a seller or a buyer and intentionally give negative ratings (Dellarocas 2000). There is also the belief that once an individual has developed a good reputation he will then have the incentive to cheat (Cripps et al. 2003; Diamond 1989).

Reputation is a blanket indicator that is expected to deter all types of UTBs and this results in the following hypotheses:

H1: The lower the reputation of the seller the higher the likelihood of disputes related to fraud, slow shipping, poor quality and seller withdrawal.

H2: The lower the reputation of the buyer the higher the probability of slow payment and non-paying bidders.

A counter hypothesis to these is that buyers and sellers with lower reputations will be less likely to engage in UTBs because they want to improve their reputations. While this is possible, a person with a bad reputation can also simply set up a new account after a series of bad trades. If a person maintains his identity even after the negative feedback he has received then it is unlikely that this person is engaging in fraud and may simply not know the expected rules of behaviour in auction trades.

H3: The lower the experience of the buyer/seller the higher the probability of slow shipping and misinformation.

It is also possible that an inexperienced seller acquired another identity after having several negative feedback and ratings. Under those circumstances one could guess that such a person could have been involved in a fraudulent activity in the past. The presumed inexperienced showed on eBay may thus not be related to this person’s actual inexperience but instead to a poor previous reputation. The following hypothesis is based on this potential situation:

H4: The lower the experience of the seller the higher the probability of fraud and deception.

Communication and misunderstandings. The difference between communication and misunderstanding is that communication refers to the email and telephone exchanges that traders had after the auction ended. Misunderstanding refers to the interpretation that the buyer made of the information provided about the item on the auction site. Communication is a factor that could drastically decrease the likelihood of a dispute. It is possible that electronic or phone conversations can make a transaction more successful (absence of dispute) than one where no communication took place. On eBay buyers can email and sometimes even phone the seller, depending on whether this is posted on the offering page. Unfortunately for researchers there is no available record of the level of communication that took place during the auction. The only thing that we know is whether or not they were satisfied with the transaction. From the feedback it is possible to determine whether poor communication was a factor in the dispute. Because buyers do not have the opportunity to examine the goods or services offered they have to rely on the descriptions that the seller provides on the auction page. This is sometimes complemented with digital pictures (Albert 2002).

The only record of communication between the seller and buyer that the researcher had, aside from feedback, was the description of the offered product. It is thus only possible to test a hypothesis based on that metric. We assume that the greater the number of words and the larger the number of pictures the more detailed the description provided. An alternative explanation could be that detailed pictures could be used as evidence against a seller.

H5: The greater the number of words and the greater the number of pictures describing the product/service the lower the likelihood of misunderstanding and quality related disputes.

Product related factors

Unlike their physical counterparts individuals cannot determine the quality of the goods by ‘kicking the tires’ (Ba and Pavlou 2002) and may only find out the true quality of the good once the product has been purchased (Fung and Lee 1999). It is thus not surprising that auction sites try to absolve themselves of any liability by not verifying the quality of the products offered by the
market traders. In eBay this is done through their User Agreements where they state that they do not have control over the quality, safety or legality of the items advertised as well as the truth or accuracy of the listings.

Scholars have generally assumed that people will tend to cheat given the opportunity. This leads to the lemon problem (Akerlof 1970). Dellarocas for example illustrates through a stylized game theory scenario that in a perfect equilibrium the seller will always cheat (deliver low quality). This is because high quality products are more profitable than low quality products leading the seller to always promise to sell high quality products (Dellarocas 2003). This of course is more likely when both of the traders are assumed not to trade with each other again. In online auction transactions the likelihood of two individuals trading again in the future is low and for this reason every transaction becomes a prisoner’s dilemma game where it is never to the agent’s advantage to be honest (Ba et al. 2003). What then prevents individuals from cheating every time? As pointed out by Klein and Leffler (1981) and explored more formally in Shapiro (1982) businesses are more likely to be honest because sufficiently high profit margins for ‘good quality’ products can help guarantee high gains in the future from sustaining a good reputation. This is persuasive enough to offset the short-term temptation to cheat.

The model presented in this paper takes into consideration three product factors: type of product; complexity of product; and price of the product. Variations in these three characteristics of a product can lead to different types of disputes.

**Type of product.** As stated by Lee and Yoo (1999) quality discovery is more difficult in electronic environments, particularly for goods and services that are non-standardized or hard to describe such as used cars and agricultural products. Similarly, as pointed out by Zeithaml (1981), services more difficult to evaluate than goods and are found to be particularly risky (Murray 1991).

Previous research has nonetheless shown that consumers as opposed to businesses are more likely to engage in fraud and UTB. Grazioli found that the second most frequent case of deception was perpetrated by a consumer against another consumer. As he explains, it is possible that ‘deceivers see consumers as easier prey than businesses or because the Internet is allowing consumers to transact with each other in increasing numbers, the proportion of instances of C2C deceptions over the total is increasing. B2B deceptions and C2B deceptions (where a business is the victim) are much less frequent’ (Grazioli and Jarvenpaa 2003).

There is a potential danger in determining whether a product is standard or not. To avoid that, this research uses several products to help represent a range of characteristics. There are consumer products represented by camcorders and electronic keyboards. There are business related products such as welders. There are services represented by vacation packages and there are also digital products represented by virtual trading cards for the game Magic the Gathering Online (MTGO). The selection of this product will thus help elucidate if some types of products are more prone to certain types of disputes than others. We use the following hypotheses:

H6: **Consumer related products are more likely than business related products to result in fraud, slow shipping, seller withdrawal, slow payment and non-paying bidders than business related products.**

H7: **Services are more likely than goods to result in fraud, non-paying bidders, and slow payment than goods.**

**Complexity of product.** There are some products that are inherently more difficult to buy than others. The purchase of groceries, for example, involves a decision making process that is almost automated, where the buyer does not need to make complex comparisons, and disposable income is virtually the only variable of relevance (Kinsey 1997). This contrasts with the purchase of an automobile or a house, which requires much more research and knowledge of the product and the seller. In between these two extremes lie a number of other products for which people have developed certain criteria to help them decide what to buy. In clothing, for example, young females consider fit, look and style as important factors in their purchase decisions (Taylor and Cosenza 2002).

Similar to the previous section, determining whether a product requires a complex decision-making process would involve a subjective and potentially arbitrary decision-making process. To avoid such a pitfall this study utilizes instead used products, as a proxy to represent hard to describe or complex products. Used merchandise is likely to have different wear and tear characteristics that would be more difficult to describe than the same product in new condition. Without the third party inspection that many scholars recommend (Lee and Yoo 1999; it is expected that used products will lead to more disputes than new products. This results in the following hypotheses:

H8: **Used products are more likely than new products to result in quality deception related disputes as well as misunderstandings giving the difficulty of describing these items.**

H9: **Used products are more likely than new products to result in non-paying bidders as the buyer realizes that the true quality of the good was not as described in the offer.**

**Prices.** To the best of this researcher’s knowledge there has not been any research that has considered the relationship between prices and disputes. Most of the
price-related work related to auctions focuses on the relationship between reputation and prices. We know for example that positive feedback increases estimated price (Ba and Pavlou 2002; Bajari and Hortacsu 2003; Dewan and Hsu 2002; Eaton 2002; Kauffman and Wood 2000) and that negative feedback reduces the probability of sale (Eaton 2002; Resnick and Zeckhauser 2002), or reduces the price of used products (Lee et al. 2000) but it is inconclusive if negative feedback reduces prices. Some author argue that it does (Houser and Wooders 2000; Lucking-Reiley 1998; Melnik and Alm 2000) while others say negative feedback has no effects (Ba and Pavlou 2002; Bajari and Hortacsu 2003; Eaton 2002).

Because there is no previous research that addresses the relationship between prices and type of disputes this study relies on logical arguments that are then tested through the empirical analysis. It is possible that for less expensive products traders are not as concerned about the quality of the good given that there was not much of an investment in the first place. In other words a person may be more willing to tolerate less than perfect goods and perhaps even fraudulent transactions when the item involves small amounts of money. They are unlikely to be so lenient when the item entails considerable investment. More expensive products are more likely to result in quality disputes not because they are more likely to be defective but because people are more likely to report it. As stated by Ba and Pavlou (2002) there are greater risks inherent in transactions that involve very expensive products.

Prices, however, should not have any effect on the likelihood of fraud. This is because it is possible that people do not cheat because they are aware of the system of law that exists and thus even though they may not know the tangible consequences of cheating they know that there is potential punishment. People that cheat at a large scale are also more likely to be caught. Under such circumstances one could argue that the benefits of such small cheating activities are more of a trouble and cost than the potential benefit from it.

H10: The price of the products and services offered by the seller are unlikely to have any effect on the types of disputes.

Process related factors

Bidding. Much research has been done about auctions and prices. Recent studies have analysed the strategies that sellers and buyers use for online auctions. There is evidence from existing research that both buyers and sellers strategically participate in these auctions and one could argue that some strategies may lead to disputes. Studies about bidding behaviour have shown, for example, that sellers can maximize their revenues by manipulating minimum bids, opening prices and reserve prices. Lucking-Reiley (1998) finds that increases in minimum bids result in reduced numbers of bidders but, according to Haney (2001), increasing the bid increment can result in higher revenue as well.

It is possible that the length of the auction could lead to some types of disputes. For example if the auction is long it could lead to the winner’s curse. Bajari and Hortacsu (2003) find evidence of this in their empirical analysis of eBay auctions. Conversely a short auction may result in a lower price and thus less reason for a dispute. A longer auction can provide greater opportunities to artificially raise (‘puffing’) the price through ‘phantom bids’ or by employing larger than the usual bidding increments (Deltas 1999).

The number of bids can also be a factor that leads to certain types of disputes. As pointed out by Teger (1980) and later applied to online auctions (Standifird 2001), the number of bids that a seller receives in an auction can lead to a dispute related to payment. This is because the escalation of commitment may cause a winning bidder to pay a higher price than would otherwise occur.

Sellers can also selectively close an auction after a particular bid has been received (Stubblebine and Syverson 1999). Strategies in auctions are not unique to sellers. Buyers can also contact the seller and bid strategically. However, prices, as stated by Morris and Maes (2000), are over-emphasized in auctions and they become the only criteria for matching buyers and sellers. This criterion can leave some buyers unsatisfied with their purchases. Some of the variables that buyers and sellers can manipulate can have an impact on the probability of disputes. This research will also test the following hypothesis:

H11: The fewer the number of bids and the shorter the length of the auction the lower the number of disputes related to seller withdrawal and non-paying bidders.

Payment methods. The trade press reported that there are approximately 27 billion credit card transactions every year (Caunter 2001). In 2001 2% of these were conducted over the Internet. Fraud from electronic commerce transactions is 10 to 20 times more likely than fraud in face-to-face interactions, and some research reports that e-commerce fraud is as high as 5 to 10% (Caunter 2001). Because of fraud concerns credit card companies have developed sophisticated systems that help them detect unusual behaviour and stop authorization when fraud is suspected.

Studies that have analysed the issue of payments for transactions on the Internet have examined the development of secure systems, the factors that affect the adoption of electronic payments, and the potential for government regulation of electronic banking. Scholars
in the systems field have developed protocols and algorithms to make transactions more secure, to ensure that personal information is not released when a payment is made over the Internet, and to preserve the anonymity of traders (Alexandris et al. 1995; Brickell et al. 1996; Hwang et al. 2003). They have also attempted to develop mechanisms that will assure payment (Schuldt et al. 1999).

While these efforts are valuable in limiting breaches to the system it is also important to realize that many undesirable behaviours have nothing to do with the technology but with the rules related to payments or the places where they are used.

There have been, for example, reports of fraud using PayPal (‘Fraud Prevention Tips For Buyers’ 2004). For the most part this is done through fake websites where the scammer puts up a replica PayPal site and collects passwords and personal information that are then used to enter the user’s account. While this is well known there have been other subtler and more difficult to detect and prove instances of fraud. One example is when a buyer complains to PayPal that she did not receive the merchandise. In such cases if the seller did not get a tracking number from the post office, which some people do not do because it entails an extra fee, or obtain the signature of the buyer, then PayPal refunds the money to the buyer in a process known as a chargeback (‘Understanding Chargebacks’ 2004).

In online auctions individuals accept multiple types of payments such as credit cards, cashier’s cheques, personal cheques and PayPal. Because of the automation that has been achieved with electronic payments, we suspect that credit cards payments and PayPal are the least likely of these to lead to non-paying bidder disputes due to the built in systems and rules that limit the liability of the buyer. Cashier’s and personal cheques, which have time delay, are more likely to cause problems for the buyer.

H12: Electronic payments are less likely to result in non-paying bidders and slow payments compared to non-electronic payments, which are more likely to result in slow shipping, seller withdrawal and fraud.

RESEARCH METHODS

Logistic regression was used for testing the hypotheses. Logistic regression estimates the odds of a trader being engaged in a particular type of dispute (the dependent variable) using ratings, experience, type of product, auction length and bids, and type of payment as independent variables. Logistic regression is an appropriate statistical technique because the dependent variable is dichotomous (either a type of dispute occurred or it did not).

The data analysed in this paper come from a sample of eBay auctions that resulted in disputes. The sample corresponds to 129 transactions in five different product categories. As explained above, a transaction was considered to have resulted in a dispute if either the buyer or the seller graded the transaction as negative or neutral. The data were compiled using a PERL program developed by a graduate student that extracted the data from over 17,000 auctions into a database in two passes over a three week period in May and June 2003. The data required substantial cleaning. Many of the auctions did not result in transactions. Table 2 describes the data used in the statistical analysis. Table 2 presents the operationalized form of the variables.

DESCRIPTIVE STATISTICS

Table 3 presents the number of disputes by type of dispute and by product. It provides the reader a general overview of the data. It shows that physical products rather than services tend to have a greater number of disputes, as do consumer-related items as opposed to business ones such as welders. The table also shows that that the most prevalent type of dispute is related to communication. Buyers and sellers are dissatisfied with a transaction because of the difficulties that they have communicating. Non-paying bidders and quality of the product are the second and third most prevalent type of disputes.

HYPOTHESIS TESTING

The statistics analyse the effects of variables on type of dispute. The analysis of transactions that resulted in disputes yields seven types of disputes. There are thus seven logit regressions. The inclusion of independent variables was determined by the hypotheses explained earlier in the paper. Because we needed to fit four models for each dispute type corresponding to each of the different types of products, the logit results in Table 4 include only the regression for the types of product that show significant product type coefficients. Table 4 shows the results of all of the models fitted for this study.

Quality related dispute appear to only be influenced by whether the product is new or used. All of the other factors do not appear to have any effect on the likelihood of having sellers misrepresenting a product. This result thus failed to support H1 about the reputation of the seller; H4 about the experience of the seller; and H6 about consumer products. H8 about used products is the only one supported. This coefficient is represented by the constant term that captures both the experience of the seller as well as the product being used The probability that a used product sold by a non-power
seller will result in a quality dispute is 76% compared with new products. This finding suggests that of all of the disputes that happen on auction sites, used products sold by non Power Sellers will tend to be misrepresented. The misrepresentation nonetheless is independent of the number or words or pictures that the individual puts on the auction site.

The results of the logit regression related to fraud indicate that the ratings of the seller do not appear to affect the likelihood of fraud. This thus fails to support H1 related to the reputation of the seller. Consumer-related products, which in this study were represented by camcorders and musical keyboards, did not show significant results (H6). As in the previous model, used products are more likely to result in fraud related disputes. The logit regression results also show that both types of payments are likely to result in fraud. The two payment types that were used for this model were cashier’s checks and PayPal/credit cards. The results also show that holding everything else constant, electronic payments through PayPal and credit cards result in a higher of fraud than a cashier’s check. Due to lack of variation in the data, we could not test for the experience of the seller (H4) and services-related offerings (H7).

Table 2. Data description

<table>
<thead>
<tr>
<th>Variable name</th>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product</td>
<td>Data on 6 item types</td>
<td>1=Vacation package, 2=Sony camcorder, 3=Electronic keyboard, 4=Card game, 5=Welder, 6=Drill</td>
</tr>
<tr>
<td>Reputation</td>
<td>Reputation on eBay is represented by seller and buyer ratings. The higher the number the better the reputation</td>
<td>Integer number</td>
</tr>
<tr>
<td>Experience</td>
<td>Power Seller status, which is given to sellers with high volume and good feedback</td>
<td>Dummy</td>
</tr>
<tr>
<td>Quality</td>
<td>The physical products were subcategorized as new and used. A used product is expected to have lower quality than a new one</td>
<td>Dummy variables: new, used</td>
</tr>
<tr>
<td>Communication</td>
<td>Number of words in the description of the item, number of pictures included on the auction page of the item</td>
<td>Integer</td>
</tr>
<tr>
<td>Payment mechanisms</td>
<td>Some payment methods may be more prone to disputes than others so we created different categories of payments accepted in any given bid</td>
<td>Dummy variables: credit card, PayPal, cashier’s cheque</td>
</tr>
<tr>
<td>Tangibility</td>
<td>Physical goods are tangible while services and digital items are intangible.</td>
<td>Dummy variables: physical, non-physical</td>
</tr>
<tr>
<td>Number of bids</td>
<td>The total number of bids for the entire auction</td>
<td>Integer</td>
</tr>
<tr>
<td>Length of auction</td>
<td>Number of hours that the auction was active</td>
<td>Integer</td>
</tr>
<tr>
<td>Final price</td>
<td>The selling price of the item</td>
<td>Amount</td>
</tr>
</tbody>
</table>

Table 3. Disputes by type and by product

<table>
<thead>
<tr>
<th>Dispute type/Product</th>
<th>Vacation package</th>
<th>Sony camcorder</th>
<th>Electronic keyboard</th>
<th>Card game</th>
<th>Welder</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality</td>
<td>0</td>
<td>6</td>
<td>8</td>
<td>4</td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td>Slow shipping</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>7</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Seller withdrawal</td>
<td>0</td>
<td>2</td>
<td>7</td>
<td>2</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Failed to ship</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>6</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Fraud</td>
<td>0</td>
<td>9</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Poor communication</td>
<td>3</td>
<td>7</td>
<td>12</td>
<td>16</td>
<td>1</td>
<td>39</td>
</tr>
<tr>
<td>Misunderstanding</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>NPB (Non-paying bidder)</td>
<td>11</td>
<td>3</td>
<td>11</td>
<td>2</td>
<td>0</td>
<td>27</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>28</td>
<td>46</td>
<td>39</td>
<td>2</td>
<td>129</td>
</tr>
</tbody>
</table>

Pearson chi² (28) = 91.4623 Pr = 0.000
Disputes that result from buyers not paying after winning the auction, non-paying bidders, appear to be related to buyer rating, the tangibility of game cards, the number of hours, and the number of bids. The results support H2, which states that the higher the reputation of the buyer measured by her ratings the less likely that she will fail to pay. Of all of the products that were tested none were significant with the exception of the comparison between physical and digital cards. The result indicate that a physical set of cards was more likely to result in a non-paying bidder (NPB) than virtual cards. This is not a surprising result as virtual cards are more convenient to exchange. In fact virtual goods, for which physical delivery is not necessary, are one of the few transactions for which delivery and payment take place simultaneously. When a physical card is traded the buyer could potentially change his mind and fail to pay. The price of the good was not significant but the number of hours and the number of bids was significant. It was hypothesized in H11 that the longer the auction the more likely there will be a NPB but it was also expected that a greater number of bids would increase the probability of a NPB. The results support the former but not the latter. A potential explanation for this result is that a buyer may change his mind when he realizes that the product was not as ‘hot’ as he may have expected. He may thus wonder if he has bid too much and then decides not to pay. The results also failed to support H12 related to payments. It does not seem that electronic or physical payments have an effect on the likelihood of a NPB.

The likelihood of a product being shipped slowly appears to be related to the seller’s reputation, experience, the type of product and the product’s price. The results support H2 related to the reputation of the seller. Higher seller reputation implies lower likelihood of shipping slowly. Similarly ‘Power Seller’, which is the proxy variable for experience, indicates that sellers with less experience appear to be more likely to take time in sending their products. Business-related products, which in this case are represented by drills and welders, appear to be less likely to ship slowly. The price of the product appears to be negatively related to the likelihood of shipping slowly. It is possible that sellers feel pressure to send items quickly if the buyer paid a high price. Finally the results do not support H12 related to payment types.

The model that tries to determine the factors that can lead to seller withdrawal indicates that only the rating of the seller affects the likelihood of a seller being unable to fulfill a commitment. A seller with a lower reputation is more likely to withdraw than a more reputable one. This means that only H1 is supported. H related to the product offered is not supported. H11 related to the length of the auction and the number of bids is also not supported and H12 related to the type of payment is not supported either.

The final model corresponds to the disputes that happened because of misunderstandings. Of all of the variables included in this model only used products as well as the number of words included in the description of the item are significant. This thus supports H5 related to the number of words and number of pictures. The results indicate that the larger the description the less likely that it will lead to a dispute related to misinterpretation. The number of pictures included in the description nonetheless does not seem to affect the
likelihood of this type of dispute. The results also support H8 related to the type of product. Used products are also more likely to result in disputes related to misinterpretation. The model does not support H2 or H3 related to the reputation and experience of the traders. It seems that misinterpretation can happen independent of these two factors.

Table 5 presents a table that shows a summary of the hypotheses that were and were not supported by the statistical analysis.

**CONCLUSION**

This is the first empirical study that tries to determine the factors that lead to the different types of disputes. It is also the first to determine the type of disputes that individuals have when conducting transactions online. In general scholarly research has tended to assume that undesirable behaviour is fraudulent. We find through the analysis of the data that disputes can emerge for multiple reasons and fraud related to failure to ship a paid product or misrepresented quality are only two of the many types of undesirable behaviour that occur online. The analysis of the transactions that result in disputes found seven different types of dispute including poor quality, slow shipping, seller withdrawal, failure to ship, fraud, poor communication, misunderstanding and non-paying bidders. Of those it was not possible to test for the factors that lead to poor communication because of lack of data related to the electronic communications that took place between the buyer and seller.

The factors that lead to disputes differ by their type. It is clear that the reputation indicator that has generally been the centre of attention for both scholars and auctions sites is not able to eliminate all of the different types of problems that occur when people make virtual transactions.

Because this is the first study and given the limited amount of data the author had available for analysis it is important to take these results with caution. Hopefully exploratory results will help motivate both the academic as well as the private sector to explore these areas with larger amounts of data.

This research finds that used products tend to have problems related to misrepresentation and fraud. A buyer with a better reputation is less likely to fail to pay and the likelihood to pay appears to be related to the

<table>
<thead>
<tr>
<th>Hypotheses supported</th>
<th>Hypotheses not supported</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1: The lower the reputation of the seller the higher the likelihood of disputes related to slow shipping and seller withdrawal.</td>
<td>H1: The lower the reputation of the seller the higher the likelihood of disputes related to fraud and poor quality.</td>
</tr>
<tr>
<td>H2: The lower the reputation of the buyer the higher the probability non-paying bidders.</td>
<td>H2: The lower the reputation of the buyer the higher the probability of slow payment.</td>
</tr>
<tr>
<td>H3: The lower the experience of the seller the higher the probability of slow shipping.</td>
<td>H3: The lower the experience of the seller the higher the probability of misinformation.</td>
</tr>
<tr>
<td>H4: The lower the experience of the seller the higher the probability of fraud and deception.</td>
<td>H4: The lower the experience of the seller the higher the probability of fraud and deception.</td>
</tr>
<tr>
<td>H5: The greater the number of words the lower the likelihood of misinterpretation</td>
<td>H5: The greater the number of pictures describing the product/service the lower the likelihood of misinterpretation and deception (as measured by quality related disputes).</td>
</tr>
<tr>
<td>H6: Consumer related products are more likely to result in fraud, slow shipping, seller withdrawal, slow payment, and non-paying bidders than business related products</td>
<td>H6: Consumer related products are more likely to result in fraud, slow shipping, seller withdrawal, slow payment, and non-paying bidders than business related products</td>
</tr>
<tr>
<td>H7: Services are more likely to result in fraud, non-paying bidders, and slow payment than goods</td>
<td>H7: Services are more likely to result in fraud, non-paying bidders, and slow payment than goods</td>
</tr>
<tr>
<td>H8: Used products are more likely to result in fraud related disputes and misunderstandings than new ones.</td>
<td>H8: Used products are likely to result in quality deception related disputes than new ones.</td>
</tr>
<tr>
<td>H9: Used products are likely to result in non-paying bidders.</td>
<td>H9: Used products are likely to result in non-paying bidders.</td>
</tr>
<tr>
<td>H10: The higher the price of the products and services the fewer the disputes related to slow shipping.</td>
<td>H10: The price of the products and services offered by the seller are unlikely to affect fraud related disputes.</td>
</tr>
<tr>
<td>H11: The shorter the length of the auction the lower the number of disputes related to non-paying bidders.</td>
<td>H11: The fewer the number of bids the lower the number of disputes related to seller withdrawal and non-paying bidders.</td>
</tr>
<tr>
<td>H12: Electronic payments are less likely to result in non-paying bidders and slow payments than non-electronic payments, which are more likely to result in slow shipping or seller withdrawal.</td>
<td>H12: Electronic payments are less likely to result in non-paying bidders and slow payments than non-electronic payments, which are more likely to result in slow shipping or seller withdrawal.</td>
</tr>
</tbody>
</table>
auction process. Sellers are more likely to avoid delays in the shipping of products if these have a higher price, and business-related products are more likely to result in less disputes related to slow shipping. Disputes related to seller withdrawals are related to the ratings of the seller and misunderstanding-related disputes are less likely to occur when a more detailed description is provided.

The implications of this study for the scholarly community are to explore the relationships outlined in this paper on a per dispute basis. A narrower focus with more data will help establish these relationships more clearly. The private sector can benefit from these findings by adjusting their systems according to the factors that affect the likelihood of dispute. Many scholars for example have proposed the use of third parties to validate the quality of a product. Companies can also benefit from these results by confirming them with their greater access to data. A greater understanding of the factors that lead to the different types of undesirable behaviour can help also to develop systems that are able to account for those differences.

Notes
1. Because eBay discourages negative feedback through a click through screen, the system has a positive feedback bias. In order to counteract this positive bias, neutral grading of a transaction is considered a dispute.
2. We thank an anonymous reviewer for this observation.
3. Chargebacks are a recourse given to buyers by eBay/Paypal to get their money back when they complain about not receiving the product bought. The seller could face reversal of payments even if he sent the product but has not taken the precaution of having proof of shipment.

References