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Quantitative analysis of internet auctions advertising features: an empirical study*

by

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Abstract: Internet auction sites are trading platforms with huge number of visitors who may become customers. On-line auctions allow users to buy and sell products without geographical borders, as in majority of cases ordered products are delivered by surface mail. The aim of the study was to collect substantial amount of data describing on-line auctions in a variety of attributes, and customer behaviour. We provide quantitative arguments in the discussion on effectiveness of promotional features used in on-line auctions. Experimental survey showed that almost 2/3 of the total number of observed auctions were indexed in five top (out of 23) product categories. Noticeable difference in sale effectiveness was observed for particular days of week and hours of auction termination. On Saturdays and Sundays the chance to terminate an auction with transaction was 17.72% and 19.46%, respectively, while on Tuesdays - only 14.29%. The highest ratio of successful auction-transaction against total number of auctions ending within particular hour occurred between 19:00 and 22:00. Our approximation of job lot transactions showed that it was a common practice among bidders to buy more than one product form one seller. In the reference period about 25% of all transactions could be qualified as job-lot ones. A miniature image displayed by auction title appeared the cheapest and most price effective form of advertising an auction while promoting on auction site main page was the most effective in increasing visits/displays (by 2341%), yet, the high price of this advertising feature may pay back only if customers' visits turn into transactions.

Keywords: on-line auctions, price effectiveness, bidder behaviour.

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1. Introduction

The beginnings of Internet auctions go back to September 1995 when Pierre Omidyar proposed a fair mechanism for Internet commerce available to everyone – companies and individuals. His project allowed sellers to offer their new or used products and to set a minimum price, while buyers could compete by bidding up to the price they were willing to pay for the item. When the community of internet auctions participants grew in number, a side effect of bidding was to determine product market value. Omidyar opened his service under the name AuctionWeb. The first finalized transaction was sale of a broken laser pointer for $14.83, which appeared attractive to a collector. Shortly, in 1996 AuctionWeb hosted 250,000 auctions. The website became increasingly popular and in January 1997 over 2,000,000 on-line auctions were available on Omidyar's auction site. In September 1997 the company officially changed website's name to eBay.com.

Internet auctions are a subject of extensive study and scientific research in many aspects (see Yang and Wang, 2010). They are an interesting marketplace for new and second-hand products but also may play the role of trend makers or provide a reference for current market price (see Wojciechowski and Musial, 2009) on variety of products. However, for many beginning and experienced merchants on-line auction sites are often the primary marketplace – a trading platform with huge number of visitors that may become customers (see Stafford and Stern, 2002). On-line auction sites allow users to buy and sell products without geographical borders, because in majority of cases ordered products are delivered by surface mail.

Auction sites, depending on their position on the market may offer free or paid services. While basic functionality of an on-line auction is not expensive (or even free) for a seller, additional promotional paid features applied to auctions, potentially increasing transaction probability, are products with which auction site operators try to generate their income. Those advertising features may bring mutual benefits – for auction site operators they bring direct profit and for sellers the features, which, when wisely used, may turn into increase of sales. Although there are plenty of good practice guides for on-line auction traders, they are rarely provided with experimental data giving clear evidence and statistical confirmation of recommended practices.

Our aim is to collect observations, draw some statistical conclusions and provide numerical data for individual interpretation or comparison with other on-line auctions or similar experiments conducted in different periods. This research work is an extended collection of experimental data and conclusions, initially presented in Wojciechowski and Warczyński (2012). In particular, in this paper, we analyze the impact of job lot transactions and preference to buy products from local providers on transactions in on-line auctions.

The paper is built up of four parts. After an introduction, in Section 2 we present the goal of our experiment and how the data was collected. Section 3 shows data analysis in which we try to face bidders' and sellers' behaviour

from different perspectives. The paper ends with conclusions and remarks on experiment limitations.

2. The aim of experiment and data collection

The aim of our project (see Warczyński, 2009) was to collect substantial amount of data describing on-line auctions on a variety of attributes, and customer behaviour seen through a collection of performed actions: visits on auction web page, buying, and comments/assessment of satisfaction after a transaction. The question we try to answer by observation of sellers' and customers' behaviour is what the most efficient techniques and auction features that may lead to successful transaction are. The importance of the problem comes from the fact that sellers may choose various paid marketing tricks and add several promotional features to on-line auctions that may focus visitors' attention on particular product and auction, but there may also be circumstances that increase or reduce probability of successful transaction which cost nothing (or are relatively cheap) but come from selling experience and good practices. Additional paid marketing features finally increase product price (which may result in lower number of transactions) or reduce seller's profit (see also Wilcox, 2000).

We also wondered if population of seller's location city has an influence on probability of selling a product. One may expect that offering a product in a metropolis rises a chance to find a buyer who may want to collect the product personally to avoid delivery costs. This may be especially interesting in case of relatively inexpensive or second hand goods where delivery costs consume a substantial part of transaction.

Conclusions drawn from our experiments may be read from two perspectives: seller's and buyer's one. While we try to identify auction features that increase the chance of selling a product, the opposite ranking may show the attributes of auctions that are interesting for customers because of low number of bids which may lead to lower price of purchased product.

We performed our experiment between February and May 2009, collecting data from on-line auction server Allegro.pl. *Allegro* is a leading on-line auction service in Poland and is also available (under different brands) in several countries in Europe. However, to focus on Polish market only we filtered and removed data describing foreign offers from our database after the collection process. In data collection phase we gained descriptions of auctions with IDs from 550459579 to 6024299121. This resulted in storing information on 36 million auctions, 18 million customers' offers and 150 million links between an auction and product categories, where a particular auction was catalogued. We decided to collect for analysis auctions that ended during one particular month. Because more than 60% of auctions collected in our experiment ended in March 2009 we took this set of data for further analysis. After this filtering we had 11 835 679 auctions ending in March 2009 to analyse.

According to aukcjostat.pl, currently (in June 2012), more that 71% on on-line auctions in Poland are presented in Allegro.pl. Number of auctions is

systematically growing and in the end of June 2012 offer counter shows above 21 million of running auctions (see Fig. 1). High popularity of Allegro.pl is the key reason why it is worth to analyze if sellers' behaviour is rational and how one can define good practices that lead to savings on paid marketing features.

For comparison, the strongest *Allegro*'s competitor in on-line auctions in Poland, Aukcjusz.pl, has 10.5% of the market and eBay Poland's share is 1.3%, according to statistics provided by auckjostat.pl in June 2012.

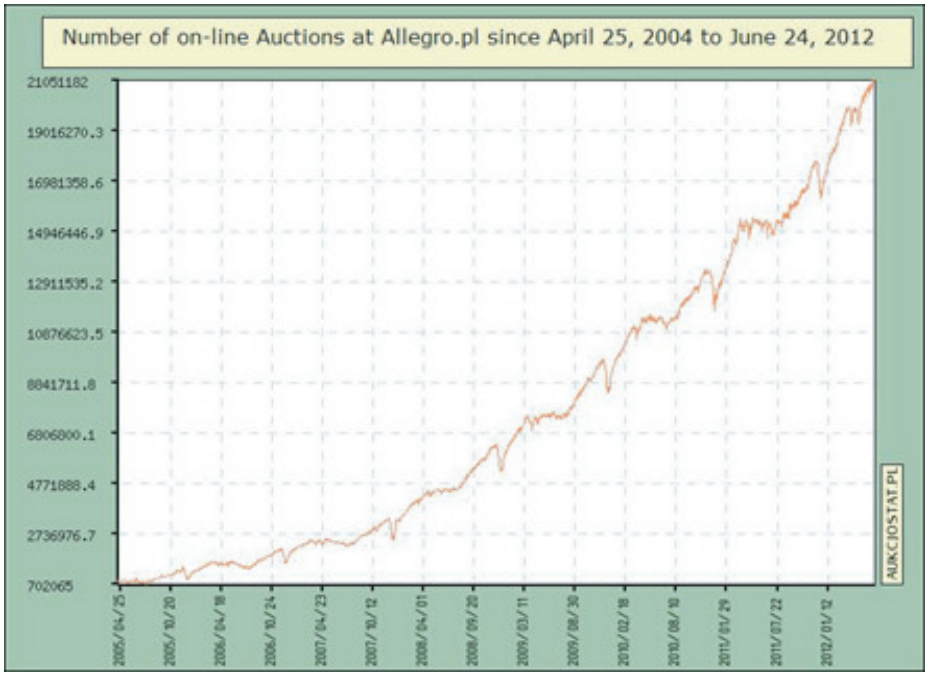

Figure 1. Number of on–going auctions on Allegro.pl from Apr. 2005 to Jun. 2012 Source: aukcjostat.pl

3. Analysis of collected data

The set of cleared and filtered data related to auctions ending in March 2009 contained:

- 11 835 679 auctions
- 9 329 736 bids in auctions
- 52 469 216 records describing links between an auction and product category (or subcategory) in the *Allegro* system.

For purposes of the analysis we define the following terms:

- **Auction-transaction** – at least one product offered on particular on-line auction was sold.
- **Product category** – each auction registered in *Allegro* system may be catalogued in many product subcategories, however each product subcategory must belong to one of 23 main categories, displayed on the home page of the *Allegro* auction system. Thus, we assume that each product offered on an auction belongs to one of 23 main categories.
- **Effectiveness of sale** – percentage of auctions from the chosen set ending with transaction. In case of multi-item auctions we only register the fact of first transaction.

3.1. Products in categories

The first perspective to analyse collected data is popularity of product categories. One may ask if *Allegro* system as an on-line auction platform is an especially convenient place to trade relatively cheap and small products – easy to deliver by postal service. On the other hand, an on-line auction system may be a place where consumers look for expensive products to broaden the competition of offers compared to local stores and benefit in noticeable savings or purchasing big, heavy goods which the consumers are not willing to transport home from local stores by their own.

In Table 1 we present numerical data describing distribution of auctions belonging to particular product categories, number of auctions ending with transaction and effectiveness of sale in all main product categories. Two categories are empty (*Work* and *Erotic*). Category *Work* was filled with announcements, which were filtered out at data preparation stage, while category *Erotic* was introduced to *Allegro* system on May 21, 2009, after our experiment. Low effectiveness of sale in category *Real Estate* results from the fact that such transactions cannot be legally finalized in virtual environment in Poland, but require a notarial act. This may lead to conclusion that some of auctions belonging to *Real Estate* category may be finalized outside of the on-line auction system. This, though, is just a supposition not proved in our experiment.

To understand the data collected one should notice that higher number of auctions in particular product category means higher number of products and wider price competition, which may result in growing attractiveness of on-line auction site assessed from customer's perspective. Five most popular product categories were:

- Cars & Motors
- Clothes & Shoes
- For Children
- Books & Comics
- House & Garden.

Almost 2/3 (64.35%) of the total number of auctions available in the *Allegro* system were indexed in five top (out of 23) product categories. 58.82% of all auctions ending with transactions were catalogued in 5 top product categories.

It is worth reminding that in auction-transaction we do not count the number of products sold but the number of auctions in which at least one product was sold. Thus the actual number of transactions, or products sold, had to be higher, because many auctions are multi-item.

Table 1. Distribution of auctions in particular product categories, number of auctions ending with transaction and effectiveness of sale in all main product categories

Product category	Number of auctions	Auction–transactions	Sale effectiveness [%]
Antiques and Art	300988	76294	25.35
Jewellery and Watches	392893	50427	12.83
For Children	1171594	271031	23.13
House and Garden	878568	53264	6.06
Movies	152089	26616	17.50
Business and Industry	272422	10496	3.85
Photography	101777	14366	14.12
Games	156889	42805	27.28
Collections	611983	209210	34.19
Computers	338335	51555	15.24
Books and Comics	959583	151468	15.78
Cars and Motors	2369319	111179	4.69
Music & Instruments	306986	62900	20.49
Real Estate	12541	92	0.73
Clothes & Shoes	2237657	474461	21.20
Work	0	0	-
Electronics & Household	352090	44199	12.55
Sport & Travel	425146	55568	13.07
Telephones	277134	50683	18.29
Holidays	34386	84	0.24
Health & Beauty	427882	44689	10.44
Erotic	0	0	-
Other	55417	3124	5.64

Five top-selling product categories, where effectiveness of sale reached the highest level, were:

- Collections (auction-transaction ratio is: 34.19%)
- Games (27.28%)
- Antiques & Art (25.35%)

- For Children (23.13%)
- Clothes & Shoes (21.20%).

On the opposite end there are five least selling product categories:

- Holidays (0.32%)
- Real Estate (2.96%)
- Business and Industry (4.28%)
- Cars and Motors (5.17%)
- House and Garden (6.57%).

The nature of products offered in product categories with the lowest auction-transaction ratio requires in many cases personal meeting and written paper contract signed by both side of a transaction (e.g. selling a house or a car). Thus, information presented in the form of an auction in low selling categories may be considered more as an advertisement or announcement than a real auction where bidders may gain property through an on-line transaction, at a distance.

3.2. Time of auction close may affect probability of transaction

Lifetime of an offer presented in on-line auction system is also a subject of research, e.g. Yang and Kahng (2006). Pretty often one can observe that the highest attention of bidders is addressed in last minutes or even last seconds before auction close. This is the time when potential buyers try to win the auction with the lowest possible price. It also became a practice, especially in fixed time auction systems, that software agents play the role of auctions snipers to send bids in last moments before auction closes. Depending on auction site policy, auction sniping may be allowed or forbidden, e.g. eBay Germany banned auction sniping (see Steiner, 2002) this practice being declared illegal by Berlin County Court (see: *Sniper-Software doch legal*, http://heise.de/-85845). One of practices used by some auction sites (e.g. *iGavelAuctions.com*, *TradeMe.co.nz*) to mitigate inequality of chances between software agent auction snipers and bidding humans is to extend the bid deadline when a new bid is placed in last moments before auction end.

Daily perspective

Day of the week when an auction ends may influence probability of transaction. This may come from the fact that the more visitors display and read auction offers the more likely it is that someone buys a product. To measure the importance of termination-day-of-the-week factor for successful transaction we calculated efficiency of sale for all auctions terminated on particular day of the week in the analysed period. Results are collected in Table 2.

Thus, there was a noticeable difference in sale effectiveness on particular days of the week. While on Saturdays and Sundays the chance to sell a product on an auction was 17.72% and 19.46%, respectively, on the least trading day, Tuesday, only 14.29% of auctions ended with transaction.

Hourly perspective

Activity of auctioneers differs in various periods round the clock. One may expect that during night hours less buyers manually review offers and sends

Table 2. Day of the week when auction is terminated vs. chance for transaction

Day of week when auction terminates	Effectiveness of sale [%]
Monday	14.89
Tuesday	14.29
Wednesday	15.44
Thursday	15.22
Friday	14.59
Saturday	**17.72**
Sunday	**19.46**

bids. But how significant is this time influence? In order to assess the effect of auction termination timing on efficiency of auction-transaction we made analysis collected in table 3. We checked efficiency of sale against auction ending hour – what percentage of auctions terminating within particular hour was ended with trade transaction.

Table 3. Efficiency of trade on on-line auctions against auction termination hourly scale

Time of auction termination	Efficiency of sale [%]	Time of auction termination	Efficiency of sale [%]
00:00 – 00:59	9.95	12:00 – 12:59	12.58
01:00 – 01:59	9.20	13:00 – 13:59	12.59
02:00 – 02:59	8.85	14:00 – 14:59	12.90
03:00 – 03:59	8.29	15:00 – 15:59	12.99
04:00 – 04:59	3.09	16:00 – 16:59	14.52
05:00 – 05:59	6.22	17:00 – 17:59	16.62
06:00 – 06:59	8.10	18:00 – 18:59	18.62
07:00 – 07:59	8.61	**19:00 – 19:59**	**20.55**
08:00 – 08:59	8.68	**20:00 – 20:59**	**22.19**
09:00 – 09:59	9.66	**21:00 – 21:59**	**21.28**
10:00 – 10:59	10.79	22:00 – 22:59	16.41
11:00 – 11:59	11.94	23:00 – 23:59	12.55

Experiments showed clearly that chances to sell a product on an on-line auction depend on auction termination time. The highest ratio of successful auction-transaction against total number of auctions ending within particular hour occurred between 19:00 and 22:00 (evening hours). The relation observed confirms our earlier speculations that the highest bidders activity occurs at last minutes of auction time. Another conclusion we can draw from these data is that a huge part of auctions is bid manually, because transactions are fixed in

periods when customers have free time to enjoy on-line auction shopping.

Late night hours (or, as one might say, very early morning hours), especially from 4:00 to 5:00 are the worst period for auction ending from the seller's perspective. The probability of transaction in auctions terminating between 4 and 5 a.m. reached 3%, i.e. seven times less than at peak trading (evening) hours.

Lesson learned from the above experiment is that deep late night/very early morning is the best time for bargains in on-line auctions and sellers should tend to terminate their timed auctions in evening hours when activity of bidders reaches the highest level.

3.3. Paid features to promote an offer on auction site

The *Allegro* system offers several paid options to promote auctions. They include **miniature** product photo displayed next to auction title on auction list, **highlight**ed (yellow background) display on auction list and among search results, **bold** font on the auction list, **priority** (priority auctions are listed before ordinary auctions), advertising on product **category** auction list, advertising on **main page** of auction site. Regardless of the effect (whether an auction ends with transaction or not) the seller covers extra cost when s/he decides to apply those features to promote her/his auction.

To assess how far paid promotional features may increase customers' interest in offered product we computed average number of auction displays (views, visits) for auctions where particular sets of paid promotional features were applied. Results of our analysis is presented in Table 4. We reduced the list to sets of feature combinations which had at least 100 instances (auctions with applied features) within the observed period.

Statistics collected in Table 4 show that additional promotional features increase customer's interest and auction page is visited more frequently when it is advertised. On-line auctions without any advertising features were visited 6.7 times on the average. Then we checked what part of all auctions had particular advertising features applied and how those options increased the count of visits when compared to auctions without the particular feature. We also analysed price effectiveness of buying advertising features. Results are collected in Table 5.

The data collected in Table 5 show that the miniature image displayed by auction title was the cheapest and most price effective form of advertising an auction. Thus, it is not a surprise that it is also the most popular promotional feature applied to 87.82% of auctions. The winner advertising feature in terms of increase of the number of visits was advertising on auction site's main page (visit counter increased by 2341% when compared to auctions without this feature), however, high price of this promotion may pay back only if customers' visits turn into transactions. Considering price effectiveness of promotional auction features, priority seems to be a reasonable option, with cost of 12 PLN which seller must pay regardless of auction result against 438% of increase in customers' visits. Priority, after a miniature, is the second most

Table 4. Popularity of paid promotional auction features and average number of displays/visits on advertised auctions

Type of paid advertisement features	Number of auctions with advertisement applied	Average number of displays(visits) on advertised auction
miniature	9563217	18.3
no paid advertisement	1420171	6.7
miniature + bold	484152	419.2
miniature+bold+priority	94730	74.2
miniature+highlight+bold+priority	43971	724.1
miniature+highlight+priority	21519	619.6
miniature+highligh	19751	79.6
miniature+highlight+bold	14637	112.6
bold	9080	37.8
bold+priority	4263	107.6
priority	4070	139.7
highlight+bold+priority	1362	169.8
highlight+bold	1017	41.4
highlight	805	55.4
miniature+highlight+bold+priority+main page	595	3777.9
miniature+priority+main page	470	4297.6
miniature+bold+priority+main page	458	40006.2
highlight+priority	434	93.3
miniature+highlight+bold+ priority +category +main page	408	4324.6
miniature+ highlight+ bold+ priority +category	326	1312.5
miniature+main page	153	3274.0
miniature+category	130	623.7
miniature+priority+category+main page	107	3810.5
Miniature+bold+priority+category+main page	100	4014.7

popular advertising feature, applied to 5.55% of auctions.

Table 5. Popularity of advertising features, their influence on the increase of the number of visits on auction page and effectiveness of paid promotion of an auction

A Advertising feature	B What part of all auctions applied the feature [%]	C Feature price [PLN] 1 PLN = US$ 0.30	D Generated increase of auction displays [%]	E Increase of display numbers per 1PLN [%] (D/C)
Miniature	87.82	0.15	247	1646.6
Highlight	0.89	6.00	61	10.2
Bold	2.71	2.00	50	25.0
Priority	5.55	12.00	438	36.5
Category page	0.01	29.00	417	14.4
Main page	0,02	99.00	2341	23.6

3.4. Preference to buy locally

During our experiment, we made a small poll among students of Poznan University of Technology and our friends (ca. 50 persons) who had experience in on-line auction purchase. It can be justly said that was not a representative group of auctioneers, however, the result of the poll encouraged us to verify if population of seller's location city has a visible influence on probability that an auction will end with transaction. We asked poll participants if during on-line auction shopping they take into account seller's location. In other words – if poll participants living in Poznan are more likely to buy a product from a seller located in Poznan. They were also asked to name motivation for such a local preference, if they considered buying locally as more attractive.

In this poll all participants expressed their preferences for local purchase if other conditions (product price, quality, seller's reputation etc.) were equal when compared to other competing auctions. Buying from a local provider seemed to have several positive consequences, as expressed by our poll participants:

- Possibility to get the product on the same day when bid on an auction,
- Potential cutting of total cost by delivery price if product is collected personally,
- Easier, personal, return of purchased product if it is unsatisfactory (according to current regulations customers purchasing products on-line have the right to return the product within 10 days to seller with 100% money back guarantee; product is returned to seller at customer's cost).

According to various interpretations of customer's right to 10 days money back guarantee, some sellers move part of product price to postage and packing. There are at least two arguments for such a practice: postage and packing is not refunded when a product is returned to a seller and on-line auction operator charges commission based on product price only, delivery costs being excluded from the commission base.

In order to verify if inclination to buy locally is a permanent property we selected 18 biggest cities in Poland with population above 200,000 citizens. In the next step we divided auctions into two sets:

- auctions with seller located in a city (CITY)
- auctions with seller located in a town or a village (OTHER), some sellers who do not wish to provide their clear location until transaction is fixed, describe their location as 'Internet'. These were also classified as OTHER.

Results are collected in Table 6.

Table 6. Relation between declared seller's location and effectiveness of sale

Declared seller's location	Number of auctions	Auctions finalized with transaction	Effectiveness of sale [%]
OTHER	9 828 961	1 486 485	15,12
CITY (over 200,000)	2 006 718	318 026	15,85

Statistics related to buying local preference surprised us. However, one must take into account that buyers who purchased products on auctions belonging to CITY group did not have to live in the seller's declared location. A city customer buying a product from another city or from other location does not get benefits of local shopping. Even though we could observe a slightly higher effectiveness of sale in group CITY than in group OTHER, the difference was only 0.73 percentage point. Our intuition, supported by our small poll survey, seemed to be confirmed in the experiment but preference for buying locally was not as strong as we expected it before collecting real data. Observed weak real preference for local shopping may be caused by the fact that personal collecting of purchased product consumes time and gives rise to some costs anyway. It also conflicts with a general idea of on-line shopping which assumes buying without leaving home.

3.5. Job lot transactions

A common practice, meant to encourage customers to buy more than one product from a single provider is to offer some saving as a consequence of job lot transactions. The selling person defines delivery cost for the first product bought

on his auction and provides information how the postage and packing cost grows with increased number of products delivered in a single delivery. Thus, in the majority of cases, customer gains lower ratio of delivery cost per single product bought at an auction. One should notice that not all the products must be bought at the same auction – they may be purchased at different auctions but from the same seller.

Taking into account the fact that substantial part of transactions made at internet auctions are low value, the delivery cost may be a noticeable part of total bill. In this context, the job lot practice is a rational approach for both customers and sellers. Sellers pretty often encourage customers to buy more than one product at their auctions. There are even special application templates embedded into auction description web-page, where the seller informs bidders of his other on-going auctions.

Collecting data related to job lot transactions appeared more difficult than our earlier experiments. The process required multiple searches of tables in database where we had description of transactions. For each base transaction T_1 (between seller S and customer C) taken from a database we looked for another transaction T_2 which satisfied the following conditions:

- Bid was made by customer C and the auction belonged to seller S
- Transaction T_2 was made not later than 7 days after the base transaction T_1
- Products in transactions T_1 and T_2 belonged to the same product category in the *Allegro* system.

If it was possible to find two transactions satisfying the above conditions, then transactions T_1 and T_2 were considered as a job lot. Although such a definition of job lot transaction was exposed to errors (products purchased in transaction T_1 and T_2 do not need to be sent in one package or the assumption that job lots apply only to products from one category) we expected to get a general approximation on whether job lot practice is common one among internet auctioneers.

The experiment appeared more time consuming than the earlier queries. To proceed with experimental research and collect general characteristics of transactions we decided to narrow the auction base and we made this search taking into account a subset of auctions with identifiers from 10,000,000,000 to 11,000,000,000. Results are collected in Table 7.

Table 7. Potential job lot transactions in on-line auctions

Data	**Number of auctions**
All auctions	773114
Auctions finished with transactions	474722
Auction-transactions qualified as potential job lot	121222

The experiment performed showed that about one fourth of all transactions

could be the consequence of other transactions or could be qualified as job lot. Seller's knowledge resulting from this query is that it is worth to offer more than one product from a particular domain, because customers are very likely to buy several products from one source and thus save on delivery costs. Such an observation confirms the opinion that for many customers and sellers internet auctions are substitute for regular internet shopping.

4. Conclusion

In our study we tried to observe sellers' and customers' behaviour in on-line auctions. The data collected provide quantitative arguments in the discussion on effectiveness of promotional features used in on-line auctions. The experiment was conducted on the leading Polish auction site *Allegro* from February to May 2009, and effectiveness analysis may differ when compared to other auction sites, because of different pricing of auction's promotional features.

One of important assumptions that we made in our experiment was considering multiple-item auctions as single sells. Thus, even if one or many customers purchased several products at a particular auction we considered such auction as a single auction-transaction. This limitation came from the set of data that we were able to collect and customers actions we could identify from auction system during the experiment. This is an important assumption (or limitation) that must be taken into account when results and conclusions from our experiment are compared to other similar results.

One should remember that the number of visits on an auction page may not easily be turned into transactions. Internet auction sites are very competitive marketplace and paid advertising features are only a part of marketing tricks that may influence sales. From customer's perspective it is good to be aware of advertising methods and avoid emotions when buying goods.

Main conclusions drawn from our experiment are as follows:

- Almost 2/3 (64.35%) of the total number of observed auctions were indexed in five top (out of 23) product categories.
- There was a noticeable difference in sales effectiveness on particular days of the week. On Saturdays and Sundays the chance to terminate an auction with transaction was 17.72% and 19.46%, respectively, while on Tuesdays - only 14.29%.
- Experiments showed that the highest ratio of successful auction-transaction against total number of auctions ending within particular hour occurred between 19:00 and 22:00 (evening hours).
- Among the paid promotional features, advertising on auction site's main page was the most effective in increasing visits/displays (by 2341%), but the high price of this promotion may pay back only if customers' visits turn into transactions.
- A miniature image displayed by auction title was the cheapest and most price effective form of advertising an auction.

- There was a weak preference for buying on auctions offered by local providers.
- Our approximation of job lot transactions showed that it is a common practice among bidders to buy more than one product form one seller. In the observed period about one fourth of all transactions could be qualified as job-lot. Delivering several products in a single package reduces postal cost per purchased item.

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