The effect of geographical distance on online transactions

Evidence from the Netherlands

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Abstract

The rise of online trade alters the role of distance between (potential) buyers and sellers. We use data from eBay subsidiary Marktplaats.nl, one of the largest online trading platforms in the Netherlands, to estimate how distance affects the probability of a transaction between small geographical regions. We find that distance negatively and modestly affects the probability of having a transaction between two regions, and that the distribution of this probability is highly skewed: ranging from a change of 0.000 to -0.008 percentage points per marginal kilometer. The unconditional probability of a transaction is 27 percent. Distance is less influential for 1) advertisements with more photos, 2) advertisements placed by high-frequency advertisers and 3) for new goods in comparison to second hand goods. This suggests that information frictions might be the driving force behind the distance effect on online trade in the Netherlands.

Keywords: Distance effect, online trade, eBay

JEL codes: D44; R12

1 Introduction

The total value of trade between pairs of countries is known to vary substantially with the distance between them (Disdier and Head, 2008a). Is the internet changing the average distance between buyers and sellers? Online trading platforms such as eBay.com, Alibaba.com and Marktplaats.nl allow all kinds of buyers and sellers to find each other regardless of their geographical location and the product they wish to trade.

Hortacsu et al. (2009), using transaction data from eBay and Mercadolibre, find distance effects ranging between -0.05 and -0.10, much smaller than comparable studies using offline trade data.[1] Lendle et al. (2016) compare the effect of distance between eBay and regular trade of the same type of goods in 61 countries in their study. Directly comparing online trade (-0.508) and offline trade (-1.408), they find that distance effects are 65 percent smaller in online trade. The empirical evidence presented in these studies clearly supports the hypothesis that the distance effect on international trade is weaker for online platforms.

The smaller importance of distance on online platforms could have various implications. Online trading platforms could not only affect international trade, but also change the role of distance within countries. As these platforms alter location-based rents, they might alter the geographical distribution of economic activity within a country (Leamer, 2007). For example, households become less dependent on what local stores are offering if they can reach different variety of products through online platforms. As a consequence, certain stores no longer need to establish themselves in a city center.[2] Over time, online trading platforms could affect the prosperity of a country or the wealth distribution within a country. This in turn influences investments needed in infrastructure, public services and social security, and so on.[3]

How online trading platforms will change the location of economic activity depends on

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[1] In an early discussion of the subject, Leamer and Levinsohn (1995) mention a distance elasticity of about -0.6. In a more recent meta-analysis, Disdier and Head (2008a) find an average distance effect of between -0.63 and -0.96.

[2] The rise of Amazon, for example, has coincided with the decline of brick-and-mortar bookstores (Lieber and Syverson, 2012) and music specialty retailers (Zentner, 2008).

[3] For a more in-depth discussion of the effects of e-commerce on market outcomes see Lieber and Syverson (2012).

the channels through which distance may affect trade. There are several ways this could happen: via transportation costs, information frictions, or heterogeneity in preferences and resources. Lendle et al. (2016) find that higher-rated sellers are affected less by distance, which, the authors claim, points towards information frictions as being the main cause for the difference between the effect of distance in on- and offline trade. Information frictions include all costs a buyer incurs in order to gather or interpret information about the product they are buying (Lendle et al., 2016).

In online trade, information asymmetry occurs when the seller has more information on the product than the buyer because the buyer typically does not see the product in person before making a purchase. Especially for non-standardized goods information frictions could be higher for online trade for than for offline trade. In his study of rice and corn traders in the Philippines, Allen (2014) confirms that information frictions are an important factor. As mobile phone usage increased, traders had more access to price information from the other side of the island and prices changed accordingly. Roughly half of the regional variation in prices was explained by information friction. More evidence for this effect can be found in crowd-funding, where the effect of distance between artist and investors could be fully explained by social-related frictions (Agrawal et al. (2011)). Information frictions are therefore important to consider when studying online trade.

We focus on the role of distance on an online trading platform that targets users located in a single, densely populated country, the Netherlands. We use data from eBay subsidiary Marktplaats.nl, one of the largest online trading platforms in the Netherlands, to estimate how distance affects the probability of a transaction on online platforms for a variety of product categories. The Netherlands has two characteristics that make it an interesting case. The first is that online trade has become widespread in the Netherlands: according to Statistics Netherlands the share of Dutch people making online purchases was 82 percent in 2013. Second, information frictions are likely to be relatively important in the Netherlands compared to the other two mechanisms as distances between regions in the Netherlands are rather small. Transportation costs are largely fixed for users of Marktplaats.nl: for many goods the prices charged for shipment are independent of the location of the sender and receiver and items are generally delivered the next day.

The empirical strategy that we use is similar to the approach that Silva et al. (2014) follow to explain differences in the number of trading sectors between pairs of countries. Instead of focusing on international trade between sectors, we focus on the probability that a transaction takes place on Marktplaats.nl between two regions defined by two digit post-code areas. Actual economic transactions are not registered on Marktplaats.nl. Therefore, we cannot observe who exactly purchases the product. However, we have information on who places the maximum bid. Using this information, we assume that the user who places the maximum bid on an advertisement buys the product. In other words, we treat transactions as a latent variable that can be approximated by the pair of an advertisement and its highest bid.

The basic theoretical framework consistent with our empirical strategy is that of Anderson and van Wincoop (2003). In their study the authors provide a general equilibrium model in which international trade flows are determined by the pattern of trade costs between countries. They show that price indices ('multilateral resistance terms') have to be included in regressions on bilateral trade flows in order to take into account correlation between bilateral trade flows. We account for this correlation by adding region fixed effects, following the strategy proposed by Baier and Bergstrand (2009).

For over 1400 different product categories, we estimate the probability of having at least one transaction between two postcode areas, finding that distance reduces the probability of a transaction for most of the product categories. We also find that the distribution of this probability is highly skewed. The influence of distance ranges from a change of -0.008 percentage points in the probability of a transaction per marginal kilometer, to 0. The mean predicted change per marginal kilometer is -0.0016 percentage points. A second-stage regression on the estimated marginal distance effects suggests that distance is less influential for advertisements with more number of photos, advertisements which are placed by high-frequency advertisers and for new goods in comparison to second hand goods. These findings together suggest that information frictions might be the driving force behind the distance effect on online trade in the Netherlands.

The analysis of distance effects on online platforms fits in the broader literature on the role of distance in international trade. As before, Disdier and Head (2008b) find that
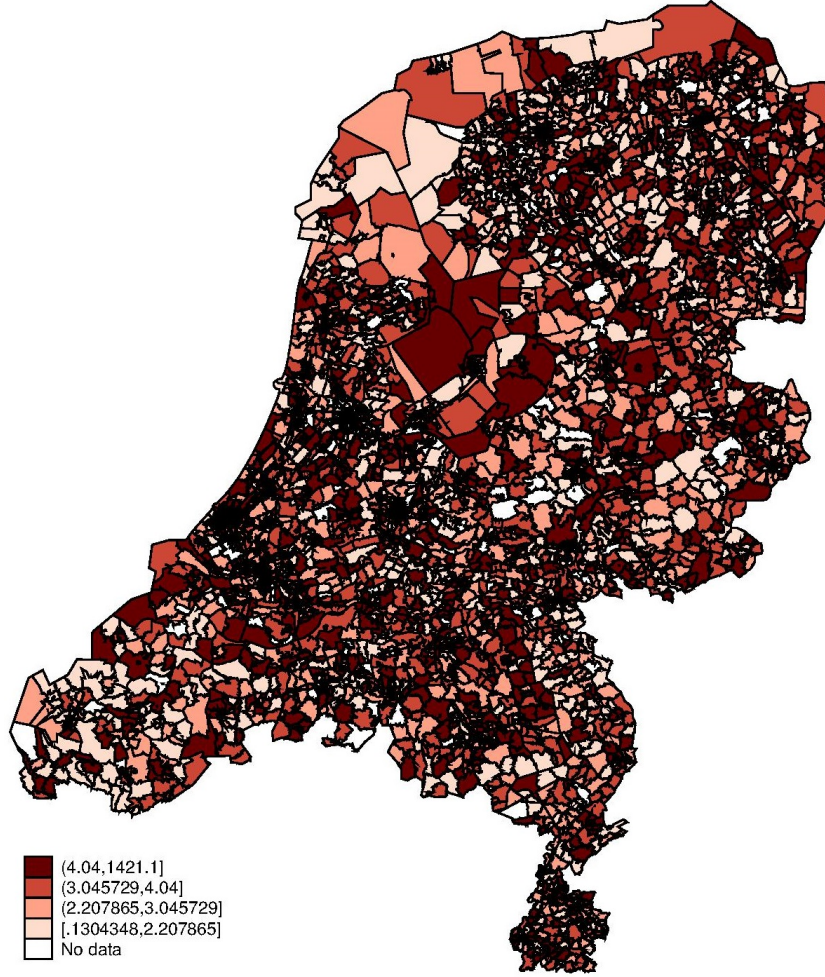
the effect of distance on trade has grown in size over the years. This means that although technology has advanced and trade costs have gone down, the influence of distance has increased. This contradiction has been coined the 'distance puzzle'. The distance puzzle has since been a subject of research, with some authors confirming it Carrère et al. (2013), and some finding solutions, theoretical Chaney (2013) or empirical Anderson and Yotov (2012) in nature. One thing that this debate highlights, however, is that trade costs are not the only mechanism through which distance influences trade.

1.1 Use of Marktplaats.nl in the Netherlands

Marktplaats is the largest online platform for trading in the Netherlands with approximately 2.1 million daily visitors. Founded in 1999, this online platform has rapidly grown and was taken over by eBay in 2004. In 2006 there were a total of 44 million advertisements on Marktplaats. In 2015 this number has reached to 60 million coming from 1.8 million unique users.

Today users from all over the country place advertisements for any types of products on Marktplaats changing from books and clothing to automobiles and houses. Figure 1 below shows how per-capita number of advertisements is distributed across the country. The distribution of dark shaded areas indicate that the use of Marktplaats is common in all regions in the Netherlands, not only in high density population areas.

Figure 1: Per capita number of advertisements in the Netherlands

Marktplaats.nl differ from the well-known eBay in many aspects. First of all, Marktplaats.nl does not oversee the transactions. Once sellers and buyers agree on a price they perform the transaction themselves. This means bids placed on Marktplaats.nl are not binding. A potential buyer with the maximum bid can say no to the seller once bidding process is over. Seller, then, can re-place the advertisement on the website. Moreover, there is no feedback/review mechanism where buyers and sellers can rate each others unlike other platforms. Therefore, it is not possible to track untruthful buyers and sellers.

The paper is organized as follows. In section 2 we present our data set with several sample statistics. In section 3 we explain the empirical methodology used to investigate the distance effect. In section 4 we present the results of our empirical analysis. Finally in section 5 we conclude.

2 Data

Advertisement data that we are using come from Marktplaats.nl, the largest online market place in the Netherlands. The raw data set includes all advertisements placed on Marktplaats.nl from July 2013 until July 2016. For all advertisements we have information on the postcode of the user who places the advertisement (seller), type of the user (casual user, hobby user or professional user; own categorization of Marktplaats), state of the product being advertised (new, used or good as new), total number of photos placed with the advertisement and product categories.

Product category information in our data set is highly detailed. For each advertisement we have two levels of product category information. The first level consists of 29 different categories such as antique goods, computer and software, automobiles, books, women and men clothing. The second level has around 1400 categories dividing the first categories into subcategories, for example, dividing clothing to t-shirts, sports-clothing, etc., and dividing automobiles to Toyoto, Volvo, etc. This enables us to analyze the effect of geographical distance on online transactions separately for each product category, which gives as a detailed picture of the distance effect.
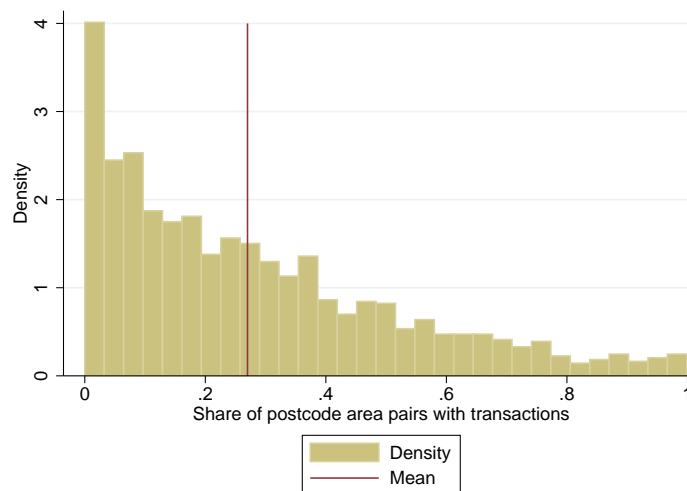
For advertisements placed with a bidding option (37 percent) we also have information on total number of bids and the maximum bid placed for the product as well as the postcode information of the user who placed the maximum bid.[4] Marktplaats.nl differs from eBay and other platforms in that Marktplaats does not facilitate payments between buyers and sellers. Also, Markplaats.nl does not offer users the possibility to rate each other nor to leave reviews. Because of the design of the platform, we do not have information on actual transactions, but only on the interaction between (potential) sellers and buyers prior to a transaction. We use information on advertisement-bid combinations as a proxy for actual transactions, assuming that the user with the highest bid on an advertisement is the most likely buyer.[5]

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[4]We are aware of the fact that this causes a selection problem in our sample. Comparing the available observable characteristic for advertisements placed with and without a bidding option shows that the share of used products (36% vs. 29%) and casual users (40% vs. 24%) are higher for the former group. Therefore, such advertisements are over-represented in our analytical sample. The number of photos are around 3 for both groups.

[5]Throughout our study we use the term "probability of a transaction". The reader should keep in

Marktplaats.nl provides postcodes of the advertisers and bidders with four digits (neighborhood level), we focus on the first two digits (town level) because the number of transactions in a particular product category between four digit postcode area pairs is very small. Focusing on the first two digits of the postcode information yields ninety postcode areas for advertisers and bidders - and 8100 location pairs. We then count the total number of transactions between each postcode pairs. Figure 2 below displays the distribution of the postcode area pairs with at least one transaction on Marktplaats. For a small number of product categories, there are transactions between almost all postcode area pairs whereas for some the share of postcode area pairs with a transaction is very low. For many product categories the percentage of postcode area pairs with no transactions at all is more than 80%. On average there is at least one transaction between only 27 percent of the postcode area pairs.

Figure 2: Distribution of the share of municipality pairs with transactions over product categories

As a measure for distance, we use driving distance in kilometers between postcode areas taken from official traffic statistics provided by the Dutch Ministry of Transportation. Figure 3 below displays the distribution of the distance between postcode areas in the Netherlands. The average distance is around 140 kilometer. Overall, the distribution shows that most of the the postcode areas are not far from each other.

mind that we do not observe the actual transaction, and we assume that the highest bidder is the buyer.

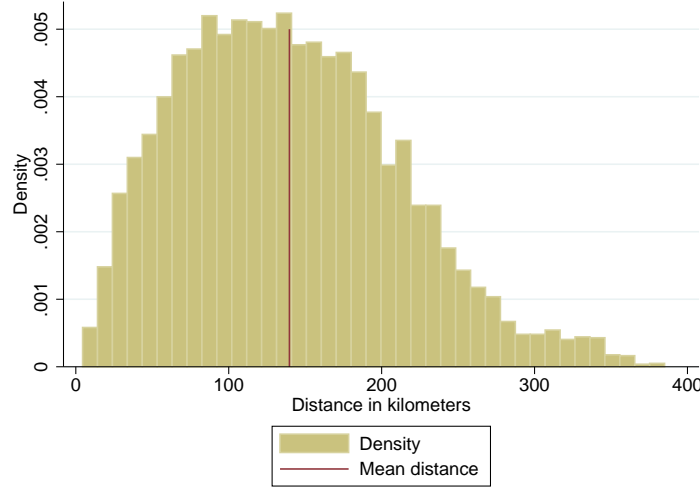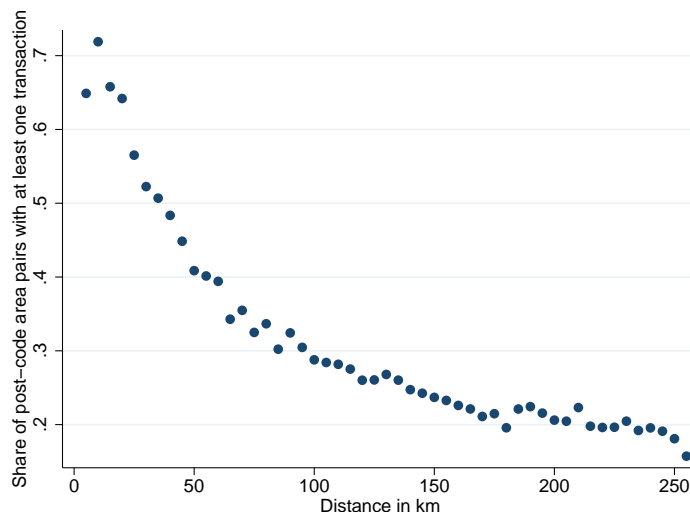Figure 3: Distribution of the distance between postcode areas

Figure 4 displays a brief overview of the relationship between distance and probability of having a transaction. In order to show this simple relationship, we calculated the share of post-code are pairs with at least one transaction for post-code area pairs with 0-5km distance, 5-10km distance, 10-15km distance, and so on. For example, 65 percent of the post-code area pairs with a distance of 5km or less have at least one transaction. The share decreases to 30 percent for post-code area pairs with a distance between 100-105km. The figure indicates a clear negative relationship between distance and probability of having a transaction. The economic magnitude of this effect, and how it changes after controlling for post-code area characteristics and other observable characteristics is an empirical question.

Figure 4: Unconditional relationship between probability of having a transaction and distance

In order to investigate the sensitivity of the distance effect to product and user characteristics, we use variations in user and product state information across product categories as well as the total number of photos in each advertisement. Based on the frequency of online activity, Marktplaats categorizes the sellers into three groups: casual user (with few advertisements and low spending), hobby user (with many advertisements and low spending) and professional user (with many advertisements and high spending). Figure 5 shows the distribution of the share of different user types over product categories. Most of the users are casual or hobby users, 41 percent and 52 percent, respectively. Only seven percent of the users are categorized as professional users. Similarly Figure 6 shows the distribution of the share of the product state over product categories. Fourteen percent of the products are new, 32 percent are used and 26 percent are categorized as good as new. 28 percent are not categorized; therefore, they are shown as unknown. Since the seller choses the category while placing the advertisement on Marktplaats.nl, the products which are categorized as unknown can be systematically different than the others.

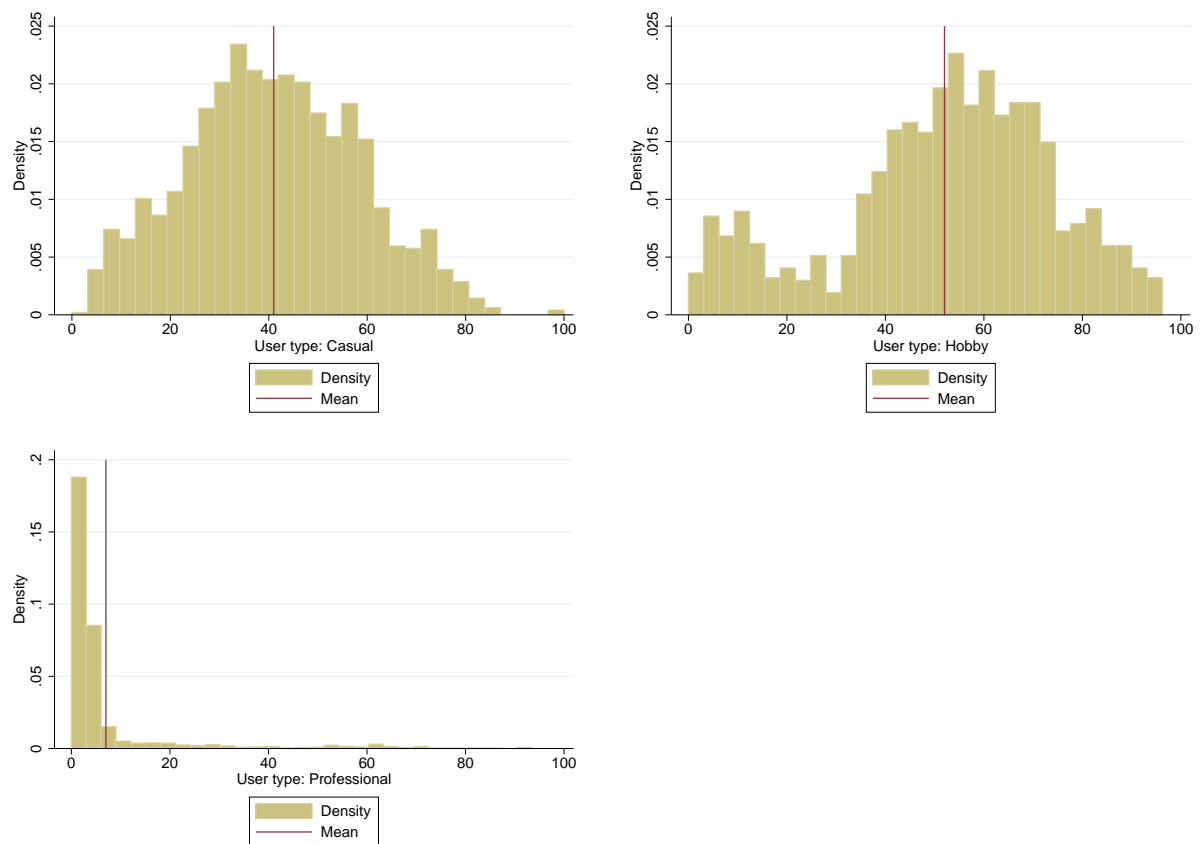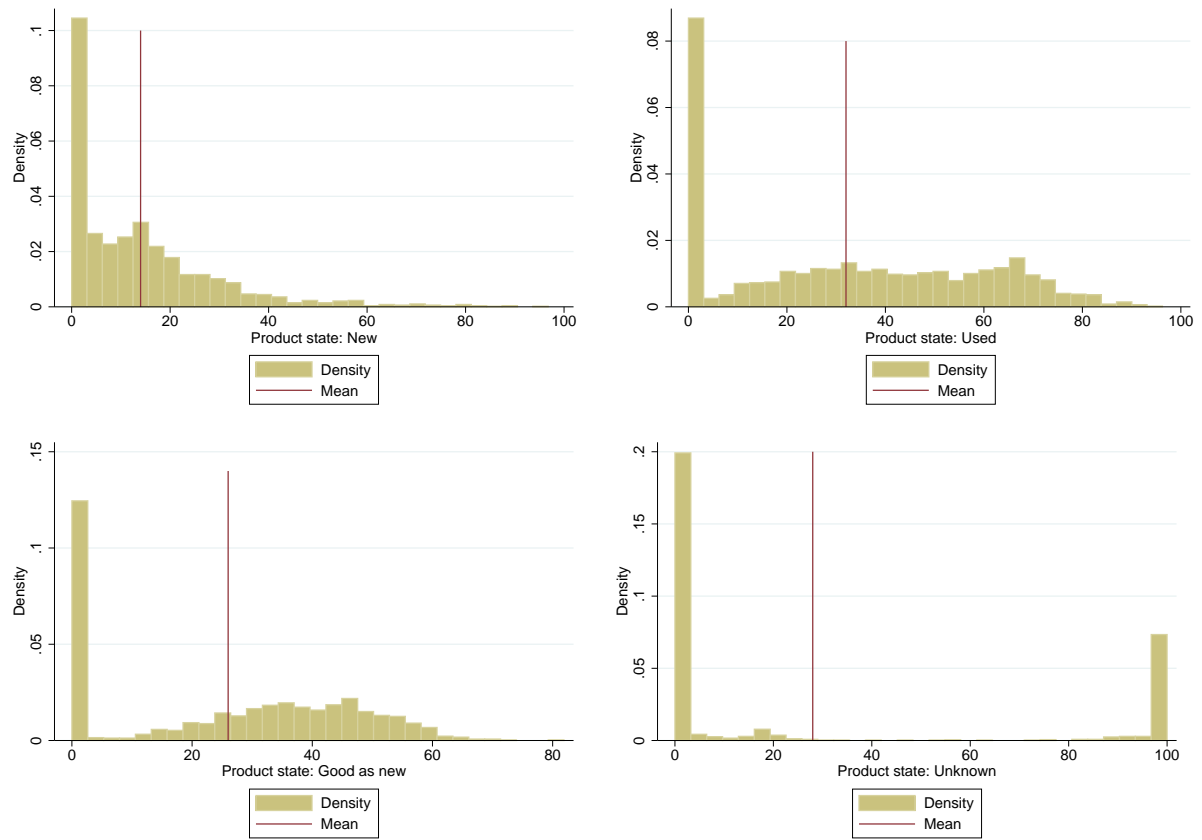Figure 5: Distribution of the user types over product categories

Figure 6: Distribution of the product state over product categories

3 Empirical Methodology

Our empirical strategy is similar to the approach Silva et al. (2014) use to explain differences in the number of trading sectors between pairs of countries. Instead of focusing on international trade between sectors, we focus on the probability that at least one transaction takes place from one region to another.[6] As mentioned earlier actual economic transactions are not registered on Marktplaats.nl and we treat transactions as a latent variable that can be approximated by the pair of an advertisement and its highest bid. We estimate the probability of having at least one advertisement with a bid between two postcode areas ($Y_{ijt} = 1$) using a logit model with the following equation:

$$Y_{ijt}^* = \beta_0 + \beta_1 D_{ij} + \beta_2 S_i + \beta_3 B_j + \beta_4 T_t + \epsilon_{ijt} \tag{1}$$

where Y_{ijt}^* is the latent propensity of transaction variable with

$$Y_{ijt} = \begin{cases} 1 & if \quad Y_{ijt}* > 0 \\ 0 & otherwise \end{cases} \tag{2}$$

D_{ij} is the geographical distance between postcode areas, and S_i and B_j are the postcode area fixed effects for sellers and buyers, respectively. T_t is year fixed effects and ϵ_{ijt} is the error term. Conditional on the seller and buyer postcode area fixed effects, we can extract the effect of the geographical distance on the probability of a transaction. As demonstrated by Baier and Bergstrand (2009), the area fixed effects avoid biased estimates caused by geographical correlation between transactions.

Due to the non-linearity of the logit model, the coefficient on distance alone provides insufficient information on the magnitude of the effect of distance on the probability. Therefore, we calculate the marginal effect of the distance on the probability of having

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[6]Note that our estimation strategy and underlying theoretical foundation is very similar to Hortacsu et al. (2009). However, instead of using the total number of transactions between two regions we focus on probability to have at least one transaction. Hortacsu et al. (2009), the authors study the online trade between states, which indicates that there are indeed online transactions between all the regions. We focus on 2-digit postcode areas in the Netherlands. Our data show that 73% of all postcode area pairs do not have any transaction at all. In many product categories, this percentage is even higher. Therefore, we believe that we can investigate the question of whether there is a transaction or not in a better manner than the question of how many transactions given our data set.

at least one transaction between two postcode areas. Marginal effects have an intuitive interpretation as they indicate the effect of 1km change in distance on the probability of having a transaction between two post-code are pairs. Marginal effect of distance in the logit model is

$$ME(D_{ij}) = \beta_1 P_{ijt}(1 - P_{ijt}) \tag{3}$$

where

$$P_{ijt} = \frac{\exp(\beta_0 + \beta_1 D_{ij} + \beta_2 S_i + \beta_3 B_j + \beta_4 T_t)}{1 + \exp(\beta_0 + \beta_1 D_{ij} + \beta_2 S_i + \beta_3 B_j + \beta_4 T_t)} \tag{4}$$

Equation 4 shows that the marginal effect of distance does not only depend on the estimated coefficient for distance, but also on the other estimated coefficients as well as the values that all the variables take on. Therefore, we calculate the marginal effect for the mean distance in our sample and for values of 1, 5, 10, 20, 40, 80 and 160 km in order to investigate the non-linear nature of the relationship between distance and probability of having a transaction.

The channels through which distance may affect online transactions, namely transportation costs, information frictions, and heterogeneity in preferences and resources, can largely depend on the type of the product being sold online. For example, information frictions may play a large role in the decision to buy an automobile, compared to the decision to buy post stamps. This implies that the distance effect itself might depend on fundamental product characteristics, which makes the information on product categories crucial in our analysis. The data at hand provide detailed information on product categories. The first way to control for such an information is to include variables on product categories into equation 1, and analyze possible interaction effects. However, we have around 1400 product categories which makes it infeasible to follow such a strategy. Therefore, we follow another strategy. In order to systematically use the rich information on product categories, we first estimate the effect of distance on probability of having a transaction separately for each product category and then proceed with a second-stage analysis using the estimated marginal effects from individual product category regressions.

We perform the following regression in our second-stage analysis of the marginal effects estimated in the first-stage.

$$ME(D_{ij})_p = \gamma_0 + u_{1p} \tag{5}$$

Where $ME(D_{ij})_p$'s are the estimated marginal effects of distance for different product categories p. We weight the observations with the inverse of the standard errors of the marginal effects in order to control for imprecisions. γ_0 is then can be interpreted as the weighted-average distance effect. u_{1p} is the error term.

Finally in order to investigate how the distance effect changes according to the differences in observable characteristics of advertisements, users and products, we add product category averages into the equation 5.

$$ME(D_{ij})_p = \delta_0 + \delta_1 P_p + u_{2p} \tag{6}$$

Where P_p is average product category characteristics: share of different user types, share of different product states, maximum bid and the number of photos. u_{2p} is the error term. δ_1 then shows how the distance effect changes according to the differences in characteristics of advertisements, users and products.

4 Results

We perform the logit estimation in equation 1 separately for each product category and calculate the corresponding marginal effects. The results are summarized in Figure 7 below. Figure 7 plots the distribution of the estimated marginal effects from the individual logit models first for the mean distance at the sample, and then for fixed values of 1km, 5km, 10km, 20km, 40km, 80km and 160km, respectively. For all of the product categories we find a negative estimate, suggesting that as the distance between two postcode areas increases, the probability of having a transaction decreases. The estimated marginal effects change from -0.008 to 0 where on average it is around -0.0016. Some of the products with near-zero effects are small items: baby clothing, post-stamps and coins,

books, cds and dvds, and expensive items: motors and luxurious automobiles. For such products the distance between buyers and sellers seems to have no effect at all. Some of the products categories with the strongest distance effects are bicycles, houses, general automobiles, home appliances and computers.

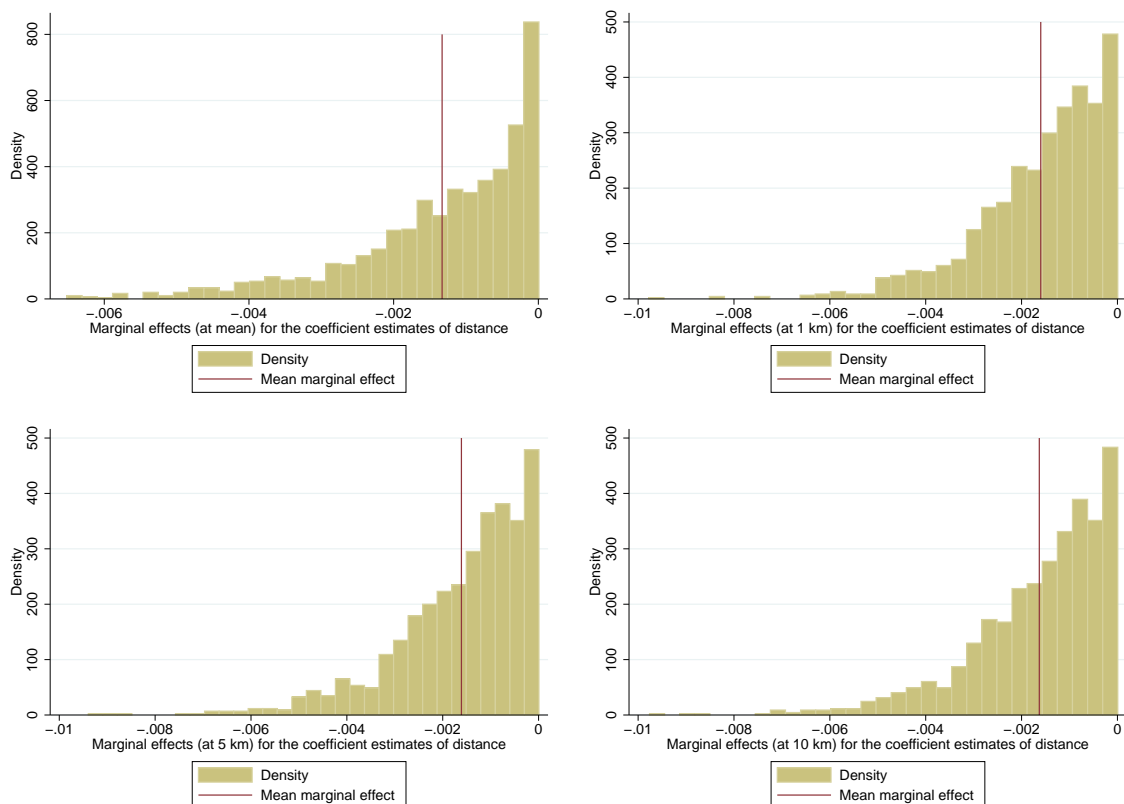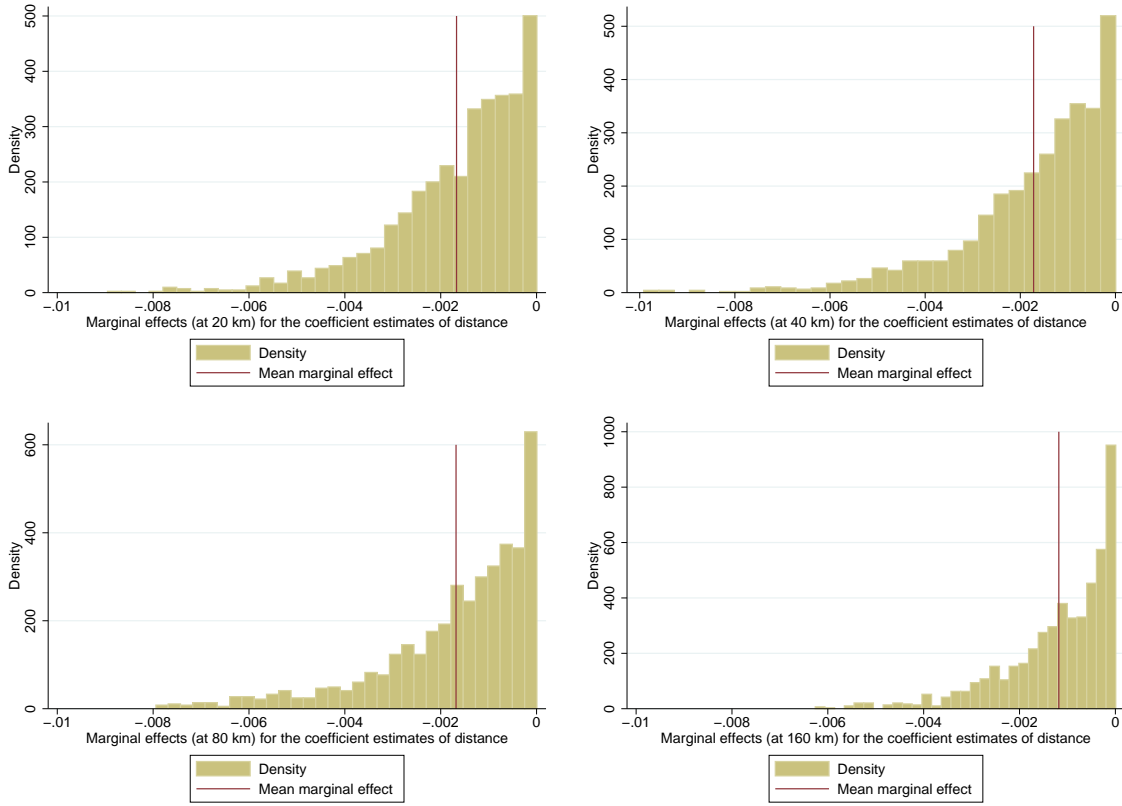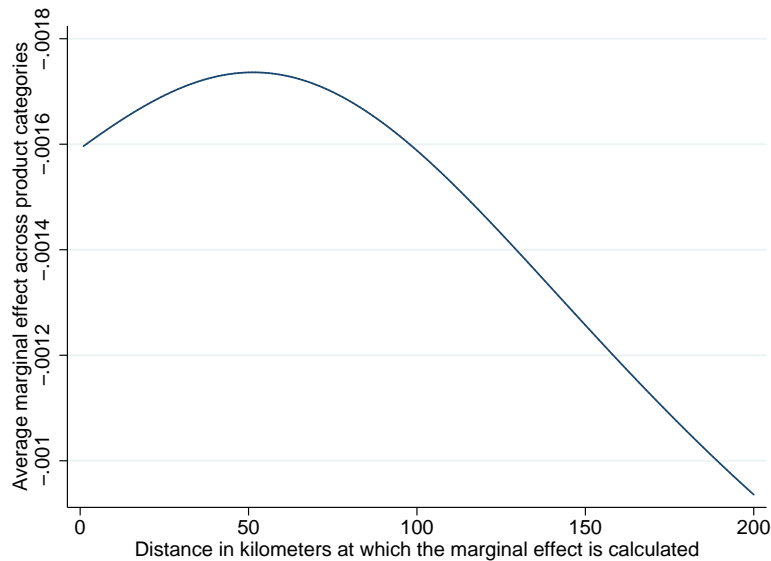Figure 7: Distribution of the marginal effect over product categories

In order to see how the marginal effect changes with the fix values of distance, we also calculate the marginal effects for each product category for all distances from 1 to 200 km. Figure 8 displays the average marginal effects across product categories. Marginal effect of distance increases in magnitude up to 75km. For distances larger than 75km, marginal effect decreases in magnitude as the distance increases, indicating that the distance effect is non-linear and becomes smaller for large distances.

Figure 8: Average marginal effects across product categories calculated at different distances

The results of the second-stage analysis are presented in Table 1. In all estimations we weight the observations with inverse standard errors. Therefore, the estimates with low standard errors get higher weights. This is necessary in order to correct for the imprecision of the estimates. In all estimations we regress the estimated marginal effects of distance on a constant. The estimate for constant in row (a) shows that the weighted-average distance effect is -0.0007, which indicates that 1 km increase in distance is associated with 0.0007 percent-point decrease in the probability of having at least one transaction on Marktplaats.nl. The results presented in other rows show that marginal effect of distance slight increases as distance between two post-code areas increases up to 40km, and then it starts decreasing for larger distances.

Table 1: Second-stage analysis of the distance effect over product categories

Distance values	Marginal effect	
at Mean	-0.0007***	(0.0001)
at distance=1km	-0.0008***	(0.0001)
at distance=5km	-0.0009***	(0.0001)
at distance=10km	-0.0009***	(0.0001)
at distance=20km	-0.0009***	(0.0001)
at distance=40km	-0.0010***	(0.0001)
at distance=80km	-0.0009***	(0.0000)
at distance=160km	-0.0006***	(0.0000)

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Weights: Inverse of the standard errors.

For post-code area fixed effects and year fixed effects, sample means are used in all estimations

Even though we find statistically significant effects, the magnitude of the distance effect is small. An average marginal effect of approximately -0.0010 for short distances suggests that 10 km increase in distance causes a decrease in the probability of having a transaction by -0.01. Since the average probability of having a transaction in our data set is 0.27, this suggest that 10 km increase in distance is associated with approximately a modest four percent change in average probability. Note that this is an average marginal effect. For certain product categories such as books and clothing this effect becomes zero, and for certain product categories such as automobiles and home appliances the marginal effect increases.

In Table 2 we add control variables for some advertisement characteristics, product state and user types into the second-stage analysis. In each column we use the estimated marginal effects obtained using the mean distances (row 1 of Table 1). Each control variable is the average over product categories. Column (1) repeats the baseline result. In column (2) we investigate how the distance effect is associated with the number of photos placed with an advertisement. The coefficient estimate is positive and significant. Therefore, we can see that for product categories where the average number of photos in advertisements is higher, distance effect is found to be smaller. This is in line with the effects of information frictions, as more pictures provide more information about the product, which decreases the information asymmetry between the seller and the buyer.

Column (3) shows that the distance effect is smaller for advertisements with a higher maximum bid. Column (4) indicates that the state of product is also significantly associated with the distance effect. Compared to the used products, the distance effect is smaller for new products. This is also in line with the information frictions mechanism. Used products can be considered as more uncertain; therefore, more prone to the distance effect. Finally column (5) shows that compared to casual users, the distance effect is smaller for the products sold by hobby users. Since these users have more experience in placing advertisements on Marktplaats, they maybe know how to alleviate uncertainty problem, which decreases the influence of information frictions. Insignificant results for professional users can be due to the low number of observations.

Table 2: Second-stage analysis of the marginal effect over product categories

	(1) M. Effect x10000	(2) M. Effect x10000	(3) M. Effect x10000	(4) M. Effect x10000	(5) M. Effect x10000
Photos		0.49*** (0.06)	0.47*** (0.07)	0.26*** (0.07)	0.68*** (0.17)
Mean bids			0.01 (0.01)	0.01 (0.01)	-0.01 (0.01)
Product state (Reference: Used):					
New				0.11*** (0.02)	0.10*** (0.02)
Good as new				0.03 (0.02)	0.01 (0.02)
Unknown				0.07*** (0.01)	0.05*** (0.01)
User type (Reference: Casual):					
Hobby					0.06*** (0.02)
Professional					0.01 (0.02)
Constant	-7.11*** (0.25)	-9.01*** (0.40)	-8.96*** (0.42)	-12.35*** (1.08)	-16.21*** (1.54)
N	1418	1418	1418	1418	1418

Standard errors in parentheses
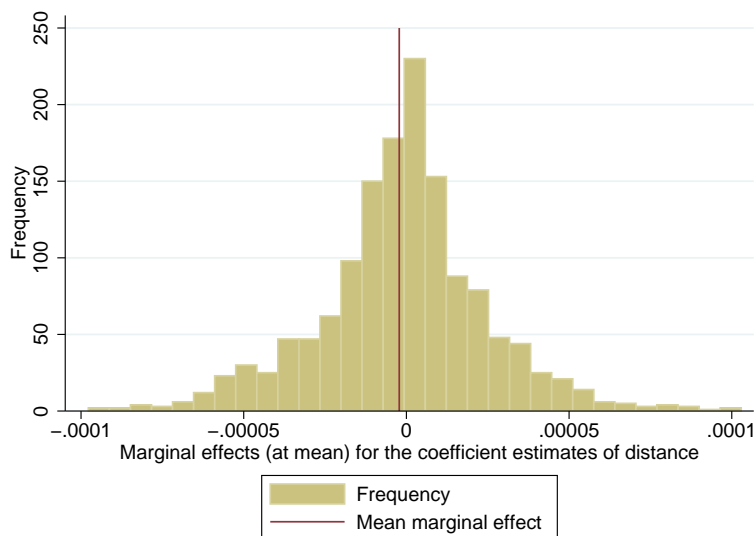* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
In all estimations the results at row (1) of Table 1 are used.
In order to rescale the coefficients we used marginal effects x 10000 in these regressions.

The second stage of our analysis with linear regression uses the results from the first stage with logit analysis. Even though we do not present both stages as a novel estimation strategy, one might still question the consistency of the second stage results. In order to check if our results are somehow coincidental due to the different distributional assumptions between the two stages we perform a sensitivity analysis with pseudo distance

effects. For this analysis we first generate a random distance variable for each product category with the same distribution as that of the observed data. We then perform our logit estimation using the random distance variable, and use estimated marginal effects again in the second stage. Figure 9 below displays the pseudo distance effects. As expected distribution is close to normal with a mean effect of 0. Once we use these marginal effects in the second stage analysis, we have very small and insignificant effects. The results show that our findings are not coincidental due to distributional assumptions in two stages.

Figure 9: Distribution of the pseudo marginal effect over product categories

5   Conclusions

Our empirical analysis focusses on how distance affects the probability of having a transaction between two regions in the Netherlands. We use logit models in which we control for year fixed effects as well as buyer and seller area fixed effect. We perform such logit estimations separately for each product category, resulting in around 1400 distance effect estimates. We then use these estimates in a second-stage analysis where observations are weighted with inverse standard errors in order to report a single weighted-average distance effect.

The regression results indicate that there is a modest distance effect. A ten kilometer

increase in distance between two regions causes a decrease in the probability of having a transaction by -0.01. Considering that the average probability of having a transaction between two post-code areas in our data set is 0.27, this effect suggest that ten kilometer increase in distance is associated with approximately four percent change in average probability. Moreover, we find that the distance effect is highly non-linear as such the marginal effect of an increase in distance becomes smaller for larger distances.

The effect of distance on the probability of a transaction is smaller for advertisements with a higher number of photos, advertisements placed by experienced users and advertisements for new products in comparison to used products. Consequently, we conclude that information frictions might be the driving force behind the distance effect on online trade in the Netherlands.

The finding the distance effect is partly driven by information frictions can be interesting from a policy point of view. Policies aiming at reducing information frictions through better reputation building mechanisms can result in a higher volume of online trade. Moreover, this also suggest that as online platforms become more aware of the role of information frictions they can change their user interfaces in a way that facilitates information transfer between buyers and seller. For example, in case of Marktplaats, introduction of a reputation building mechanism such as user reviews or response rates can result in a decrease in the overall distance effect and an increase in the total volume of transactions.

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