

Online Product Descriptions – Boost for your Sales?

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Abstract. Product descriptions are a source of information online consumers can use to reduce product uncertainty. Recent research provides evidence that consumers favor using information from other consumers, such as customer reviews, over retailer or manufacturer provided information, such as product descriptions. We complement this research and show that the presence of product descriptions significantly influences products' sales and that this influence decreases with an increasing number of customer reviews. We furthermore demonstrate that a product description's information amount positively affects a product's sales. The number of customer reviews available for a product also moderates the effect of the information amount of a product description on sales.

Keywords: Product Description, Product Uncertainty, E-Commerce, Customer Reviews

1 Introduction

Online consumers face a barrier in physical experience of products. While consumers in offline markets can touch the product of their choice, online consumers hardly can evaluate a product's physical characteristics prior to purchase. Consumers in online as well as offline markets typically perceive uncertainty in purchase decision processes [1–3].

Pavlou et al. [4] investigated reasons for perceived product uncertainty by considering the relationship between sellers and consumers as a principal-agent problem. Amongst others, they identified information asymmetry as one of the most important determinants of perceived uncertainty. This information asymmetry refers to the seller or the product and finally leads to seller uncertainty or product uncertainty [4, 5]. Seller uncertainty is defined as consumer's difficulty to predict a seller's behavior in the future whereas product uncertainty refers to the difficulty to evaluate a product's quality prior to purchase [2, 6].

Product descriptions often are the only information source for consumers. Customer reviews and expert tests especially are not available for new products. In contrast to customer reviews, sellers furthermore can control the content of product descriptions. Thus, product descriptions likely will influence sales. However, product descriptions and their impact on sales have been sparsely addressed in recent research. We focus on

the effect of product descriptions on the reduction of product uncertainty. We follow Pavlou et al. [4] and assume that a lower product uncertainty leads to higher sales and analyze the impact of product descriptions on sales. The research question investigated in this paper therefore is as follows:

RQ: What is the effect of product descriptions on product sales?

Our empirical investigation shows that products with a product description generate higher sales than products without a description. We provide evidence that the information amount of product descriptions is positively correlated with products' sales.

With this paper, we contribute to recent research by (1) examining the effect of the presence and the information amount of product descriptions on sales, (2) distinguishing between the effect of product descriptions written by a retailer and product descriptions written by a manufacturer, (3) investigating the interaction effect of product descriptions and customer reviews on sales.

The remainder of this paper is organized as follows. In the next section, we review related research. We thereafter discuss the theoretical background on product uncertainty and its reduction. Afterwards, we describe our research model followed by a description of our empirical evaluation. We then present the result of the empirical evaluation and of some robustness checks. We conclude this paper with a summary of our results and a discussion of the implications for researchers and practitioners.

2 Related Research

Consumers in offline markets can inspect a product's physical characteristics and can get personal advice from the seller. Consumers in online stores, such as Amazon or Staples, predominantly have two sources of information to learn about a product's characteristics: customer reviews and product descriptions [7]. Consumers typically have a higher trust in information from other consumers than from a producer or a marketplace [8]. Recent research thus has intensively investigated the effect of customer reviews, as one source of information, on consumers' purchase decision processes and retailers' sales [9–11]. These studies demonstrate that customer reviews affect purchase decisions and ultimately sales to a large extent. Wang et al. [12] investigated customer reviews embedded in product descriptions and found, that embedded customer reviews rise sales.

The more reviews are available, the lower is a consumer's perceived product uncertainty [13, 14]. But if there are no or only a few customer reviews available, consumers tend to consult other information sources (e.g., Question and Answer (Q&A) technologies or product descriptions). Banerjee et al. [15] found evidence, that question and answer technologies can reduce a consumer's uncertainty, whether the product fits her needs, affecting the review quality. However, implementing such Q&A technologies is not costless and thus, most market places do not provide such technologies which in turn forces consumers to contact other information resources such as product descriptions. Dimoka et al. [2] found evidence that product descriptions

reduce product uncertainty most significantly among several information sources, such as product descriptions, product inspections, history reports and product warranties. Further, Detlor et al. [16] found evidence, that product descriptions are important in pre-purchase online information seeking. Hence, product descriptions are another important source for reducing product uncertainty with two major advantages compared to customer reviews: First, product descriptions are also available in the absence of customer reviews, because they are provided by the seller. Thus, product descriptions are often the only source of information consumers can digest to learn about a product's characteristics prior to purchase. And second, sellers can control product descriptions and hence the extent to which they reduce product uncertainty.

We discuss the relationship between product uncertainty and sales and how to reduce product uncertainty in order to improve sales in the next section.

3 Theoretical Background

3.1 Product Uncertainty and Sales

Product uncertainty is defined as consumers' difficulty to evaluate a product's characteristics prior to purchase [17]. The higher the variance of product characteristics the higher is the perceived product uncertainty [6]. A consumer who wants to purchase a new electric toothbrush might feel uncertain about whether a particular toothbrush is controllable via a mobile application. If there is no toothbrush with mobile application support available, there is no variance for this characteristic. Thus, in the case that none of the toothbrushes provides mobile application support there is no product uncertainty. As soon as there are toothbrushes with and without mobile application support available, consumers perceive product uncertainty to a particular extent about the quality of that mobile application support.

Product uncertainty has negative implications for both, sellers and consumers. Recent research has demonstrated that the higher the product uncertainty, the lower is the price premium that can be charged for a particular product [2]. Product uncertainty furthermore negatively affects sales [4] and the number of product returns [6]. Consumers' transaction costs increase with the perceived product uncertainty because consumers need to invest search costs in order to reduce product uncertainty [18]. Furthermore, a rising product uncertainty decreases consumers' purchase intention significantly [4]. Thus, sellers and consumers have a keen interest in reducing product uncertainty. Therefore, sellers and consumers provide information in form of product descriptions or customer reviews to reduce product uncertainty in online stores.

Recent research provided evidence that sales significantly rise when consumers' uncertainty in product quality decreases. Given the positive relationship of low product uncertainty and sales [4], sellers seek to reduce product uncertainty in order to improve their sales. Besides motivating consumers to submit product reviews, sellers also can provide product descriptions that discuss important product features. In the next section, we discuss how sellers can reduce product uncertainty in order to improve their sales in more detail.

3.2 Reduction of Product Uncertainty in Online Stores for Improving Sales

Online consumers want to learn about a product's characteristics before purchase in order to reduce product uncertainty. In offline stores, consumers can reduce product uncertainty by inspecting a product itself and requesting individual advice from the seller. Inspecting products prior to purchase is typically not possible in online stores. Thus, online consumers gather information about a product's characteristics from different information sources, such as product descriptions and customer reviews [19, 20].

Customer reviews are peer-generated product evaluations that typically consist of a product rating and an optional textual description of the experiences with the product [21, 22]. Recent research has shown that the existence of customer reviews reduces product uncertainty and thereby improves consumers' purchase probability [20]. Customer reviews might vary significantly in the product characteristics they discuss. The probability that a consumer can learn about some certain characteristic increases with the number of provided customer reviews [23]. Mudambi and Schuff [21] furthermore find evidence that the length of the textual description of a customer review is positively correlated with the perceived helpfulness of the review. Longer reviews presumably discuss more product characteristics. Archak et al. [24] show that reviews discussing more product characteristics are more influential on consumers' purchase decisions. Similarly, Scholz and Dörner [22] find support that reviews with a higher information amount are more helpful for consumers. Reviews with a higher helpfulness are more likely to reduce product uncertainty [21]. Helpfulness has been furthermore shown to positively affect a retailer's sales [9]. In summary, product reviews are an important source of information. They influence consumers' decision-making processes by reducing information asymmetries and thus by reducing product uncertainty.

In contrast to customer reviews, the effect of product descriptions on reducing consumers' product uncertainty has been sparsely analyzed in existing research. Dimoka et al. [2] investigate the influence of product descriptions on product uncertainty in online car auctions. They provide evidence that the influence of product descriptions is nearly twice as much as that of third-party assurances, such as (car) inspections, history reports or product warranties. Ghose and Han [7] find evidence that the length of product descriptions is positively correlated with sales.

In summary, existing research demonstrates that customer reviews and product descriptions contribute to reduce product uncertainty. A positive impact of customer reviews on sales has also been found in several studies [25–28]. An investigation of the effect of the existence of product descriptions as well as the interaction of product descriptions and customer reviews on sales is missing so far.

4 Research Model

Recent research has illustrated that product uncertainty significantly influences sales [4]. Factors positively influencing product uncertainty are hence likely to negatively

influence sales. In the following, we will use sales as proxy for product uncertainty because product sales are easily observable.

Product descriptions have been found to be one source for reducing product uncertainty [2]. If no or not enough information is available for reducing product uncertainty, consumers refrain to buy, especially high-priced products [29]. However, not all products do have a product description being available in an online store. Even the availability of product descriptions might help consumers to learn about product characteristics and thereby reduce product uncertainty and improve sales. We thus hypothesize a positive effect between the availability of a product description and the product's sales.

H1a: Products with a product description generate on average more sales than products without a product description.

The information amount transported in a product description significantly varies across the products. Descriptions discussing more product characteristics are more likely to help consumers reducing product uncertainty. Recent research has provided evidence that customer reviews, as another source of information for consumers, are perceived as more helpful if they discuss more product characteristics that are not widely discussed in other customer reviews [22, 30]. Such an effect has been shown for app descriptions [7]. We expect a similar effect also for product descriptions and thus hypothesize that a product's sales are increasing in the product description's information amount.

H1b: The higher the information amount of a product's description, the higher are its sales on average.

H1a can be seen as a special case of hypothesis H1b. A product description that is not available is equivalent to a product description with an information amount of zero.

Recent research provides ample evidence that the number of customer reviews available for a particular product positively influences this product's sales [14, 28]. Consumers prefer customer reviews over product descriptions because the retailer or manufacturer generates the latter [8]. Product descriptions communicate a positive picture about a product whereas customer reviews also point to a product's drawbacks. However, product descriptions exist, in contrast to customer reviews, even if no consumer has bought or evaluated the product. The more reviews are available, the higher is the probability that a particular consumer will find enough information to reduce product uncertainty and the higher will be the probability to purchase a product. Recent research has demonstrated that the number of reviews positively affects sales [9, 31]. We therefore propose a decreasing impact of a product's description on sales when there is an increasing number of customer reviews available.

H2: The influence of the availability of a product description on a product's sales is moderated by the number of reviews. The more reviews a product has, the lower is the effect of the availability of a description on sales.

Similarly, the impact of a description's information amount might be also moderated by the number of reviews available for a product.

H3: The influence of a description's information amount on sales is moderated by the number of reviews. The more reviews a product has, the lower is the effect of its descriptions' information amount on sales.

Existing research has demonstrated a positive effect of the number of reviews on sales [28]. More customer reviews lead to more sales and hence more customers that are prepared to write further customer reviews. We follow these findings and also propose a positive effect of the number of customer reviews on sales.

H4: The more customer reviews are available for a product the higher are this product's sales.

5 Empirical Evaluation

In order to prove our hypotheses, we collected data for three product categories from Amazon.com. We collected data about 84 backpacks, 131 pencils and 136 electric toothbrushes for a period of 39 days. For each product of each category and day, we gathered the price, the average rating and the number of reviews. Amazon provides typically two kinds of product descriptions: descriptions generated by the manufacturer and descriptions generated by the retailer (Amazon.com). Thus, we collected the product description provided by the manufacturer and the product description provided by Amazon.com for each product. Figure 2 represents an exemplary product description of an electric toothbrush.

The price range for each product category is rather large as shown in Table 1. On the one hand, each category has at least one product which doesn't have any customer reviews (ratings) and on the other hand, each category includes products with a lot of customer reviews (e.g., there are more than 1,000 reviews available for 10 of the electric toothbrushes in our dataset). An Amazon product description is available for 90% of the backpacks, 96% of the pencils and 96% of the electronic toothbrushes in our dataset. Manufacturer product descriptions are significantly less often available than Amazon product descriptions ($p < 0.001$). Only 23% of the collected backpacks, 3% of the pencils and 16% of the electronic toothbrushes provide a manufacturer product description. The mean lengths of Amazon and manufacturer product description differ. Amazon product descriptions furthermore consists of significantly more words than manufacturer descriptions ($p < 0.001$). Amazon descriptions on average are 91.76 words long whereas manufacturer descriptions only consist of 48.13 words. We will use product sales ranks as proxy for sales because sales figures are not available on Amazon.com. Schnapp and Allwine [32], Chevalier and Goolsbee [33], as well as Chevalier and Mayzlin [26] found a linear relationship between $\ln(\text{sales})$ and $\ln(\text{rank})$. We thus use $\ln(\text{rank})$ as dependent variable in order to allow a more straightforward interpretation of the estimated effects on sales. The lower the sales rank of a product, the more instances of this product have been sold compared to other products in the same category. The mean sales rank for the backpacks in our dataset is 3911.85, that for pencils is 244.24 and the toothbrushes in our dataset or on average on rank 307.18. For each product category, we collected top sellers (i.e., products with a sales rank of

1) as well as well as niche products (i.e., products with a rather high category-specific sales rank).



Figure 2. Exemplary Manufacturer and Amazon Product Description of an Electronic Toothbrush

A summary of the collected data variables is provided in Table 1 and Table 2.

Table 1. Variables Overview

<i>Variable</i>	<i>Symbol</i>	<i>Description</i>
Price	p	Price of the product
Average Rating	avr	Average rating based on customer reviews
Number of Reviews	rev	Number of customer reviews
Amazon Product Description	apd	Availability of an Amazon product description
Manufacturer Product Description	mpd	Availability of a manufacturer product description
Sales Rank	rank	Sales rank of the product
Day	d	Day at which the data have been collected
Length Amazon Product Description	la	Number of words in the Amazon product description
Length manufacturer Product Description	lm	Number of words in the manufacturer product description

Table 2. Descriptive Statistics of the Variables in the Dataset

<i>Variable</i>	<i>p</i>	<i>avr</i>	<i>rev</i>	<i>apd</i>	<i>mpd</i>	<i>rank</i>	<i>la</i>	<i>lm</i>
Backpacks (min)	7.99	-	0	0	0	10	0	0
Backpacks (max)	447.5	5	2822	1	1	72690	307	377
Backpacks (mean)	65.82	4.28	388.97	0.91	0.23	3911.85	91.76	48.13
Pencils(min)	1.99	-	0	0	0	1	0	0
Pencils(max)	56.39	5	2588	1	1	1935	322	404

Pencils(mean)	11.15	3.9	91.22	0.96	0.03	244.24	64.43	7.29
Toothbrushes (min)	3.8	-	0	0	0	1	0	0
Tooth-brushes (max)	199.99	5	6233	1	1	1466	510	1018
Tooth-brushes (mean)	44.55	3.95	316.47	0.95	0.16	307.18	145	93

6 Analysis and Results

6.1 Effect of Product Descriptions

In H1a, we hypothesized that products with an available product description generate on average more sales than products without a product description. According to H2, the number of customer reviews available for a product moderates this effect. H4 proposes a positive effect of the number of customer reviews on sales. In order to test H1a, H2 and H4, we estimate the effect of the presence of a product description binary-coded by the variables *apd* (Amazon product description) and *mpd* (manufacturer product description) on product *i*'s sales rank *rank* at day *d*. We use price *p*, average rating *avr* and number of reviews *rev* as control variables, because they have been found to significantly affect sales ranks [11]. More specifically, we estimate the following model with fixed product and time effects for investigating H1a, H2 and H4:

$$\begin{aligned} \log(\text{rank}_{i,d}) = & \beta_1 \log(p_{i,d}) + \beta_2 \text{avr}_{i,d} + \beta_3 \log(\text{rev}_{i,d} + 1) + \beta_4 \text{apd}_{i,d} + \beta_5 \text{mpd}_{i,d} \\ & + \beta_6 \log(\text{rev}_{i,d} + 1) \text{apd}_{i,d} + \beta_7 \log(\text{rev}_{i,d} + 1) \text{mpd}_{i,d} \\ & + \beta_8 \text{category} + \gamma_1 d + \gamma_2 i + \varepsilon_{i,d} \end{aligned}$$

We use the logarithm of product *i*'s price to model a diminishing effect of price on sales rank. A price difference between 200 and 210 Euros might be less relevant for a consumer than a price difference between 20 and 30 Euros. We also use the logarithm of each product's number of reviews to model a diminishing effect of this variable on the sales rank. Furthermore, we use the logarithm of each product's sales rank as dependent variable in order to model diminishing perceived differences between sales ranks [34]. Variance inflation factors of less than 2 indicate the absence of multicollinearity in our model. Based on a Durbin-Watson test, we did not find an indication for autocorrelated residuals ($D = 1.9998$, $p = 0.497$). The results of our regression model with robust standard errors are depicted in Table 3.

Table 3. Effect of Product Descriptions on log(Sales Rank)

<i>Variable</i>	<i>Estimate</i>	<i>Std. Error</i>	<i>t-Value</i>	<i>p-Value</i>
log(Price)	0.361	0.030	11.950	< 0.001
Average Rating	0.062	0.016	3.922	< 0.001
log(Number of Reviews+1)	-0.634	0.055	-11.506	< 0.001
Amazon Product Description	-0.778	0.159	-4.898	< 0.001
Manufacturer Product Description	-0.606	0.221	-2.742	0.006

log(Number of Reviews + 1) x Amazon Product Description	0.178	0.051	3.484	< 0.001
log(Number of Reviews + 1) x Manufacturer Product Description	0.083	0.028	2.926	0.003
Pencils	-3.163	0.106	-29.947	< 0.001
Toothbrushes	-2.496	0.134	-18.658	< 0.001
Adj. R ² (full model)		0.960		
Adj. R ² (projected model)		0.341		

As expected, Table 3 also shows that a lower price and a higher number of customer reviews result in a better sales rank. A somewhat counterintuitive result that emerges from Table 3 is that a better (higher) average rating increases the sales rank. One would expect that a better rating would decrease the sales rank. However, previous research has shown that there exists a negative relation between sales and average rating for some product categories [35]. Customer ratings typically follow a J-shape distribution with most ratings being very positive (i.e., they are 5-star ratings) [36]. Consumers might fear manipulated 5-star ratings and rather trust products being characterized not only by 5-star ratings, which ultimately might lead to a positive observed relation between sales rank and a product's average rating.

The results in Table 3 indicate that both types of product descriptions – Amazon and manufacturer descriptions – significantly influence a product's sales rank. The existence of an Amazon product description on average decreases the sales rank by 2.18 ranks whereas the existence of a manufacturer product description decreases 1.82 ranks. Amazon descriptions hence have a higher impact on a product's sales rank. Manufacturers should consequently create descriptions for their products in order to improve their sales. Our hypothesis H1, that the presence of a product description has a significantly positive influence on sales is therefore supported by our data.

In H2, we proposed that the effect of product descriptions on sales will diminish with an increasing number of customer reviews. Positive estimates of the interaction effects between the number of reviews and the availability of both, Amazon product descriptions and manufacturer product descriptions, show support for H2.

The negative estimate for the number of reviews indicates that more customer reviews lead to a better sales rank and hence more sales. This is in support of hypothesis H4.

Our results show a high importance of product descriptions for improving a product's sales. We will analyze the impact of the information amount of Amazon and manufacturer product descriptions in the next section.

6.2 Effect of Product Descriptions' Information Amount

In H1b, we hypothesized that a higher information amount in a product description will lead to a better sales rank. To test H1b, we use the number of words as a proxy for a description's information amount. H3 hypothesizes an interaction effect between the number of reviews and the information amount of product descriptions. We again test

hypothesis H4 with this analysis. We use the following model to prove H1b, H3 and H4.

$$\begin{aligned} \log(rank_{i,d}) = & \beta_1 \log(p_{i,d}) + \beta_2 avr_{i,d} + \beta_3 \log(rev_{i,d} + 1) + \beta_4 \log(la_{i,d} + 1) \\ & + \beta_5 \log(lm_{i,d} + 1) + \beta_6 \log(rev_{i,d} + 1) \log(la_{i,d} + 1) \\ & + \beta_7 \log(rev_{i,d} + 1) \log(lm_{i,d} + 1) + \beta_8 category + \gamma_1 d + \gamma_2 i \\ & + \varepsilon_{i,d} \end{aligned}$$

With variance inflation factors of less than 2.1, we can assume that our model is not subject to multicollinearity. A Durbin-Watson test also indicated that our model is not subject to an autocorrelation problem ($D = 1.9998$, $p = 0.496$). The results in Table 4 again show that a lower price and a higher number of customer reviews result in a better sales rank. Table 4 also shows that the information amount of Amazon product descriptions has a significant positive influence on a product's sales rank (the higher the information amount, the lower is the sales rank). The effect of manufacturer descriptions is in the same direction but only weakly significant. Hypothesis H1b is hence supported partially.

H3 proposes a diminishing effect of the information amount of product descriptions on sales when the number of customer reviews increases. As shown in Table 4 and Figure 3, we found such a diminishing effect for both Amazon and manufacturer product descriptions. The interaction effect of the number of customer reviews and the information amount of manufacturer descriptions is, however, only weakly significant. The more customer reviews are available the higher is the estimate for the information amount indicating that a higher number of available customer reviews leads to a diminishing effect of the information amount on sales. Hypothesis H3 is therefore partially supported by our data.

Table 4. Effect of Product Descriptions' Information Amount on log(Sales Rank)

<i>Variable</i>	<i>Estimate</i>	<i>Std. Err.</i>	<i>t-Value</i>	<i>p-Value</i>
log(Price)	0.361	0.030	12.097	< 0.001
Average Rating	0.084	0.016	5.252	< 0.001
log(Number of Reviews + 1)	-0.744	0.051	-14.574	< 0.001
log(Length Amazon Description+1)	-0.209	0.030	-7.078	< 0.001
log(Length Manufacturer Description+1)	-0.088	0.048	-1.829	0.068
log(Number of Reviews + 1) x log(Length Amazon Description+1)	0.074	0.011	6.919	< 0.001
log(Number of Reviews + 1) x log(Length Manufacturer Description+1)	0.010	0.006	1.673	0.094
Pencils	-2.746	0.129	-21.218	< 0.001

Toothbrushes	-2.050	0.146	-14.043	< 0.001
Adj. R ² (full model)			0.960	
Adj. R ² (projected model)			0.344	

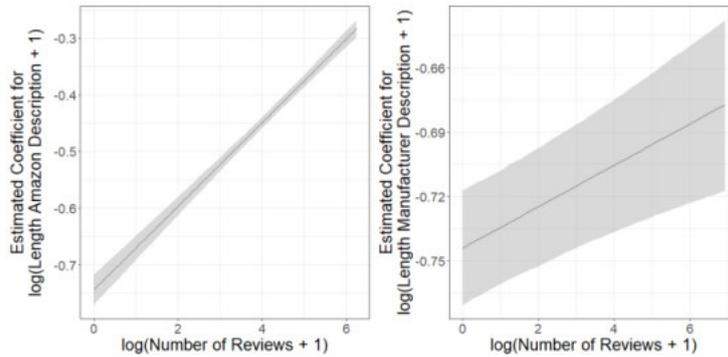


Figure 3. Interaction Effect Between the Availability of Product Descriptions and the Number of Reviews

We again found support for hypothesis H4. A higher number of customer reviews lowers the sales rank which is equivalent to an improvement in sales.

7 Robustness Check

We test the robustness of our results by investigating the effects of product descriptions on quantiles rather than average values of sales ranks. We found a very high variance of 13.075.579 for the sales ranks (2.547 for $\log(\text{sales ranks})$) in our data set indicating that our data set encompasses blockbusters as well as niche products. Thus, we analyze the effects of product descriptions on quantiles of sales ranks. More specifically, we run quantile regressions at the 25, 50 and 75% quantile of our dependent variable sales ranks. We estimate the regression model again with fixed product and time effects. Table 5 shows the results for the additional quantile regressions and the effect of the availability of product descriptions.

Table 5. Results of Quantile Regressions for Availability of Product Descriptions

Variable	Estimate 25% quantile	Estimate 50% quantile	Estimate 75% quantile
$\log(\text{Price})$	0.276***	0.289***	0.284***
Average Rating	-0.002	0.007	0.021
$\log(\text{Number of Reviews} + 1)$	-0.530***	-0.553***	-0.562***
Amazon Product Description	-0.552***	-0.511**	-0.487**
Manufacturer Product Description	-0.711***	-0.759***	-0.744***

log(Number of Reviews + 1) x Amazon Product Description	0.104*	0.103*	0.101*
log(Number of Reviews + 1) x Manufacturer Product Description	0.057*	0.062**	0.058**
Pencils	-3.235***	-3.180***	-3.128***
Toothbrushes	-2.576***	-2.601***	-2.627***

Significance codes: *** p < 0.001, ** < 0.01, * < 0.05

Table 5 indicates that Amazon product descriptions as well as manufacturer descriptions significantly affect sales rank. The influence of manufacturer descriptions is higher than of Amazon descriptions and in opposite to the Amazon descriptions, the influence of manufacturer descriptions slightly increases for niche products. The biggest influence of Amazon product descriptions is for blockbusters. In summary, the effect of the existence of product descriptions is rather robust to products with different sales ranks.

Table 6 depicts the results for the quantile regressions and the effect of the information amount of product descriptions. All findings from Table 4 are supported by the results in Table 6. Thus, they are robust for products with different sales ranks.

Table 6. Results of Quantile Regressions for Information Amount of Product Descriptions

Variable	Estimate 25% quantile	Estimate 50% quantile	Estimate 75% quantile
log(Price)	0.266***	0.277***	0.273***
Average Rating	0.028	0.037*	0.050**
log(Number of Reviews + 1)	-0.629***	-0.645***	-0.660***
log(Length Amazon Description+1)	-0.168***	-0.150***	-0.156***
log(Length Manufacturer Description+1)	-0.144***	-0.153***	-0.153***
log(Number of Reviews + 1) x log(Length Amazon Description+1)	0.045***	0.043***	0.045***
log(Number of Reviews + 1) x log(Length Manufacturer Description+1)	0.012*	0.013*	0.013*
Pencils	-3.189***	-3.136***	-3.084***
Toothbrushes	-2.550***	-2.582***	-2.607***

Significance codes: *** p < 0.001, ** < 0.01, * < 0.05

8 Discussion

This paper examined the influence of product descriptions on sales. Based on empirical data from Amazon.com, we found that the existence of product descriptions positively affects sales. This finding is valid for descriptions generated by the manufacturer as well as by Amazon. Amazon descriptions have been found to have a slightly stronger

influence on products' sales than descriptions generated by the manufacturer. Products offered online should hence be described by product descriptions.

We furthermore demonstrated that product descriptions that have a higher information amount are more influential on products' sales. The higher the information amount, the better the product description is prepared to reduce consumers' product uncertainty. We demonstrated that especially Amazon product descriptions positively influence sales rank. Finally, we analyzed the interplay between product descriptions and customer reviews and showed that Amazon-generated descriptions especially affect sales of products having no or only a few customer reviews. Manufacturer-generated product descriptions, in contrast, have been found to have a higher impact on sales for products having many reviews. This indicates that consumers might have a higher trust in Amazon descriptions. Further, our robustness check showed that the effect of the existence of product descriptions is independent of its sales rank.

Our research hence has four major managerial implications. First, we analyzed observational data from Amazon. We hence cannot exclude the problem of endogeneity. Manufacturers of successful products (i.e., products with a high number of sales) might have on average longer product descriptions than manufacturers of not successful products. The availability as well as the length of a product description thus can be consequence of the success of a product. Second, manufacturers and retailers should not only incentivize their consumers to provide reviews but also provide product descriptions on their own. We found that an Amazon-generated product description improves a product's sales rank by more than two positions on average.

Third, the longer a product description, the better it helps reducing product uncertainty and the more consumers finally buy the product. Following Mudambi & Schuff [21], we assume that longer product descriptions discuss more product characteristics and hence have a higher information amount.

And fourth, it is worthwhile to provide a product description also for products that already got many customer reviews. In the case of Amazon as online store, we found that especially product descriptions generated by manufacturers have a high impact on a product's sales if there are many customer reviews available.

Our research contributes to the ongoing stream of literature on the impact of information sources on consumers' purchase decisions. We demonstrate that the originator of the product description determines the impact of product descriptions on sales. Amazon-generated descriptions have been found to have a higher impact on sales than descriptions generated by the manufacturer.

Our investigation is subject to three major limitations. First, we analyzed the impact of product descriptions and customer reviews on sales only for three product categories – electric toothbrushes, backpacks and pencils. The influence of product descriptions on sales varies across different product categories. Future research should hence investigate further product categories. Second, we found a significant and positive effect of product descriptions on sales, which indicates that consumers use product descriptions to reduce product uncertainty. We, however, did not measure consumers' product uncertainty and instead assumed that product uncertainty has a strong impact on sales. Investigating the effect of product descriptions on consumers' stated product uncertainty and the effect of the stated product uncertainty on sales provides an

interesting avenue for future research. And third, the econometric model we used in this study allows to analyze the correlation between sales and independent variables such as product descriptions and customer reviews. We hence cannot exclude that our results are subject to the problem of endogeneity. It might be the case that good sellers provide a product description whereas bad sellers do not. The difference in sales between sellers providing a product descriptions and sellers that do not is then a result of the sellers' quality rather than the availability of a product description. A seller's quality will be translated into sales. With additional robustness checks we show that our findings are valid for different levels of sales making the endogeneity issue not very likely.

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