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# The factors influencing the growth in dropshipping orders during the COVID-19 pandemic

# Czynniki wpływające na wzrost liczby zamówień w modelu *dropshipping* w czasie pandemii COVID-19

**Abstract.** The paper aimed to investigate the most significant factors influencing the growth in orders in the dropshipping model in Poland. The research was conducted during the pandemic time and was compared with the results in the levels in orders in 2019. The main factors that have impacts on the growth in the level of orders were introduced out of B2B and B2C variables. The results present that apart from the product type, the payment method, marketing by supplier entity, and the number of suppliers is crucial for a dropshipping business model.

**Key words:** dropshipping, Polish market, COVID-19

**Synopsis.** Celem artykułu było zbadanie najważniejszych czynników wpływających na wzrost zamówień w modelu *dropshipping* w Polsce. Badania przeprowadzono w okresie pandemii COVID-19 i porównano z wynikami w zakresie poziomów zamówień w 2019 roku. Czynniki mające wpływ na wzrost poziomu zamówień (zmienne) podzielono na dwie grupy: B2B i B2C. Wyniki wskazują, że poza rodzajem produktu kluczowe dla wzrostu zamówień w modelu biznesowym *dropshipping* były: dostępne sposoby płatności, rozwiązania marketingowe, dostawcy oraz liczba dostawców sklepu.

**Słowa kluczowe:** *dropshipping*, polski rynek, COVID-19

## Introduction

The 2020 COVID-19 crisis has led people in many OECD countries to significantly reduced physical interactions. Strict restrictions literally stopped the operation of traditional brick-and-mortar stores [Donthu and Gustafsson 2020, OECD 2020a]. In the United States, retail and food services sales between February and April 2020 were down 7.7% compared to the same period in 2019. However, sales increased for grocery stores and e-commerce providers, by 16 and 14.8% respectively. In the

EU-27 retail sales via mail order houses or the Internet in April 2020 increased by 30% compared to April 2019, while total retail sales diminished by 17.9% [OECD 2020b]. And so, the COVID-19 impact caused the consumers are increasingly turning to online purchases. Thus, managers need to be innovative in seeking alternative forms of supplies which raise the interest in the facilitation between firms and consumers [Trong Thuy Tran 2020].

E-commerce is a phenomenon that has been developing for about three decades. During this time, its gas gained popularity and became a contributor for many sellers to a profitable business. It is defined as an enterprise in which electronic devices are used to carry out a sale transaction. Currently, the most popular tool of e-commerce is the Internet [Dobosz 2012, p. 1]. Because of the Internet connection, it is possible to conduct business in geographically limited places, and the sale of products is constantly improved supported by the existence of social networks, online payment systems, and new logistics sales models [Luo et al. 2011, Reuschke and Mason 2020]. E-commerce reduces the meaning of economies of scale and minimizes the operation costs, hence enabling profitability with a small turnover. Online stores (e.g. Magento, Shopify) and marketplaces (e.g. Amazon Marketplace, eBay, Etsy, Alibaba) have created new market opportunities with no geographical constraints, enabling businesses, and micro-enterprises in particular, to showcase their merchandise and direct customers to their e-commerce site [Church and Oakley 2018]. As a consequence, several new functions were added into the structure of the supply chain, such as e-procurement, e-ordering, e-sourcing, and e-fulfilment, as well as changes in management practices [Zair et al. 2018].

It is said the most critical activities in the business to consumer (B2C) is e-fulfilment [Park 2016]. This activity can be influenced by factors such as the accelerated pace of the Internet and the increasing expectations of timely service by customers, who are highly demanding [Robusté 2005]. Therefore, on the other hand, the high level of customer service and fluent B2C communication is the critical factor for successful e-commerce models. A model that stands out among e-commerce stores is dropshipping.

The paper is organised as follow: firstly, there is a literature review which explains the idea, characteristics, and assumption of dropshipping model. In the second section, the aim of the paper and the research methods including characteristics of the investigated online shops are presented. The next section includes the results of the research and in the last one the readers can find the conclusions and recommendations.

## Dropshipping and supply chain – literature review

The logistic dropshipping model is an order fulfilment method that does not require keeping products in stock, as the store sells the product, and passes on the sales order to a third-party supplier, who then ships the order directly to the customer. It is said to be a very suitable business model for entrepreneurs intending to enter the field of e-commerce but does not have enough capital to purchase, store, and sell goods directly to customers online. As shown in Figure 1 dropshipping fulfilment model allows playing the role of intermediary between customers and merchants who have stock of goods by

receiving requests buying from customers online and transferring them to other electronic stores that have stock of products to be shipped directly to customers, in exchange for getting a commission for every sale made through it[1].

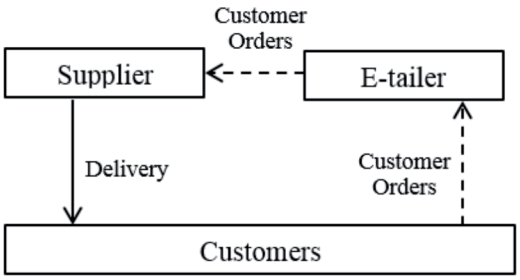



Figure 1. Dropshipping supply chain
Rysunek 1. Łańcuch dostaw w modelu *dropshipping*
Source [Kamalapur and Lyth 2020, p. 82].

Israfilzade [2017] searched the literature and pointed out the advantages and disadvantages of dropshipping which are, as in Table 1.

Table 1 Advantages and disadvantages of dropshipping fulfilment model
Tabela 1. Zalety i wady realizacji wysyłek w modelu *dropshipping*

| Advantages | Disadvantages |
|---|---|
| – less investment is needed<br>– positive cash flow<br>– flexibility in location<br>– product variety<br>– reduces risk<br>– managing imbalance demand<br>– private labelling<br>– customization and personalization | – high prices<br>– high competition<br>– lack of quality control<br>– low margins<br>– shipping complexities |

Source: own elaboration based on [Israfilzade 2017].

Dropshipping is said to be an excellent start in an e-commerce business without the need to worry about inventory or shipping, and primarily in the view of low investment needed. The activity is based on listing a product for sale on the website and sending an email to the supplier to ship the goods to the final customer. While starting a dropshipping business is a great way to start an e-commerce business, digging deep through the internet to find a reliable supplier can be tough.

The research conducted in 2019 based on the performance of 458 online stores on the Internet indicated that 16.4% of these stores depends on the method of selling via the retail chain dropshipping, i.e. they rather play the role of intermediary between customers and stores that have stock of products, as it turned out This method has achieved remarkable growth of 32.7% compared to last year and also achieved a conversion rate of 1.74% instead of 1.29% in 2018 [eCommerceFuel 2020].

[1] https://www.code-ship.com/en/Blog/dropshipping-explained/ [access: 28.09.2020].

Moreover, it was found that 45% of them had bought from an independent online store and that 78% of them had bought from Amazon and 34% had bought from e-Bay. Social media platforms had a role in completing purchases, with 11% of these shoppers reporting that they made purchases from Facebook merchants and 6% of them made purchases via Instagram, and 4% from Snapchat[2]. Therefore, it is important for those working in the field of e-commerce to ensure that it has an individual presence in the sites visited by potential customers interested in its products to facilitate access to them and purchase the products they desire.

## Aim and methods

Undoubtedly, the dropshipping model has been developing and geographically covered the worldwide market; however, it is advisable to present the assumption of dropshipping market changes during the pandemic time in Poland. The aims of the chapter are:

- determining the significance of effective communication between the participants of the dropshipping model for achieving the increase in order,
- investigating the variables which influenced the changes in the dropshipping market in Poland during the pandemic times.

Online stores using the dropshipping logistics model were deliberately chosen from the ETSY and AliExpress websites due to their increasing popularity among Polish customers. Data was collected based on the on-line questionnaire – 51 stories were investigated. The shop owners offered the following 13 groups of goods to their customers: clothes, sports equipment, medical, IT, babies' goods, home and garden, beauty and cosmetics, gadgets, accessories, books, and others[3] (Figure 2). Out of 13 groups of goods, the results indicate, that over 23% of disposal is clothes / shoes / underwear group, home and garden group represents over 17% (Figure 2).

To study the most important factors which influenced the increase of interest in dropshipping stores classification tree model was used. It is a non-categorical and numerical target variable and aims to divide up the data into sub-setting rectangles that are homogeneous concerning the response. In efforts to attain this homogeneity regression tree algorithms will decide which predictors are important and are to be split, at which value of the predictor the split should occur, how deep the tree should be (i.e. how many layers of internal nodes are needed), how complex the tree should be (i.e. how many branches are needed), and provide a prediction equation for each terminal node [Whitley 2015]. The flexibility of classification trees make them a very attractive analysis option, but this is not to say that their use is recommended to the exclusion of more traditional methods. Indeed, when the typically more stringent theoretical

[2] https://www.code-ship.com/en/Blog/dropshipping-explained/ [access: 28.09.2020].

[3] Clothes: clothes, shoes, underwear. Medical: medical goods, masks. IT: electronics, photography equipment. Gadgets: mobile accessories, cups and T-shirts with personized logotypes, pens. Others: tobacco goods, automotive goods.

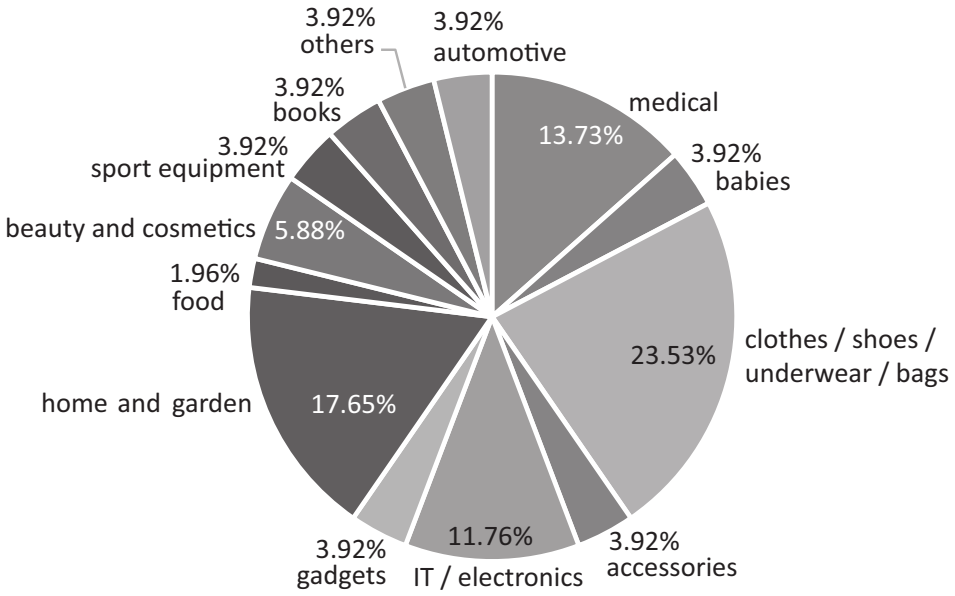



Figure 2. The share of groups of goods selling among the surveyed stores
Rysunek 2. Udział grup sprzedawanych towarów w badanych sklepach
Source: own calculation based on the questionnaire.

and distributional assumptions of more traditional methods are met, the traditional methods may be preferable. But as an exploratory technique, or as a technique of last resort when traditional methods fail, classification trees are, in the opinion of many researchers, unsurpassed [Breiman et al. 1993]. The tree is a graphic model resulting from the division of the set recursive A follow-on *n* disjoint subsets A1, A2, A3, ..., A*n*. The construction of the model is obtaining a maximum homogeneous subset from the variable point of view. This is a multi-step process. On each stage, it is analysed for all predictors and selects the one that provides the best node division [Gantar 2001, Łapczyński 2002].

To create the regression tree model B2B and B2C oriented groups of variables were taken into the research. These groups were selected on the basis of the answers of dropshipping stores managers / representatives. The next step was scaling, important for technical reasons. It changed the words into numerical signs in order to use the data in the regression tree calculation. Apart from *x*3, all the variables have a qualitative character. The percentage increase in ordering in April 2020 to April 2019 declared by the respondents was the dependent variable (*y*), and there were 13 independent variables including in the model (Table 2).

The variables relating to customer service together with those which demonstrate B2B cooperation is said to be crucial for a successful dropshipping business.

Table 2. Variables and their scaling for a regression tree model
Tabela 2. Zmienne i ich skalowanie dla modelu drzewa regresji

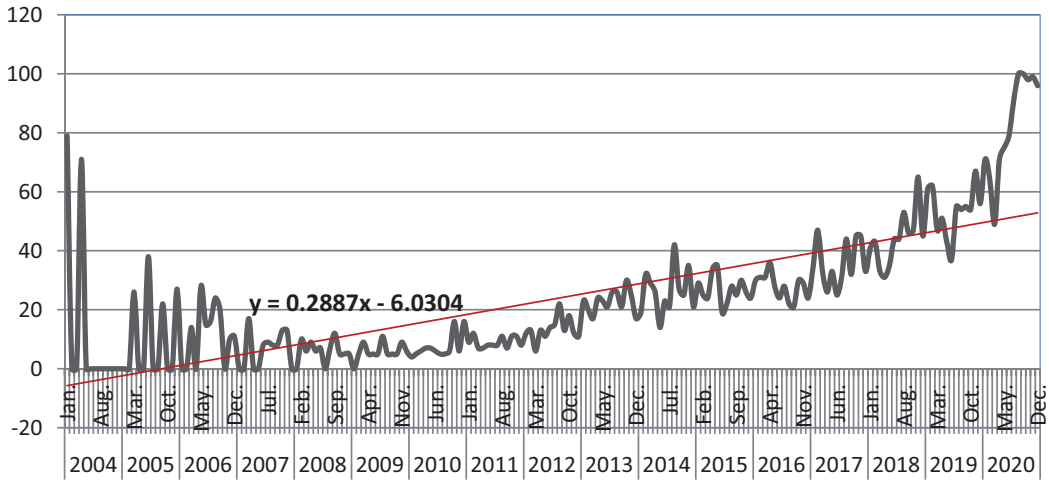
| Variables | Scaling variables for the model |
|---|---|
| B2B oriented variables | |
| *x*1 seller's web page form | 1 web platform<br>2 own website |
| *x*2 multiple websites/platforms for selling | 1 yes<br>0 no |
| *x*3 number of suppliers* | number |
| *x*4 B2B communication tool | 1 through the website on which the store is embedded<br>2 e-mail communication<br>3 face-to-face contact<br>4 telephone contact |
| *x*5 returns responsibility | 1 store<br>2 supplier<br>3 both |
| *x*6 services provided by a wholesaler | 0 none<br>1 personalized product packaging<br>2 attaching store cards<br>3 attaching promotional leaflets |
| *x*7 a wholesale / lower prices policy | 1 yes<br>0 no |
| B2C oriented variables | |
| *x*8 B2C communication tool | 1 post mail<br>2 e-mail<br>3 online contact form |
| *x*9 templates communication with the customer | 1 yes<br>0 no |
| *x*10 the usage of social media | 1 yes<br>0 no |
| *x*11 tracking possibility | 1 yes<br>0 no |
| *x*12 payment methods | 1 online bank transfer<br>2 credit/debit card payment<br>3 online payment wallets<br>4 mobile text messages payment |
| *x*13 the market coverage | 1 Poland,<br>2 abroad,<br>3 Poland and abroad |

* quantitative variable

Source: own elaboration.

## Dropshipping interest in Poland in 2004–2020

The interest in the e-commerce business based on dropshipping in Poland has been rising since 2004 (Figure 3).




* 100 = the month with the highest level of searching

Figure 3. The scale of searching the dropshipping term in Google browser in 2004–2020 in Poland

Rysunek 3. Skala wyszukiwań terminu *dropshipping* w przeglądarce Google w latach 2004–2020 w Polsce

Source: own elaboration based on Google Trends data.

As shown in Figure 3, between 2004 and 2020 there were two periods of increased interest in forging the dropshipping term: May 2004 and August–September 2020. Those two moments seem not to be incidental. In May 2004 Poland becomes a member of the European Union, therefore it was the time when also European Union e-commerce common law was introduced. The e-tailers who had focused mostly on local market cooperation could have started following international European Union trends and business models. August–September 2020 was the time just after worldwide lockdown for SARS-CoV-2 reasons. The entrepreneurs noticed that the dropshipping business become to be leading one in e-commerce. Regardless of the periods of the most frequent searches, there has been stable growth in searching for the dropshipping theme in Google browser in Poland from January 2004 and August–September 2020 which is presented as a trend line in Figure 3.

Although dropshipping in Poland is becoming more and more popular, the result of its introduction has no scientific cover. There is still a small number of Polish publications in this field, and additionally, it is worth investigating the changes in the dropshipping market during the pandemic time.

## Results

Based on the collected data, the average level of the increase in orders in dropshipping stores in April 2020 compared to the same month in 2019 was estimated at 119% [Shoper Blog eXperience 2020], however, this level was different for the various groups of products (Figure 4).

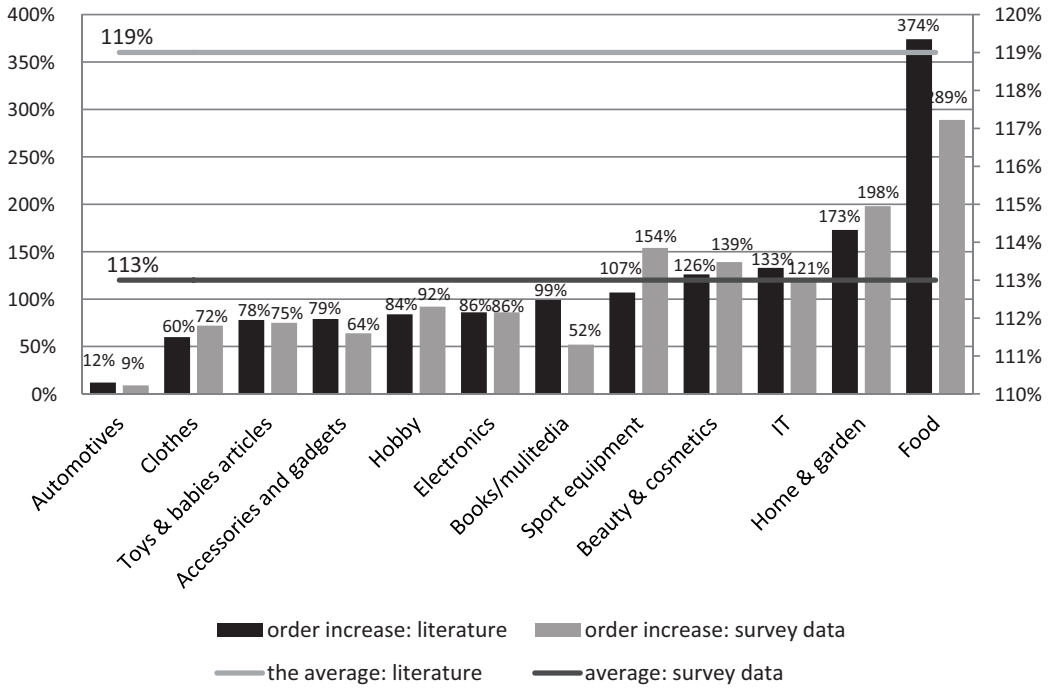



Figure 4. The percentage level of increase in orders in dropshipping stores by groups of products
Rysunek 4. Poziom wzrostu zamówień w sklepach dropshipping według grup produktów
Source: own elaboration based on survey data and [Shoper Blog eXperience 2020].

The highest growth in orders was recorded by food products (374%), which can be treated as an outlier. Next, the 173% increase in home and garden and 133% for IT products. The lowest level of the rise was for an automotive group (12%).

The rise in the orders in dropshipping stores was also pointed out by the respondents in the survey. Its level was different though (see Figure 4). The average level was 6 p.p. lower, and the biggest difference was in the case of food products (85 p.p.) and sports equipment (47 p.p.).

The next step is to investigate, which other factors, apart from the type of the products selling in the store, were the most crucial for increasing the number of orders at the beginning of the pandemic period.

Regression analysis, which is the part of regression tree model calculation, points that the most significant variable, which influences the level of increase of orders by dropshipping store webpages is the market coverage ($x_{13}$), while the usage of social media for selling in looks to be completely irrelevant.

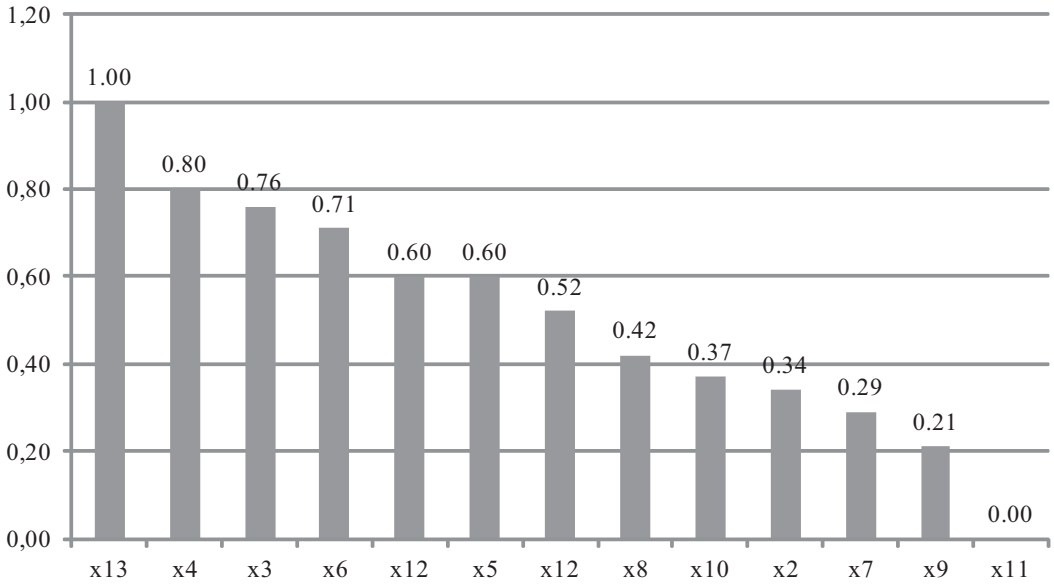



Figure 5. The significance of variables for *y*
Rysunek 5. Ważność zmiennych dla *y*
Source: own calculation.

The three model (see Figure 6) presents the groups of stores (nodes, IDs), with their specific features ($x_i$). The statistical collectiveness $N = 51$ was divided into the final 5 final nodes: IDs = 4, 5, 13, 14, and 15 by the variables as follow: $x_{12}$, $x_5$, $x_6$, $x_3$ (Figure 5, Table 2). Based on the model results it is noticeable that 51 stores were divided into two groups (ID = 2 and ID = 3). In the first one, the average *y* level is higher and is calculated as a 188.4% increase in orders. On the other side, in the second group, with a lower *y* average, it is 114.54%.

The variation in the final nodes is unlike. Apart from the nodes in which there is only one store ($N = 1$) i.e. ID = 4 and ID = 15, the ID = 13 demonstrates the low variance as well (Var = 0.271078). That means the low difference in the level of increase of orders within the stores belonging to this node. As for nodes ID = 4 and ID = 15, there is only one store in each, which can be explained by the fact that those stores are outlier variables. The reason for that could be again the specification of the products selling, and the store in 15th node offered food products however the one in node 4 – clothes.

The high average level of increase in order represents also node 5 (165%). The results indicate, that if the seller allowed online bank transfer, credit/debit card payment, and mobile text messages payment possibilities, and additionally, his returns responsibility policy was shared by the wholesaler and wholesaler together with the seller, the average orders level was relatively high. Respectively, the stores with the increase in the level of ordering over 100% were those classified in node 14 (147.5% of the increase). These dropshipping stores the whole combination of payment possibilities (apart from 1, 2, 4 together), at the same time the business contractor did not provide any service when selling the products to the final customer, however, the dropshipping store cooperated

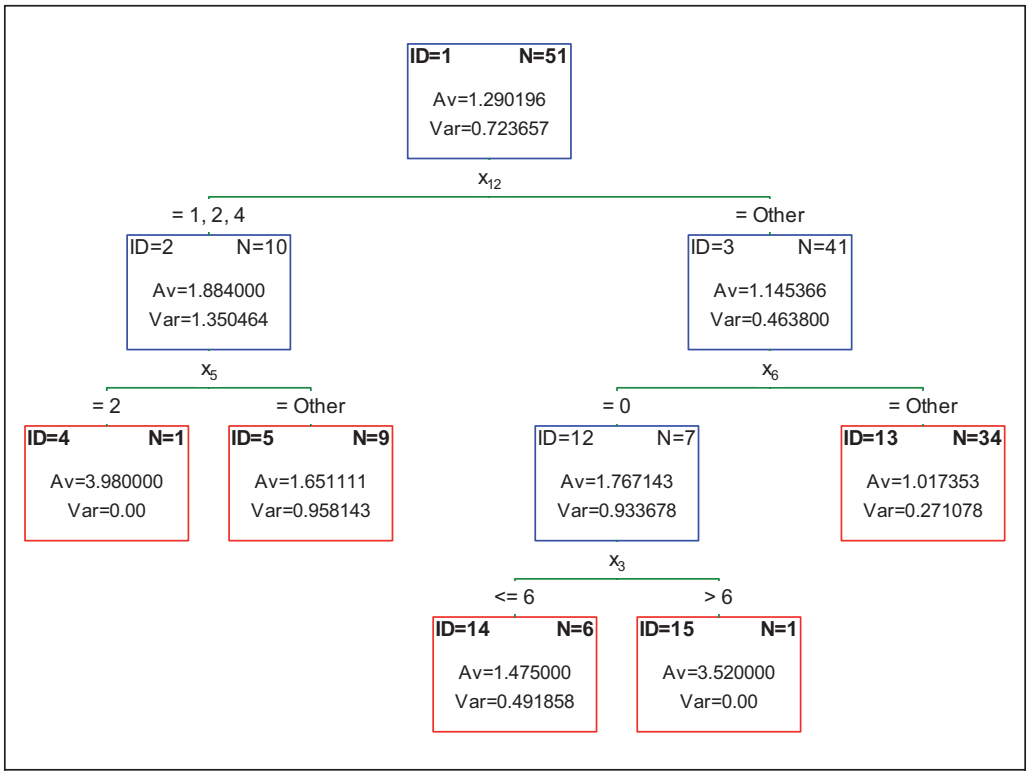



Figure 6. Regression tree model for the level of increase in ordering *y*
Rysunek 6. Drzewo regresji dla poziomy wzrostu zamówień *y*
Source: own calculation.

with not more than 6 contractors. That can indicate that the lower number of wholesalers to cooperate with, even if they are not involved in the additional marketing while they prepare the product for sending it to the final customer is more desirable to achieve the increase of ordering.

## Conclusions

The beginning of the COVID-19 world pandemic was an equal unstable situation for the whole markets, due to the number of restrictions, uncertain decision for the future, however, it seems that the e-commerce business gained good results, being perceived as the safe way of shopping.

Dropshipping, where the entrepreneur does not have to store the product to sell as it is directly shipped from the producer to the customer [Singh et al. 2018] is a good opportunity for lowering the market entry barriers and overall facilitating entrepreneurship. In April 2020 there was a huge interest in business leading based on the dropshipping model, and this month represents the highest number of searches the conditions for dropshipping business in the commonly used internet browser since 2004.

The average increase in order via dropshipping stores achieved 129%. This increase differed within the group of 51 investigated stores. Different level of increase was noticed for different product kinds; however, the market coverage is the factors which supported this growth. Moreover, the payment method, number of suppliers and returns responsibility classifies dropshipping stores into the groups with the highest level of increase in April 2020.

To perform well design business in the crisis time, the recommendation for the managers of the stores in dropshipping model would be to pay the special attention for the decisions about the market coverage (national/international), number of supplying entities and payment methods offer for customers as these indicators determined the level of increase of orders in the critical pandemic condition.

To continue the research it would be advisable to conduct the same investigation in 2021 when the situation in the market because of the pandemic is going to be more stabilized.

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