

# Preference to use aggregators rather than individual deal sites: Impact of Big Five Inventory personality traits

Frantisek Sudzina

Aalborg University, Faculty of Social Sciences, Department of Business and Management, Denmark  
sudzina@business.aau.dk

Antonin Pavlicek

University of Economics, Faculty of Informatics and Statistics, Department of System Analysis, Czech Republic  
antonin.pavlicek@vse.cz

**Abstract.** Deal sites are widely used for some time and there is a growing body of knowledge on them. There exists literature on infomediaries. But there is a gap when it comes to infomediaries focused on deal sites, i.e. aggregators of deal site offers. The research focused on impact of Big Five Inventory personality traits on whether respondents prefer visiting individual deal sites, or aggregators, or they do not have any preference and visit both. Gender was used as a control variable. With regards, to the results, conscientiousness agreeableness, and openness to experience influence the preference. Higher the values of all three variables, more likely it is that a person prefers aggregators.

**Keywords:** deal sites, infomediary, personality traits.

## 1 Introduction

Deal sites, such as Groupon and LivingSocial (acquired by Groupon in October 2016) were launched about a decade ago. These days, probably most people think of Groupon when talking about deal sites. Possible reasons are summarized in (Sudzina, 2016c).

Within the business model framework compiled by Taran et al. (2016), Groupon can be classified as affinity club (Johnson, 2010), round-up buyers (like Linder and Cantrell's (2000) buying club), and trade show (like Timmers' (1998) third-party marketplace). According to the same framework, aggregators of deal site offers are infomediaries (Rappa, 2001).

The Groupon-style shopping has spread from the US to Europe and has achieved great popularity in the Czech Republic. Deal sites are present in the Czech Republic since 2009, they gained general popularity in 2010 with the advent of the company Slevomat. In 2011, when the number of deal sites peaked, there were 204 registered servers (4 times more than

nowadays). Since 2015, the market cleared in the period of consolidation – it has achieved its growth limits, the overall market turnover has stabilized. In the market, there currently operate 45 active deal sites, top 5 of which control 90% of the market share, and the share of the leader (slevomat.cz) alone is 40 %. Gradually, it is also possible to detect the rising share of aggregators rather than individual deal sites. This article tries to identify the reasons behind the increasing popularity of aggregators.

The largest aggregator of deal sites offers in the Czech Republic is Skrz.cz, it was the first infomediary of its kind in the Czech Republic, it was founded in 2010. In 2011, Robox.cz was founded but it merged with Skrz.cz within a few months. Since 2012, Skrz.cz also includes offers of e-shops, and since 2015, it includes also offers of travel agencies. Other examples of Czech aggregators, which existed already in 2011 and are still active, include Zlateslevy.cz, Slevin.cz, Slevydnos.cz, Sleviste.cz, Slevoman.cz, Modreslevy.cz, Slevax.cz, Meslevy.cz, Ukazslevy.cz, and Slevco.cz.

Aggregators for deal sites offers may be considered still a relatively new phenomenon as they are not mentioned even in the newest version of Principles of Marketing by Kotler et al. (2017), and also even though there is a quite good coverage of Groupon-like servers in the academic papers, aggregators are not so well covered so far.

The aim of the paper is to fill in the above mentioned knowledge gap in the field of aggregators and investigate impact of gender and personality traits on preference to use aggregators rather than individual deal sites.

Introductory analysis of aggregators operating on the Czech market has revealed interesting finding just by comparing their headquarters location. Vast majority of them is situated in Prague. Similar results have been observed also by Suchacek et al. (2017) who investigated location of Czech large enterprises. It is safe to conclude that aggregators follow the unfortunate trend of Pragocentrism – phenomenon that large enterprises, primary because of the proximity to decisive authorities as well as because of lower transaction costs, agglomeration economies etc. locate their headquarters in the capital city.

The rest of the paper is organized in the following way: In the next section, there is a description what data were collected and how, and how they were analyzed. In the following section, results of the analysis are presented. The last section offers conclusions.

## **2 Data and methodology**

Data were collected in December 2016-January 2017 using an on-line questionnaire. Respondents were 264 university students from the Czech Republic, of which 140 respondents indicated that they use deal sites, and 124 do not. (From this data set, the analysis of use versus non-use of deal sites was published in (Sudzina and Pavlicek, 2017b); the analysis of extent of use of deal sites was published in (Sudzina and Pavlicek, 2017c); the analysis of customer satisfaction with goods and services purchased on deal sites was published in (Sudzina and Pavlicek, 2017a); and the analysis of use of coupons from deal sites as gift was published in (Pavlicek and Sudzina, 2017).)

SurveyXact was used for the questionnaire. Unlike Qualtrics, it does not allow to show/hide questions based on answers to questions on the same page. Therefore, the questionnaire was split into two pages and questions for deal sites users appeared on the second page. Seven respondents stopped after the first page. So, the effective sample size is 133 (43 men, 90 women; on average 20 years old).

Personality traits were measured using Rammstedt and John's (2007) Big Five Inventory-10, i.e. a 10-item version of the Big Five Inventory questionnaire developed by John and Srivastava (1999), and translated to Czech by Hrebickova et al. (2016). The instruction was to rate "How well do the following statements describe your personality" with statements "I see myself as someone who..."

1. ... is reserved,
2. ... is generally trusting,
3. ... tends to be lazy,
4. ... is relaxed, handles stress well,
5. ... has few artistic interests,
6. ... is outgoing, sociable,
7. ... tends to find fault with others,
8. ... does a thorough job,
9. ... gets nervous easily,
10. ... has an active imagination

on a 1-5 Likert scale where 1 meant strongly disagrees and 5 stood for strongly agree. Extra-version was calculated as an average of the 1st (reversed-scored) and the 6th answer, agreeableness as an average of the 2nd and the 7th (reversed-scored) answer, conscientiousness as an average of the 3rd (reversed-scored) and the 8th answer, neuroticism as an average of the 4th (reversed-scored) and the 9th answer, and openness to experience as an average of the 5th (reversed-scored) and the 10th answer.

The dependent variable was measured using the question "Do you use aggregators of offers of deal sites (e.g. skrz.cz)? Respondents were to choose one of the following answers:

- No, I go directly to individual deal sites (coded as 1),
- Yes, I use mostly aggregators (coded as 3),
- I do not see any difference between them, I use both (coded as 2).

The coding was done this way with an aim to order the three possible answers from answers preferring individual deal sites to answers preferring aggregators. The questionnaire contained additional questions which were not used in the analysis presented in this paper.

Ordinal logistic regression was used to analyze impact of gender and five personality traits (extraversion, agreeableness, conscientiousness, neuroticism, openness to experience)

on preference of aggregators over individual deal sites. A multivariate approach was used. SPSS software was used for the analysis.

### 3 Results

The research question is if/what five personality traits influence lead respondents to prefer of aggregators over individual deal sites. Ordinal logistic regression results for the full model are provided in Table 1. The model per se is significant, p-value = .012, Cox and Snell pseudo  $R^2$  is .116, Nagelkerke pseudo  $R^2$  is .141, and McFadden pseudo  $R^2$  is .072.

**Table 1** Ordinal logistic regression for the full model

	<b>Estimate</b>	<b>Std. Error</b>	<b>Wald</b>	<b>df</b>	<b>Sig.</b>
Preference=1	5.912	2.085	8.044	1	.005
Preference=2	7.559	2.131	12.589	1	.000
Extraversion	-.091	.223	.167	1	.683
Agreeableness	.466	.261	3.202	1	.074
Conscientiousness	.753	.248	9.248	1	.002
Neuroticism	.048	.199	.058	1	.810
Openness to experience	.383	.224	2.940	1	.086
Gender=male	-.470	.466	1.018	1	.313

Conscientiousness is significant at .05 level, and agreeableness and openness to experience are significant at .1 level. Carlson and Wu (2012) suggest to exclude independent variables that are not significant. Ordinal logistic regression results for the streamlined model are provided in Table 2.

**Table 2** Ordinal logistic regression for the streamlined model

	<b>Estimate</b>	<b>Std. Error</b>	<b>Wald</b>	<b>df</b>	<b>Sig.</b>
Preference=1	6.488	1.738	13.941	1	.000
Preference=2	8.120	1.795	20.459	1	.000
Agreeableness	.485	.258	3.546	1	.060
Conscientiousness	.785	.241	10.624	1	.001
Openness to experience	.411	.217	3.576	1	.059

The model per se is significant, p-value = .012, Cox and Snell pseudo  $R^2$  is .104, Nagelkerke pseudo  $R^2$  is .126, and McFadden pseudo  $R^2$  is .064. According to Baroudi and Orlikowski (1989), information systems researchers typically have a 40% probability of not detecting the relationship under study, even though it, in fact, may exist. So even though

agreeableness and openness to experience have p-values slightly over .05, we prefer to keep them in the model in order not to dismiss variables which are possibly significant. Impact of all three variables is positive.

Based on the results, it is possible to theorize that high conscientiousness leads to higher preference of aggregators because a person can be more sure that he or she is getting the best available deal, since he or she was able to "check" multiple deal sites at the same time this way. E.g. according to Sudzina (2016a, 2016b), agreeableness correlates with trust; so people higher in agreeableness more likely trust any offer shown by an aggregator, so they not feel a need to stick to one or a small number of trusted deal sites. People higher in openness to experience may prefer aggregators because they are able to see more offers at once, thus making it easier to find something new quickly, rather than spend time visiting individual deal sites.

## 4 Conclusion

Although there is an increasing body of knowledge about deal sites, there are virtually no studies on aggregators. The aim of the paper was to investigate influence of Big Five Inventory personality traits on preference of aggregators over individual deal sites. With regards, to the results, conscientiousness, agreeableness, and openness to experience impact the preference – higher the values, more likely it is that a person prefers aggregators. Surprisingly, gender was not found to be significant.

This paper identified some factors that make us of aggregators more acceptable. These are most likely not all the factors, some other probably exist and should be a subject of further research, but conscientiousness, agreeableness, and openness to experience are important factors.

In future research, it could be investigated which aggregator(s) are used by individual respondents, and sentiment for a particular aggregator could be also taken into consideration. Dorcak et al. (2017), although in a different industry, discovered that advanced sentiment analysis significantly correlates with number of Twitter followers; so Twitter analysis could be the next step in the further research. Ministr and Racek (2011) describe sentiment evaluation of unstructured Czech text, so the analysis of tweets and social media posts would be logical next step in further analysis.

## References

- Baroudi, J. J., & Orlikowski, W. J. (1989). The problem of statistical power in MIS research. *MIS Quarterly*, 13(1), 87-106.
- Carlson, K. D., & Wu, J. (2012). The illusion of statistical control: Control variable practice in management research. *Organizational Research Methods*, 15(3), 413-435.
- Dorcak, P., Markovic, P., & Pollak, F. (2017). Multifactor analysis of online reputation as a tool for enhancing competitiveness of subjects from automotive industry. *Ekonomicky Casopis*, 65(2), 173-186.

- Hrebickova, M., Jelinek, M., Blatny, M., Brom, C., Buresova, I., Graf, S., Mejzlikova, T., Vazsonyi, A. T., & Zabrodská, K. (2016). Big Five Inventory: Základní psychometrické charakteristiky české verze BFI-44 a BFI-10. *Ceskoslovenska Psychologie*, 60(6), 567-583.
- John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. Pervin, L. A., & John, O. P. (Eds.) *Handbook of personality: Theory and research*, 2nd ed. New York, NY: Guilford Press, 102-138.
- Johnson, M. W. (2010). *Seizing the White Space: Business Model Innovation for Growth and Renewal*. Boston, MA: Harvard Business School Press.
- Kotler, P., Armstrong, G., Harris, L. C., & Piercy, N. (2017). *Principles of Marketing*, 7th European ed. New Jersey, NJ: Pearson Publishing.
- Linder, J., & Cantrell, S. (2000). *Changing Business Models: Surfing the Landscape*. Cambridge, MA: Accenture Institute for Strategic Change.
- Ministr, J., & Racek, J. (2011). Analysis of sentiment in unstructured text. In *IDIMT-2011 - Interdisciplinary in Complex Systems*. Jindřichův Hradec, 2011, 299-303.
- Pavlicek, A., & Sudzina, F. (2017). Coupons from deal sites as gifts: Impact of gender, of age, and of personality traits. In *30th Bled eConference: Digital Transformation – From Connecting Things to Transforming Our Lives*. Bled: University of Maribor, 461-470.
- Rammstedt, B., & John, O. P. (2007). Measuring personality in one minute or less: A 10-item short version of the big five inventory in English and German. *Journal of Research in Personality*, 41(1), 203-212.
- Rappa, M. (2001), *Managing the Digital Enterprise – Business Models on the Web*, North Carolina State University, Raleigh, accessed on 2 April 2017, available at: <http://digitalenterprise.org/models/models.html>
- Sudzina, F. (2016a). Do gender and personality traits (BFI-10) influence trust? In *Proceedings of the International Scientific Conference of Business Economics Management and Marketing (ISCOBEMM) 2016*. Brno: Masaryk University, 31-37.
- Sudzina, F. (2016b). Do gender and personality traits (BFI-10) influence trust? A replication. *Central European Journal of Management*, 3(1), 47-53.
- Sudzina, F. (2016c). Impact of Theory of Consumption Values Motives on Intention to Use Deal Sites. In *IT for Practice 2016*. Ostrava: VŠB - Technical University of Ostrava, 357-363.
- Sudzina, F., & Pavlicek, A. (2017a). Customer satisfaction with goods and services purchased on deal sites: Impact of trust, of personality traits, and of age. In *Challenges and Opportunities of Quality and Sustainability in the 4th Industrial Revolution: 20th QMOD-ICQSS Conference: International Conference on Quality and Service Sciences*. Helsingør: Lund University Library Press.
- Sudzina, F., & Pavlicek, A. (2017b). Do gender and personality traits influence use of deal sites? A replication. In *The 12th International Conference on Strategic Management and its Support by Information Systems*. Ostrava: VŠB - Technical University of Ostrava, 112-119.

- Sudzina, F., & Pavlicek, A. (2017c). Do gender and personality traits influence visits of and purchases at deal sites? In *IDIMT-2017, Digitalization in Management, Society and Economy*. Poděbrady: Trauner Verlag, 189-194.
- Suchacek, J., Seda, P., Friedrich, V., & Koutsky, J. (2017). Regional aspects of the development of largest enterprises in the Czech Republic. *Technological and Economic Development of Economy*, 23(4), 649-665.
- Taran, Y., Nielsen, C., Montemari, M., Thomsen, P.P., & Paolone, F. (2016). Business model configurations: A five V framework to map out potential innovation routes. *European Journal of Innovation Management*, 19(4), 492-527.
- Timmers, P. (1998). Business models for electronic markets. *Electronic Markets*, 8(2), pp. 3-8.