Information or misinformation? The effect of online communication on the tourism sector

Online communication, taking place through both social networks and digital platforms, helps to spread news and conveys information that can have effects on the market equilibrium; this information can influence the behavior of the agents from both a rational (Fudenberg 2006) and an emotional point of view (Kahneman & Tversky 2013). Both effects can change agents' production and consumption choices and their expectations, together with price mechanisms of signaling (with effects on efficiency) and market relations between agents (with effects on market power).

In general, communication may consist of new information (news) or disinformation (fake news). While the importance of news has been studied since the last century (Ito & Roley 1987, Hardouvelis 1988, Ederington & Lee 1993), in recent years, also thanks to the development of ICT and the use of social media, several studies on news and fake news are widespread focusing on political communication (Zollo et al. 2015, Bessi et al. 2015, Del Vicario et al. 2016, Schmidt et al. 2017, Lazer et al. 2018) with their effects on political competition (Soroka 2006, Allcott & Gentzkow 2017), on market communication (Frau-Meigs 2018, Brigida & Pratt 2017), and economic competition (East et al. 2007, Bontempi et al. 2019). Recently, a new line of research is emerging on these issues to study not only the effects of information (and misinformation) on society but also its mechanisms of diffusion, i.e. the so-called "infodemic" (Zarocostas 2020), which turns out to be particularly relevant in the last months, characterized by the Covid-19 pandemic.

Regarding the tourism sector, few tourism studies have only recently focused on fake news (Fedeli 2020) and the so-called eWOM effect (Electronic word-of-mouth). These phenomena have been studied both from the point of view of tourism firms (microeconomic aspect) and tourist flows (macroeconomic aspect) (Kim et al. 2016, Liu et al. 2018, Bigné et al. 2019, Figini et to 2020). Furthermore, starting from Sonmez's study (1998), the so-called shock news has also been studied to analyze the effect of unexpected news on the tourism market. In particular, in the case of terrorism facts (Gergaud et al. 2018, Seabra et al. 2020, Veréb et al. 2020, Lutz & Lutz 2020) and meteorological news, also related to climate change (Zirulia 2016, Figini et al. 2019, Cellini & Cuccia 2019, Emili et al. 2019), unexpected news seem to have effects on tourism demand and supply.

In general, bad and good have asymmetric effects on the economic variables (Hayo and Kutan 2005, Alsakka and ap Gwilym 2013, Castaldi-Garcia and Vukotić forthcoming): unexpected good news affects the variables in the short term, while unexpected bad news also influences the variable in the medium term (Castaldi-Garcia and Galvão forthcoming).

Purpose of the project and research methodology

This research aims to analyze the effect of shock news, including fake news, on the tourism market. The methodology used in our analysis is based on data mining methods (Han and Kamber 2006, Russell and Klassen 2019), applied to the collection of infonews and the ratings of tourists, both in the form of news on social media and their feedback on digital platforms. This primary data coming from the web will be integrated with internet search volume data (using the Google Trends tool, see Nghiem et al. 2016) and potential other secondary data, that will allow us to measure the level of importance of the news (Mellon 2014, Caporin & Poli 2017), other than their positive/negative characteristic. Another aspect that will be taken into account for what concerns fake news is the "degree of fakeness", meaning how much this type of news is far from the truth, since this aspect is likely to affect how the consumers and the producers process the information (Molina et al. 2019, Wang et al. 2019, Parikh et al. 2019). Finally, text analytics tools will be used to analyze this data (Godnov & Redek 2016, Gentzkow et al. 2019). Our research aims at studying the link between information, misinformation and tourist choices, as well as any incentives for policymakers of tourist destinations to manipulate information to alter the market competition (Glaeser & Ujhelyi 2010): this analysis will be based on a theoretical model, that could then be tested with data coming from both text mining and a field experiment.

Expected results

The primary and final outcome of this project will consistof a research paper to be submitted to a highly reputed international journal. As an interim deliverable (first draft), we intend to produce a working paper to be presented in national and international conferences and seminars. In addition to that, given the potential interest of our results both at the managerial and policy level, we intend to produce a non-technical report, based on the existing literature and evidence and on our results, which derives implications for the cultural and tourism industries. Such a report could be presented in public initiatives (such as the UniRimini supported conferences at the TTG for tourism) and synthesis could be published in non-academic outlets such as Internet blogs.

Training plan

The training plan of the selected candidate, and the corresponding plan of activities of the project, are as follows:

- Month 1-3: Survey of the literature.
- Month 4-9: Collection data and empirical analysis.
- Month 10-12: Paper writing and production of working paper and non-technical report.
- End of month 12: Paper presentation in conferences and seminars (including non-academic environments) and submission of the paper to a scientific journal.

Research group

The research group is constituted by Prof. Pierpaolo Pattitoni, the proponent of the project and by Prof. Massimiliano Castellani, both members of the Department, and by Prof. Lorenzo Zirulia, member of the Department of Economics.

References

Allcott, H. & Gentzkow, M. (2017), 'Social media and fake news in the 2016 election', Journal of economic perspectives 31(2), 211–36.

Alsakka, R. and ap Gwilym, O. (2013), 'Rating agencies' signals during the European sovereign debt crisis: Market impact and spillovers', Journal of Economic Behavior & Organization 85: 144-162.

Bessi, A., Zollo, F., Del Vicario, M., Scala, A., Caldarelli, G. & Quattrociocchi, W. (2015),'Trend of narratives in the age of misinformation', Plos One 10(8), e0134641.

Bigné, E., William, E. & Soria-Olivas, E. (2019), 'Similarity and consistency in hotel online ratings across platforms', Journal of Travel research, online first.

Bontempi, M. E., Frigeri, M., Golinelli, R. & Squadrani, M. (2019), Uncertainty, Perception and the Internet. Quaderni - Working Paper UNIBO DSE n. 1134.

Brigida, M. & Pratt, W. R. (2017), 'Fake news', The North American Journal of Economics and Finance 42, 564–573.

Caporin, M. & Poli, F. (2017), 'Building News Measures from Textual Data and an Application to Volatility Forecasting', Econometrics 5(3), 35.

Castaldi-Garcia, D. and Galvão, A. (forthcoming), 'News and uncertainty shocks', Journal of Money, Credit and Banking.

Castaldi-Garcia, D. and Vukotić, M (forthcoming), 'Patent-based news shocks', Review of Economics and Statistics.

Cellini, R. & Cuccia, T. (2019), 'Weather conditions and museum attendance: a case-study from Sicily', Climatic Change 154, 511—527.

Del Vicario, M., Bessi, A., Zollo, F., Petroni, F., Scala, A., Caldarelli, G., Stanley, H. E. & Quattrociocchi, W. (2016), 'The spreading of misinformation online', Proceedings of the National Academy of Sciences 113(3), 554–559.

East, R., Hammond, K. & Wright, M. (2007), 'The relative incidence of positive and negative word of mouth: A multi-category study', International journal of research in marketing 24(2), 175–184. Ederington, L. H. & Lee, J. H. (1993), 'How markets process information: News releases and volatility', The Journal of Finance 48(4), 1161–1191.

Emili, S., Figini, P. & Guizzardi, A. (2019), 'Modelling international monthly tourism demand at the micro destination level with climate indicators and web-traffic data', Tourism Economics online first.

Fedeli, G. (2020), ''Fake news' meets tourism: a proposed research agenda', Annals of Tourism Research 80, 102684.

Figini, P., Cicognani, S. & Zirulia, L. (2019), Booking in the rain: Testing the impact of public information on prices. Quaderni - Working Paper UNIBO DSE.

Figini, P., Vici, L. & Viglia, G. (2020), 'A comparison of hotel ratings between verified and non-verified online review platforms', International Journal of Culture, Tourism and Hospitality Research online first.

Frau-Meigs, D. (2018), Societal costs of "fake news" in the Digital Single Market. Luxembourg: Policy Department for Economic, Scientific and Quality of Life Policies, European Parliament.

Fudenberg, D. (2006), 'Advancing beyond advances in behavioral economics', Journal of Economic Literature 44(3), 694–711.

Gentzkow, M., Kelly, B., & Taddy, M. (2019), 'Text as data', Journal of Economic Literature 57(3), 535–574.

Gergaud, O., Livat, F. & Song, H. (2018), 'Terrorism and wine tourism: The case of museum attendance', Journal of Wine Economics 13(4), 375–383.

Glaeser, E. L. & Ujhelyi, G. (2010), 'Regulating misinformation', Journal of Public Economics 94(3), 247–257.

Godnov, U. & Redek, T. (2016), 'Application of text mining in tourism: Case of Croatia', Annals of Tourism Research 58, 162–166.

Han, J. and Kamber, M. (2006), 'Data Mining. Concepts and techniques'. San Francisco, CA: Morgan Kaufmann.

Hardouvelis, G. A. (1988), 'Economic news, exchange rates and interest rates', Journal of International Money and Finance 7(1), 23–35.

Hayo, B. and Kutan, A.M. (2005), 'The impact of news, oil prices, and global market developments on Russian financial markets', Economics of Transition, 13: 373-393.

Ito, T. & Roley, V. (1987), 'News from the U.S. and Japan: Which moves the yen/dollar exchange rate?', Journal of Monetary Economics 19(2), 255–277.

Kahneman, D. & Tversky, A. (2013), Choices, values, and frames, In 'Handbook of the fundamentals of financial decision making: Part I', World Scientific, pp. 269–278.

Kim, W. G., Li, J. J. & Brymer, R. A. (2016), 'The impact of social media reviews on restaurant performance: The moderating role of excellence certificate', International Journal of Hospitality Management 55, 41–51.

Lazer, D. M. J., Baum, M. A., Benkler, Y., Berinsky, A. J., Greenhill, K. M., Menczer, F., Metzger, M. J., Nyhan, B., Pennycook, G., Rothschild, D., Schudson, M., Sloman, S. A., Sunstein, C. R., Thorson, E. A., Watts, D. J. & Zittrain, J. L. (2018), 'The science of fake news', Science 359(6380), 1094–1096.

Liu, Y.-Y., Tseng, F.-M. & Tseng, Y.-H. (2018), 'Big data analytics for forecasting tourism destination arrivals with the applied vector autoregression model', Technological Forecasting and Social Change 130, 123–134.

Lutz, B. J. & Lutz, J. M. (2020), 'Terrorism and tourism in the Caribbean: a regional analysis', Behavioral Sciences of Terrorism and Political Aggression 12(1), 55–71.

Mellon, J. (2014), 'Internet Search Data and Issue Salience: The Properties of Google Trends as a Measure of Issue Salience', Journal of Elections, Public Opinion and Parties 24(1), 45-72.

Molina, M., Sundar, S.S., Le, T., & Lee, D. (2019), '"Fake News" Is Not Simply False Information: A Concept Explication and Taxonomy of Online Content', American Behavioral Scientist.

Nghiem, L.T.P., Papworth, S.K., Lim, F.K., & Carrasco, L.R. (2016), 'Analysis of the Capacity of Google Trends to Measure Interest in Conservation Topics and the Role of Online News', PLoS One 11(3): e0152802.

Parikh, S. B., Patil, V., & Atrey, P. K. (2019), 'On the Origin, Proliferation and Tone of Fake News', 2019 IEEE Conference on Multimedia Information Processing and Retrieval (MIPR), San Jose, CA, USA, pp. 135-140.

Russell, M. A. and Klassen, M. (2019), 'Mining the Social Web'. Sebastopol, CA: O'Reilly Media.

Schmidt, A. L., Zollo, F., Del Vicario, M., Bessi, A., Scala, A., Caldarelli, G., Stanley, H. E. & Quattrociocchi, W. (2017), 'Anatomy of news consumption on Facebook', Proceedings of the National Academy of Sciences 114(12), 3035–3039.

Seabra, C., Reis, P. & Abrantes, J. L. (2020), 'The influence of terrorism in tourism arrivals: A longitudinal approach in a Mediterranean country', Annals of Tourism Research 80, 102811.

Sonmez, S. F. (1998), 'Tourism, terrorism, and political instability', Annals of Tourism Research 25(2), 416–456.

Soroka, S. N. (2006), 'Good news and bad news: Asymmetric responses to economic information', The Journal of Politics 68(2), 372–385.

Veréb, V., Nobre, H. & Farhangmehr, M. (2020), 'Cosmopolitan tourists: the resilient segment in the face of terrorism', Tourism Management Perspectives 33, 100620.

Wang, L., Wang, Y., de Melo, G., & Weikum, G. (2019), 'Understanding archetypes of fake news via fine-grained classification', Social Network Analysis and Mining 9, art. 37.

Zarocostas, J. (2020), 'How to fight an infodemic', The Lancet 395(10225), 676.

Zirulia, L. (2016), ''Should I stay or should I go?': Weather forecasts and the economics of' short breaks", Tourism Economics 22(4), 837–846.

Zollo, F., Kralj Novak, P., Del Vicario, M., Bessi, A., Mozetič, I., Scala, A., Caldarelli, G.& Quattrociocchi, W. (2015), 'Emotional dynamics in the age of misinformation', Plos One 10(9), e0138740