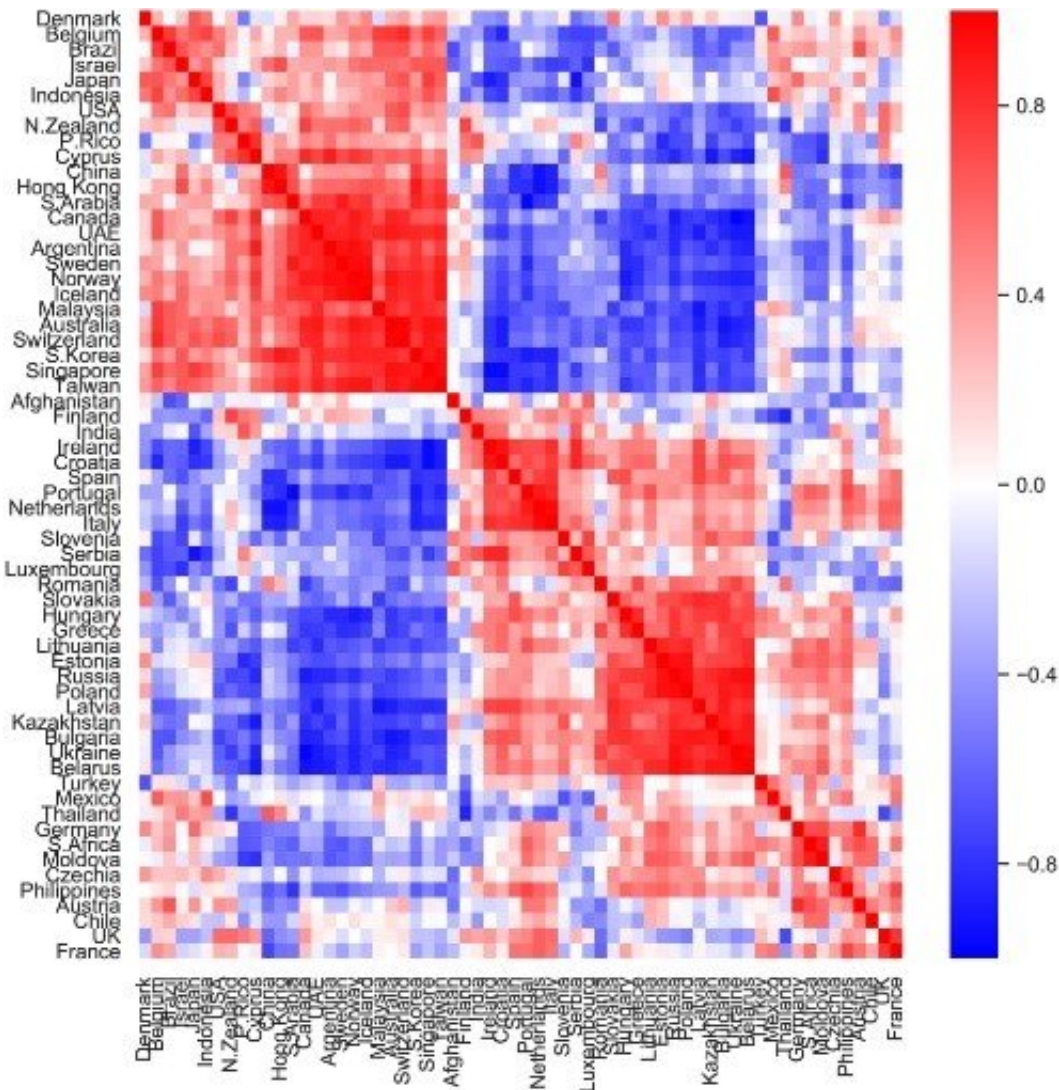# Player behavior in the online game EVE Online may reflect real world country

October 21 2020

In-game country profiles are generated by combining several measures of in-game socioeconomic behavior of players. Upon clustering the countries in groups with highly similar profile, one finds clusters that reflect real-world geography. Credit: Belaza et al, PLOS ONE, 2020

Virtual worlds may reflect social and economic behavior in the real world, according to a study published October 21, 2020 in the open-access journal *PLOS ONE* by Andres M. Belaza and colleagues from Ghent University, Belgium.

People around the world have been connecting via multiplayer online games since the early 90s. However, it's still not clear how effectively player behavior in these virtual worlds may reflect behavior in the real world. To assess the relationship between players' real world context and their in-game behavior, Belaza and colleagues used the massive multiplayer game EVE Online, a paid game (15USD/month) in which over half a million players chat, fight, trade, collaborate, and explore a futuristic galaxy, to analyse social and economic interactions.

In EVE Online, players are able to extract and process the game's provided raw materials into items traded widely, creating an emergent economy of sorts. The authors used trade activity data to assess players' in-game economic behavior, and data measuring players' behavior towards other human players and non-player characters (nonhuman game elements) as aggressive or friendly to assess social behavior. (The data used in this study was collected from EVE Online from December 2011 to December 2016.) After averaging this EVE Online data by player country, the authors compared in-game social and economic behavior with real world data measuring country aggressiveness (using the Global Peace Index and Global Terrorist Index), as well as each country's socio-economic characteristics (using the Consumer Price Index (CPI), the Real Effective Exchange Rate (REER), and the Unemployment rate (UNEMP) from the World Bank).

Belaza and colleagues found that in-game aggressiveness to nonhuman non-player characters was positively related to real-world levels of

aggressiveness in players' home countries—but that players living in countries rated as "more aggressive" acted less aggressively towards fellow players than players from safer countries. The authors also found that in-game trading behavior correlated with the macro-economic environment where players live, with players in countries with higher unemployment rates and weaker currencies trading more cautiously and efficiently in-game.

The study is limited in that only those countries with 15 or more regular players were included (in order to maintain high-quality data); additionally, the time and monetary cost to play (15 USD or Euros/month, or an equivalent value of in-game items) means that regular players of EVE Online may not be average representatives of their countries of residence. Despite these limitations, the study results strongly suggest that virtual worlds can be useful to experiment and test social and economic theories, and to infer real-world behaviour.

The authors add: "The real-world environment impacts the behavior of players in online games. Real-world aggression makes online players more friendly though."

  More information: Belaza AM, Ryckebusch J, Schoors K, Rocha LEC, Vandermarliere B (2020) On the connection between real-world circumstances and online player behaviour: The case of EVE Online. *PLoS ONE* 15(10): e0240196. doi.org/10.1371/journal.pone.0240196

Provided by Public Library of Science