Network Analysis of the Sardex Community Currency

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Abstract

We present a transaction dataset and preliminary analysis results about Sardex, a complementary currency (CC) in Sardinia, Italy. Sardex is currently considered one of the most successful CCs in Europe, as it grows continuous in terms of transactions’ volume and membership, and has been already replicated in 8 other regions in Italy. We model Sardex as a transaction network and study its basic properties.

Background

Sardex is a very successful B2B/E local currency system that was established in Sardinia, Italy, in 2010 by a social innovation startup as a response to the economic recession. Its design principles draw both from typical LETS platforms and the Swiss WIR system. It is an electronic-only payment system, there is no bank, and Sardex is not exchangeable with the Euro nor it can be used outside Sardinia. By December 2014, Sardex had 2500 members, businesses and employees, that conducted 66000 transactions since January 2012, with an annual turnaround of 39 Millions of Euros. We model Sardex as a trading network and study its properties. The 2-years transaction dataset includes additional information such as geographic location of its members, the offered products/services, and their membership duration.

Analysis

Modeling Approach: Sardex is modeled as a directed weighted graph. The nodes represent the traders and the edges the aggregate currency flow (from buyer to seller) during the time interval of interest. We study the properties of the Sardex network at December 2014, as well as the evolution of their values during this 2-year time period. We consider both the node-level properties such as the degree distribution and transaction rates, as well as the network-level properties such as the diameter of the system and its structure. Also, we explore the impact of the geography on the operation of Sardex.

References