A Bayesian reconstruction approach to the history of banking in the United States

Eduardo Viegas (Imperial College London)

Abstract:

There has been a remarkably rapid acceleration in the development of financial and business datasets since the latter years of the last century, in a similar manner to other fields of research. Such phenomena, enabled the establishment of new and advanced analytical methods, popularly named “Big Data". However, one of the few downsides of such evolution is that most research switched its focus to analysis of business dynamics for the period that the data exists, without necessarily considering all potential dynamics that lead to the initial condition of the dataset being analyzed. This is particularly important given that businesses and economies are non-stationary systems whereby the present dynamics are directly associated with long term evolutionary processes. Therefore, we argue that current data analytics research should be complemented by scientific methods that can provide a better understanding of the dynamics before the dataset window, to provide a more complete understanding of potential long term evolutionary process and refined data information. Here, we develop a framework, supported by Bayesian network and evolutionary dynamics methods, to estimate the ancestral distribution of US banks over long time horizons, and to adjust the existing granular level data with pre-collection period information. By making use of the Shannon--Wiener Index for the enhanced data, we find that bank crises are followed by significant increases in diversity. Moreover, we show that establishment and subsequent repeal of the Glass-Steagall Act had a profound impact to the diversity of the US banking system.