Learning and Determining Business Cycles via Computing Approach

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Abstract

We developed an algorithm via pattern computing in learning how the Business Cycle Dating Committee (BCDC) of National Bureau of Economic Research (NBER) determines the business cycles. The business cycles not only serve as economic indicators, but also carry significant polities implications, especially the recessions. Hierarchical Factor Segmentation (HFS), a pattern recognition methodology was applied to learn the historical sequence of BCDC's business cycles and predict the onset and offset times of recent recession base on 7 economic indexes of US economy. Interestingly, the onset time of the recent recession what we predicted was the same as BCDC's announcement in the website. We also construct a network approach that provides the inter-dynamics of all involving economic indexes to reveal the current economy status. We applied the rules to the economy of Taiwan. Even though the economy in Taiwan is much smaller, but has very close relationship with US economy. We confirm that they are indeed very much connected from business cycles perspective. Finally we extended the learning rules to 23 countries.