Neural Networks – From Theory to Practice

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Artificial Neural Networks (ANN) are computerized models which imitate the learning process of the human brain. Initially, neural networks were used for estimation of functions. The era of big data has brought neural networks to the front line due their ability to automatically discover patterns in massive amounts of data that traditional analytical and heuristic methods have difficulties coping with. Combined with the availability of strong and relatively cheap powerful processors, neural networks have been regarded as the ultimate solutions to a wide variety of business and scientific problems in various domains.
But in spite of the hype, the process of applying neural networks to solving business issues is not free of problems, some of which emanate from the fact that neural networks lack the theoretical foundations that regression models have, and some others because of the type and structure of the business problems in the world of big data. In this article we address some of the difficulties of applying neural networks to solving predictive analytic issues for targeting audiences in direct marketing applications. We also discuss the advantages of using neural networks for solving targeting problems and compare their performance versus solutions based on logistic regression. We conclude the article with a short survey of deep learning, certainly the next generation of neural networks, and its applications in a variety of industrial domains.

Expectations Dynamics under an Inflation-Targeting Monetary Regime

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In this paper we focus on the dynamics of expected inflation, under various definitions, in periods with substantial deviations of inflation from the target. Our main analysis concentrates on the last decade in Israel. A key issue to be discussed is the extent to which deviations of inflation from the target are also accompanied by deviations of expected future inflation from the target. Our main findings point to a stabilizing role of inflation expectations, in that even under sizeable deviations of inflation from the target, expectations about the future remained anchored within the target. This finding, which is consistent with high credibility of the target, implies that monetary policy measures undertaken to ensure the achievement of the target can be more effective and less costly than in an alternative hypothetical case in which expected future inflation deviates frequently from the target.