

Technology Forecasting

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Abstract—*Technological forecasting (TF), in general, applies to all purposeful and systematic attempts to anticipate and understand the potential direction, rate, characteristics, and effects of technological change, especially invention, innovation, adoption, and use. There are hundreds of TF Methods, which can be fit into 9 families: Expert Opinion, Trend Analysis, Monitoring & Intelligence, Modeling & Simulation, Scenarios, Statistical, Descriptive, Creativity, and Valuing/Decision/Economics Methods.*

This manuscript focuses on “Modeling and Simulation” aspect of TF. Statistical modelling plays a very important role in comprehending underlying relationships among crucial variables in an agricultural system. Some examples are: Length-weight relationship, Input-output relationship, Computation of compound growth rate, Path of adoption of high yielding varieties, and time-series analysis. Any type of statistical inquiry in which principles from some body of knowledge enter seriously into the analysis is likely to lead to a ‘Nonlinear model’.

Most of the technological innovation diffusion follows an S-shaped curve. To this end, growth models were proposed to capture the diffusion of new technological innovation. These models are generally ‘mechanistic’ as the parameters have meaningful interpretation.

Time-series datasets of tractor density in India and five major states in India are modeled and forecasted using various growth models. Using various goodness of fit and forecasting performance it is seen that the models used have been properly specified.

Keywords: *Technology Diffusion, Logistic Model, Gompertz model*