

Forecasting Rules as Equilibrium Strategies in Duopoly Models

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Abstract: The equilibrium in a dynamic, noncooperative duopoly model is characterized in terms of a unique sequence of forecasting functions for each firm. In this deterministic model, equilibrium forecasts are "rational" or "perfect foresight" forecasts. The firms' sequences of forecasting rules are Nash equilibrium strategies for a two person game with discounted profits as payoffs and sequences of forecasting rules as strategies. It is shown that the form of the equilibrium forecasting rules will depend on the structure of the model being considered. In particular, the lag structure of the forecasting rule is closely related to the lag structure of firms' profit functions. Thus it may be inappropriate in theoretical work to assume that firms use some particular type of forecasting rule because assumed rules selected in an *ad hoc* manner will generally differ from the equilibrium forecasting rules. As a result, firms would generally be making persistent, correctable forecast errors, and the analysis of properties of such a model would be uninformative.