

► We propose inverse DEA models in the presence of ratio data. ► We present the inputs/output estimation process based DEA-R models. ► We present a MOLP model to determine the optimal level of inputs based on the perturbed outputs. ► We also present the relationship between the Pareto solutions of the proposed MOLP model and the optimal level of inputs and outputs. ► We presented criterion models to determine the efficiency of the new DMU in inverse DEA-R. ► The proposed approach applied in a real life for a set of data regarding to medical centers in Taiwan.