

PROPOSAL: "SOLUTION OF MULTI-DIMENSIONAL DISCRETE CHOICE PROBLEMS WITH FIXED COSTS."

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The research project involves the solution of multi-dimensional discrete choice economic problems. These problems are pervasive in economics and their better understanding necessitates improved mathematical techniques to understand their complexity and better computational algorithms to increase the speed of computation. Such problems arise when multinational firms attempt to find the cost-minimizing way of serving a diverse set of global markets, when retailers optimize their network of stores across a country or when deciding on the optimal amount of subway stations in a city. Based on a number of theoretical and computational algorithms that already exist, the RAs will be asked to compute the solution of existing models and examples in order to investigate how different methodologies can be used to improve existing approaches or to achieve computations where the curse of dimensionality problem makes computation infeasible. Prior knowledge of constraint optimization (linear or non-linear) is helpful. Good programming knowledge in matlab or other languages is essential.