Gregory Pavlov

Abstract
A seller can produce two units of a good. Each unit can be customized into either product a or product b, and buyers privately learn their valuations for each product. First I consider the case when the second unit is more costly to produce than the first. Under certain distributional conditions the search for the optimal mechanism can be restricted to a class where there is no uncertainty about the number of units the buyer will receive, i.e. the buyer chooses whether to get 0, 1, or 2 units. However, there still may be uncertainty over which product the buyer will get. Buyers whose valuation for their favorite product is high, both in absolute terms and relative to the other product, purchase two units of their favorite product with certainty. Buyers with low values are excluded from purchasing. Buyers with values in the intermediate range typically get a lottery over different products. I compare the fully optimal mechanism with the mechanism that optimally sells each unit separately and show that the solutions coincide when the fully optimal mechanism is deterministic. Another case I consider is when the cost of the second unit is not higher than the cost of the first. Many qualitative properties of the solution are similar to the previous case, but the key difference is that the optimal mechanisms only contain contracts such that the buyer chooses whether to get 0 or 2 units.