Mechanism Design Beyond Expected Utility: Dynamic (In)Consistency and Full Surplus Extraction

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Abstract :
We study the full mechanism design problem for allocating an indivisible object to agents with non-expected utility preferences. We consider two ubiquitous frameworks for dynamic choice: recursive utility and the multi-self models. We develop a novel revelation principle for sophisticated non-EU agents and, using it, establish new Myersonian-style connections between the seller's revenue and the allocation rule. These characterizations imply that (almost) full surplus extraction is achievable under both models. These findings contrast sharply with the expected utility benchmark. They highlight the importance of understanding design constraints in non-EU environments and shed light on which instruments social planners should target to protect non-EU agents from exploitation. Finally, we identify conditions under which detailed knowledge of dynamic preferences is unnecessary for optimal mechanism design.