Auctions or Contests? Resource allocation under strategic uncertainty

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Abstract

We compare methods to allocate resources or operator licenses in industries where the future value of the resource is unknown at the time of allocation as it depends on ex-post joint actions of operators. For example, the value of radio spectrum licenses may depend on ex-post investments into infrastructure development by the operators. Some countries consider infrastructure development among the top priorities for telecommunication industry.

In this project, we investigate the effects of operator license allocation methods on ex-post industry performance in environments with strategic uncertainty. We assume that the future profitability of holding a license is uncertain at the time of license allocations as it depends on the investment decisions of all operators in the industry. We use the experimental laboratory to compare three methods to allocate licenses: (1) auction; (2) pure investment commitment contest, where the only selection criterion is the investment commitment to the future infrastructure development; and (3) bureaucratic allocation procedure, modeled as lottery. After the licenses are allocated, the winners make investment decisions which we model as a minimal effort coordination game. We consider which allocation method is more successful in promoting higher investment levels and higher profitability for operators. We also investigate whether overbidding is common in auctions.