

Contents

1	Introduction	2
2	Related Literature	4
3	Model	7
3.1	Equilibrium concept	8
3.2	Multi-stage mechanisms	8
4	Analysis	10
4.1	Bidding behavior	10
4.1.1	One-stage mechanisms	10
4.1.2	Multi-stage mechanisms	11
4.1.3	Example: First-price sealed-bid play-offs	16
4.2	Revenue equivalence principle	19
4.3	A robust improvement over one-stage mechanisms	21
4.4	Optimal efficient two-stage mechanism	32
5	Conclusion	40
6	Appendix	41
6.1	Mathematica code	41