Managing No-Shows in Public Resource Allocation: The Economics of Campground Reservations

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Modest no-show fees can substantially reduce no-shows, increasing social benefits at capacity-constrained campgrounds without materially excluding lower-income users

- Campgrounds face excess demand but high vacancy rates due to no-shows
- No-shows impose exclusion costs on other users
- Low prices and cancellation fees can worsen inefficiency

Theoretical model

Heterogenous users:

- Decide whether to reserve under uncertainty (weigh benefits of trip against price and costs of not traveling)
- Reservation holders who do not travel cancel (hassle + fee) or no-show (forfeit price + fee)
- Park sets price, cancellation fee, and no-show fee

Key predictions:

- Cancellation fees ↑ no-shows when capacity constraint binds
- Higher prices ↓ no-shows, increases revenue and total surplus
- No-show fees ↓ no-shows, increases consumer surplus and total surplus
- Higher prices exclude lower income users when preferences positively correlated with income

Simulate a representative campground

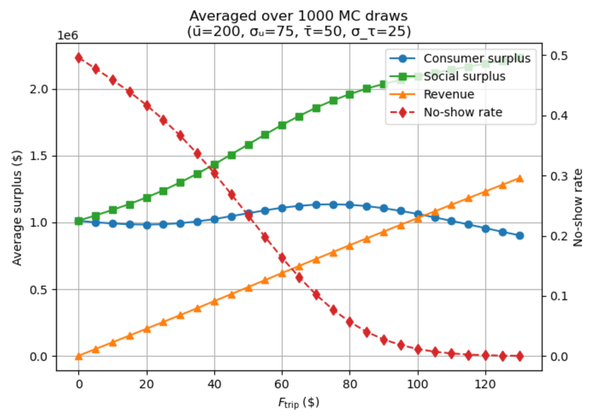
Modest price increases or no-show fees eliminate no-shows and increase surplus

	Price	Cancellation Fee	No-Show Fee	Reservations	% Travel	% No-Show	Revenue	Consumer Surplus	Social Surplus	%ΔSS
Baseline	$70	$10	$0	10,000	64.1%	10.2%	$725,681	$1,134,629	$1,860,310	
Inc. F_{cancel}	$70	$20	$0	10,000	65.3%	15.4%	$738,561	$1,043,935	$1,782,496	-4.2%
Inc. P_{trip}	$110	$10	$0	10,000	66.8%	0.4%	$1,132,766	$1,011,763	$2,144,529	15.3%
Inc. $F_{no\text{-}show}$	$70	$10	$40	10,000	64.6%	0.5%	$736,879	$1,275,000	$2,011,878	8.1%
Opt. $F^*_{no\text{-}show}$	$70	$10	$150	10,000	64.6%	0.000%	$735,378	$1,282,303	$2,017,681	8.5%
Opt. $F^*_{no\text{-}show}$	$70	$0	$149	10,000	62.7%	0.000%	$700,000	$1,298,164	$1,998,164	7.4%

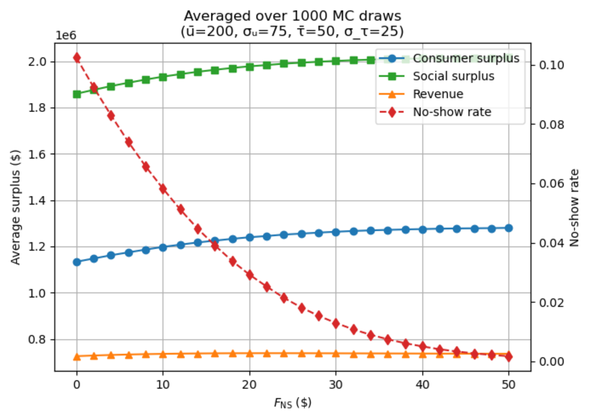
One-size-fits-all no-show policy is beneficial if capacity constraint binds at least half the time

	100% Binding	75%	50%	25%	0% Binding
Social Surplus ($0 No show Fee)	$ 1,858,926	$ 1,709,691	$ 1,560,456	$ 1,411,221	$ 1,261,985
Social Surplus ($40 No show Fee)	$ 2,011,594	$ 1,805,001	$ 1,598,408	$ 1,391,814	$ 1,185,221
Percent change	8.2%	5.6%	2.4%	-1.4%	-6.1%

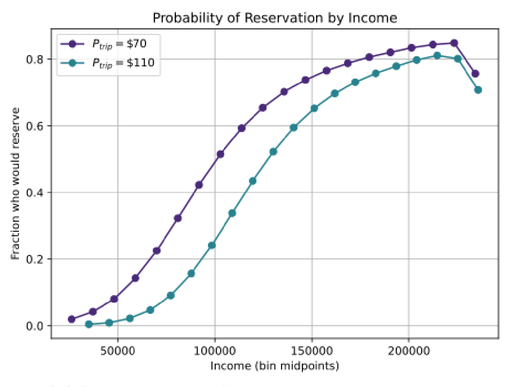
Very low prices harm users



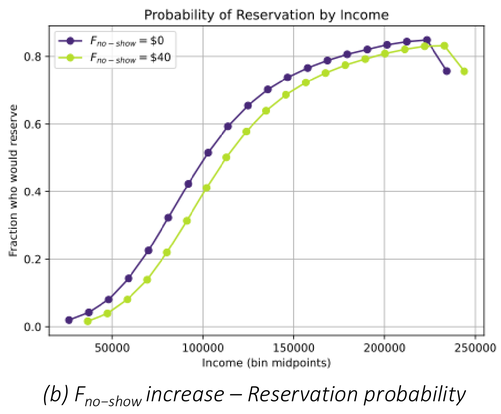
Modest no-show fees produce surplus gains



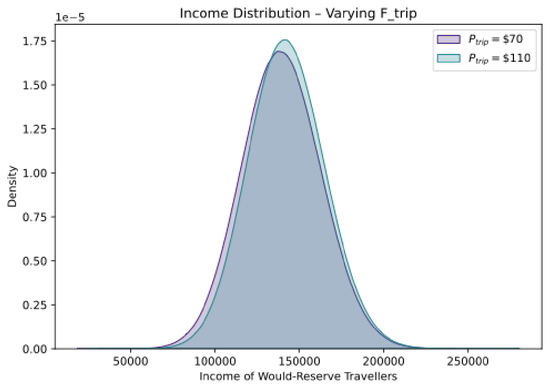
Higher prices can exclude lower income users, no-show fees have modest effects on income



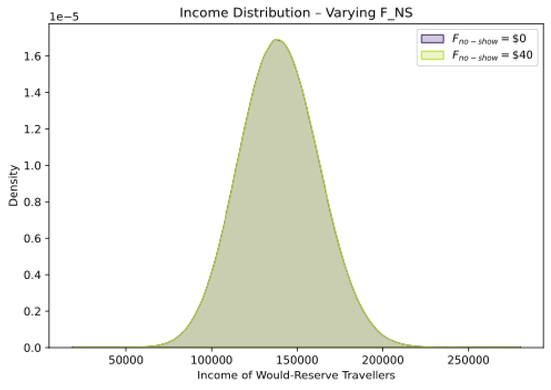
(a) P_{trip} increase – Reservation probability



(b) $F_{no-show}$ increase – Reservation probability



(c) P_{trip} increase – Income distribution



(d) $F_{no-show}$ increase – Income distribution

Abstract

Low prices, limited capacity and increased interest in outdoor recreation contribute to intense competition for public campsites in the United States. Yet, users and park managers report high vacancy rates due to unused reservations or "no-shows." I develop a simple model for the campground reservation, cancellation and no-show decisions. I numerically simulate pricing policies at a hypothetical but representative park. When capacity constraints are binding, the cancellation fees charged by many parks increase no-shows and decrease consumer surplus. In contrast, modestly higher prices and no-show fees dramatically reduce no-shows and increase social surplus 8 to 15 percent. However, these policies create different distributional effects. Higher prices raise revenue but decrease consumer surplus and discourage reservations from lower income users when income is positively correlated with trip utility. No-show fees increase consumer surplus and do not materially affect the income distribution of users. The optimal no-show fee, equal to the lost consumer surplus from the marginal no-show, maximizes consumer surplus and increases social surplus 8.5 percent.