

ABSTRACT

THE BOX PROBLEM: TO SWITCH OR NOT TO SWITCH

A person P is shown two identical boxes, one of which contains twice as much money as the other. P must choose one box and, after opening it, decide whether to keep this box or exchange it for the other one.

The box problem is that a switch would appear always to be profitable, no matter what the box initially chosen contains. However, when a priori probability distributions over the amounts in the two boxes are specified, this is not always the case. Nevertheless, there are both discrete and continuous probability distributions in which a switch is always rational. Moreover, whatever the distribution, a switch is rational if the amount found in the box initially chosen is sufficiently small. Implications of these findings for determining when envy is justified are discussed; also, the relationship of the box problem to the St. Petersburg paradox is briefly explored.