Inspector Leadership with Incomplete Information

by
RUDOLPH AVENHAUS, AKIRA OKADA and SHMUEL ZAMIR

Abstract

Inspection problems arise when an inspector has to decide whether an inspectee has behaved legally, i.e., according to a formal agreement. For such a decision the inspector uses a well-defined procedure which is based on observations of random variables and which may or may not be announced to the inspectee.

Whereas in the latter case (no announcement) in equilibrium the inspectee will behave illegally with positive probability, in the former case he will act legally with certainty: the inspector deters the inspectee from illegal behavior by means of his "inspector leadership procedure."

In the case of complete information on both sides the leadership solution is unstable. It is shown that in case the inspector has only incomplete information about the inspectee's payoff for undetected illegal action this instability disappears.

For the purpose of illustration the results are applied to material accountancy and data verification problems, and it is shown that the inspector's equilibrium strategies are the statistical tests commonly used in these contexts.