

**Il Dipartimento di Economia  
Organizza il Seminario**

***PROPER SCORING RULES***

**A. PHILIP DAWID**

University of Cambridge, UK

**Abstract:**

A scoring rule  $S(x, Q)$  measures the quality of a quoted distribution for an uncertain quantity  $X$  in the light of the realised value  $x$  of  $X$ . It is proper when it encourages honesty, i.e. when, if your uncertainty about  $X$  is represented by a distribution  $P$ , the choice  $Q = P$  minimises your expected loss. Traditionally, a scoring rule has been called local if it depends on  $Q$  only through  $q(x)$ , the density of  $Q$  at  $x$ . The only proper local scoring rule is then the log-score,  $-\log q(x)$ . For the continuous case, we can weaken the definition of locality to allow dependence on a finite number  $m$  of derivatives of  $q$  at  $x$ . A characterisation is given of such order- $m$  local proper scoring rules, and their behaviour under transformations of the outcome space. In particular, any  $m$ -local scoring rule with  $m > 0$  can be computed without knowledge of the normalising constant of the density. Parallel results for discrete sample spaces will be given.

Papers available at arXiv:1101.5011v1, arXiv:1104.2224v1

**Mercoledì 16 maggio 2012  
ore 14.30 – Aula 16**

**Facoltà di Economia  
Università degli Studi Roma Tre  
Via Silvio D'Amico 77, 00145 Roma**

**La partecipazione è aperta a tutti gli interessati**