

University of Groningen

Statistical Auditing and the AOQL-method

Talens, Erik

IMPORTANT NOTE: You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

Document Version

Publisher's PDF, also known as Version of record

Publication date:

2005

[Link to publication in University of Groningen/UMCG research database](#)

Citation for published version (APA):

Talens, E. (2005). *Statistical Auditing and the AOQL-method*. s.n.

Copyright

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

Take-down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

Basic Notation and Terminology

Symbols

N	population size
n	sample size
M	number of incorrect items in the population
K	number of incorrect items in the sample
p	fraction of incorrect items in the sample before inspection
p_a	fraction of incorrect items in the sample after inspection
π	expected fraction of incorrect items in the sample after inspection
k_0	number of incorrect items allowed in the sample
P_l	predefined level not to be exceeded by π
M^*	value of M for which π takes on its maximum
π^*	maximum value of π with respect to M
Λ	hypergeometric distribution function with $K = k_0$
$\{M_{N,n}\}$	triangular array with values of M^*
$M_{N,n}$	element of $\{M_{N,n}\}$
$\{\pi_{N,n}\}$	triangular array with values of π^*
$\pi_{N,n}$	element of $\{\pi_{N,n}\}$
n_l	the largest value of n for which $n \leq M^*$
Y	total book amount
X	total audited amount
D	total error amount
t_i	the taint of an item or monetary unit
y_i	the book value of an item
x_i	the audited value of an item
d_i	error amount of an item or the taint of a monetary unit
Z_i	error amount of an item or the taint of a monetary unit given $Z_i > 0$

General symbols

\equiv	equals, by definition
\square	end of proof
min	minimum, minimize
max	maximum, maximize
e	exponential
!	factorial

Sets

\in, \notin	belongs to, does not belong to
\cup, \cap	union, intersection
\subset	is a subset of
\emptyset	empty set

Statistical symbols

\sim	is distributed as
P	probability
E	expectation
Var	variance
$\mathcal{H}(n, M, N)$	Hypergeometric distribution with parameters n, M , and N
$B(a, b)$	beta distribution with parameters a and b
$F(r, s)$	F distribution with r and s degrees of freedom
Dir(. . .)	Dirichlet distribution
$\chi^2(r)$	chi-square distribution with r degrees of freedom

Terminology

For any $x \in \mathbb{R}^n$,

$$x_{(1)} \geq \cdots \geq x_{(n)}$$

denotes the elements of x in decreasing order.

$\binom{p}{q} = \frac{p!}{q!(p-q)!}$ for $q = 0, 1, \dots, p$; $p = 0, 1, 2, \dots$, where $0! = 1$ by definition. For other values of $p, q \in \mathbb{Z}$ it is defined $\binom{p}{q} = 0$.