

# Statistics can help us avoid counterfeit goods on the internet, study shows

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Consumers need to know the true perils of purchasing artwork or luxury goods on the Internet, say statisticians in a paper published today in *Significance*, the magazine of the Royal Statistical Society and the American Statistical Association.

Currently the operators of [internet auction](#) sites are not required to guarantee the authenticity of items listed. Today's *Significance* article, which is a preview of a more detailed article to be published in the *Journal of the Royal Statistical Society – Series A: Statistics in Society*, shows that statistical methods used previously in evaluating the accuracy of medical screening tests can be successfully applied to assess the misrepresentation of items offered for sale on Internet auction sites. For consumer protection agencies or producers of expensive goods this is a significant step forward in enabling them to monitor the authenticity of objects offered for sale on the Internet. The results also indicate that the laws on misrepresentation of items for sale on the internet need to be strengthened to provide further protection of the public, claims lead author Professor of Statistics and Economics, Joseph L. Gastwirth, of George Washington University.

In the study the accuracy of the descriptions of artwork by Henry Moore offered on eBay were examined over a period of eighteen months. Two expert evaluators classified the artworks independently, with a third evaluator collecting the data and sending it to them separately. Adapting an established statistical method used to evaluate the accuracy of classifications in medicine and social science, the authors were able to

estimate the percentage of artworks which were misrepresented.

The results of the study showed that over 80% of the small sculptures and drawings indicated by eBay sellers as by Henry Moore were in fact not genuine, while over 90% of the signed prints were genuine. "This method should be useful in assessing the reliability of descriptions of works by other artists, as well as some [luxury goods](#)," said Professor Gastwirth. "It may also prove useful in the application of statistics in legal cases concerning infringement, as it can be used as a first step in determining the percentage of goods of a certain type that are counterfeit."

The implication for buyers of artworks on internet auction sites is clear. The high proportion of counterfeit works by Henry Moore serve as warning to people looking to buy works by any major artist in this way; they need to exercise extreme caution.

**More information:** "Dare you Buy a Henry Moore on E-bay?"  
Gastwirth J L, Johnson W; *Significance*; March 2011; [DOI: 10.1111/j.1740-9713.2011.00470.x](https://doi.org/10.1111/j.1740-9713.2011.00470.x)

The full study will be published in the Journal of the Royal Statistical Society: Series A (Statistics in Society): "Estimating the fraction of 'non-genuine' artwork by Henry Moore for sale on eBay: application of latent class screening test methodology" Gastwirth J L, Johnson W and Hikawa H.; *J.R.Statist.Soc.A*; July 2011 174, Part 4  
[DOI:10.1111/j.1467-985X.2010.00682.x](https://doi.org/10.1111/j.1467-985X.2010.00682.x)

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