

The Effect of Big Data on Recommendation Quality.

The Example of Internet Search

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Abstract

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Are there economies of scale to data in internet search? This paper is first to use real search engine query logs to empirically investigate how data drives the quality of internet search results. We find evidence that the quality of search results improve with more data on previous searches. Moreover, our results indicate that the type of data matters as well: personalized information is particularly valuable as it massively increases the speed of learning. We also provide some evidence that factors not directly related to data such as the general quality of the applied algorithms play an important role. The suggested methods to disentangle the effect of data from other factors driving the quality of search results can be applied to assess the returns to data in various recommendation systems in e-commerce, including product and information search. We also discuss the managerial, privacy and competition policy implications of our findings.

Keywords: Big Data, Recommendation quality, Internet search, E-Commerce, Economies of Scale, Search engines

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