Volatility of price indices for heterogeneous goods with applications to the fine art market

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Abstract

Price indices for heterogeneous goods such as real estate or fine art constitute crucial information for institutional or private investors considering alternative investment decisions in times of financial markets turmoil. Classical mean-variance analysis of alternative investments has been hampered by the lack of a systematic treatment of volatility in these markets. In this paper we propose a hedonic regression framework which explicitly defines an underlying stochastic process for the price index, allowing to treat the volatility parameter as the object of interest. The model can be estimated using maximum likelihood in combination with the Kalman filter. We derive theoretical properties of the volatility estimator and show that it outperforms the standard estimator. We show that extensions to allow for time-varying volatility are straightforward using a local-likelihood approach. In an application to a large data set of international blue chip artists, we show that volatility of the art market, although generally lower than that of financial markets, has risen after the financial crisis 2008/09, but sharply decreased during the recent debt crisis.

Keywords: Volatility, heterogeneous goods, hedonic regression, random effects

JEL classification: C14, C43, Z11

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