# Valuing Housing Services in the Era of Big Data: A User Cost Approach Leveraging Zillow Microdata

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## Abstract

Historically, residential housing services or "space rent" has made up a substantial portion (approximately 10%) of U.S. GDP final expenditures. The current methods and imputations employed by the Bureau of Economic Analysis (BEA) rely primarily on designed survey data from the Census Bureau. In this study, we develop new estimates valuing housing services based on a user cost approach that utilizes detailed microdata from Zillow (ZTrax), a "big data" set that contains detailed information on hundreds of millions of market transactions. The coverage of this data is representative of the United States' national housing market, initially containing 374 million detailed records of transactions across more than 2,750 counties that spans more than two decades, which includes information on each home's sale price, closing date, mortgage information, foreclosure status, and other information commonly disclosed by municipal administrative sources. Further, we plan to leverage "blended data" by merging internal Census microdata to assess coverage and accuracy, as well as estimating interest rate costs and other costs more precisely for individual households. Finally, we compare our method and estimates to the corresponding series of BEA statistics, which is based on a rental-equivalence approach, providing a path showing how BEA may be able to incorporate big data sources to improve the quality of a key component of GDP expenditures.

**Keywords**: residential housing, Big Data, blended data, housing services, owner-occupied housing, space rent, interest rates, home prices
**JEL Classifications**: E01, C80, R00

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