Data and Method of Study

The Real Estate Center used time series of vacancy rates in percentages and effective rents measured in dollars per square foot from ALN Apartment Data Ltd. for its study of apartment markets in Austin, DFW, Houston, and San Antonio. Like many other economic and financial indicators, time series of vacancy rates and rents are combinations of four components that drive the series: secular trend, seasonal variation, cyclical, and random components.

The Center used the Hodrick-Prescott filter, a recognized procedure, to purge short-run fluctuations due to seasonal or random components and discover longer-term trends in data. The filtered vacancy rates revealed cyclical patterns. Filtered rents displayed generally upward or secular trends due to inflation and growing demand for apartments because of growing population and incomes. As in the case of many other economic time series, the growth rates of rents displayed cyclical patterns.

An important feature of cyclical patterns is mean reversion, which is when growth rates deviate in the short run from their long-term averages but eventually return to averages. The mean-reversion property can be exploited for forecasting the directions of changes in time series.

Cyclical movements of vacancy rates and rent-growth rates are due to imbalances and lead-lag relationships between supply and demand sides of goods and services. All market economies proceed in cycles, where several periods of higher growth rates leading to peaks are followed by several periods of lower growth rates ending in troughs. The Center has a research program for detecting and monitoring the most important business cycles in Texas and its major metros.