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### **How does household energy use differ across metropolitan areas?**

Although many studies have examined the extent to which different development patterns impact residential building and transportation energy consumption, few have examined both uses simultaneously or analyzed their correlation. If households in outer neighborhoods of metropolitan areas, which use more energy for transportation, also use more building energy, sprawling development patterns would have greater effects on urban energy use than previously thought. The goal of this study is to determine how energy use profiles of households differ across metropolitan regions and the extent to which residential building and transportation energy use are correlated. This is accomplished by estimating building and automobile energy use per household for Census block groups using 2011 Esri Consumer Expenditure data. Block groups in the 50 largest US metropolitan areas (by population) are classified as inner city, border town, and outer town based on proximity to urban cores. Multivariate analysis of variance (MANOVA) methods are then applied to test for significant differences in building and automobile energy use per household between neighborhood types. Transportation energy use is also regressed on building energy use to determine the correlation.