ASA Datafest 2015

2 SIGMA SQUARED

DUKE UNIVERSITY

Ian Tay | Wei Tang | Chin Jie Lim | Jackie Xiao | Adithya Raghunathan
Freshmen, Electrical and Computer Engineering
Vast **majority** of transactions are **localized**

64% of sales is achieved by 20% of the dealers
• We model that the distance between the buyers and sellers, $D_{ij}$, inversely affected sales. The number of potential buyers and sellers, $M_i$ and $M_j$, directly affected sales.

• $D_{ij}$ was obtained based on the zip codes. For intrastate transactions, distance of the transactions within the state was averaged.

• Potential buyers = viewers. Sellers = registered dealers

• Based on data we have, we find the linearized equations of the gravity model and the exponential decay model and found that the gravity model has a higher R-Squared value of 0.78, as compared to 0.39 for decay model.
The number of transactions follows a gravity model.

Transactions rarely occur when the distance between buyers and sellers exceed 200 miles.

Distance more important mass when it comes to determining the number of the transactions.

Suggestion to allow remote sellers to display car in all searches at a premium.