

Analysis of Household Vehicle Usage by Vehicle Type, Age and Area Type

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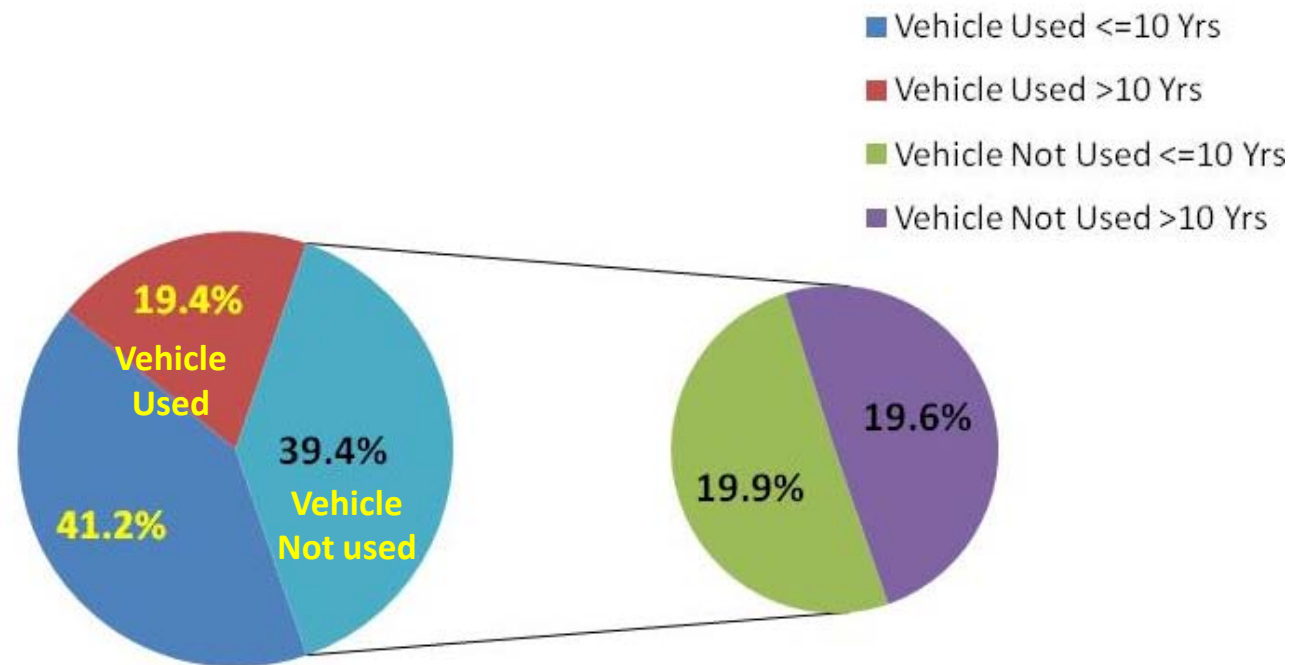
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40% of Household Vehicles Were Considered Not Used in the Day Trip Data

- What are the reasons for vehicles reported to be not used in one day trip?



National Household Vehicle Usage

Study the Reasons that Why Household Vehicles Were Not Used

- Factors may have impacts on vehicle usage
 - *Vehicle Type: Car, SUV, Pickup, Van and others*
 - *Vehicle Age: ≤ 10 Years or > 10 Years*
 - *Travel Day: Weekdays and Weekends*
 - *Residential Location: MSA and Non-MSA*



Classify the Household Vehicle Usage into Five Categories

- Five categories of household vehicle usage/non-usage

Vehicles Used

- *Vehicles used with reported travel distance and time*
- *Vehicle used, but travel distance and/or time not reported*

Vehicles Not Used

- *Vehicles left at home because other household vehicles used for travel*
- *Vehicles left at home because used other travel modes*
- *Vehicles not used because household did not make any trips*

- **Total number of vehicle records (Before weighted): 309,163**



Create Three Subsets of Travel Day Trip Samples

- **Create three subsets of the day trip samples**
 - *Driver -Set 1: Driver trips with reported travel distance and time*
 - *Driver-Set 2: Driver trips without reported travel distance and/or time*
 - *Other: All non-driver trips*
- **Create unique files of *Driver-Set 1*, *Driver-Set 2* and *Other* by HHID, VEHNO and TDAY** (Note: VEHNO for other modes is unknown)
- **Delete the duplicates in *Driver-Set 2*** (the same vehicles reported with distance and time and also without distance and time)



Identify Unique Used/Non-Used Vehicle Records

- ❑ Match trip file *Driver-Set 1* with the vehicle file : (vehicles used with distance and time data)
 - 309,163 = (Matched) 176,501 + (Non-Matched) 132,662
- ❑ Match Non-Matched with trip file *Driver-Set 2*(no duplicates): (vehicles used, but distance and/or time not reported)
 - 132,662 = (Matched1) 955 + (Non-Matched1) 131,707
- ❑ Match Non-Matched1 with Combined *Driver-Set 1&2* (no **HHID** duplicates): Set 3 (vehicles left at home because driving other vehicles)
 - 131,707 = (Matched2) 96,429 + (Non-Matched2) 35,278
- ❑ Match Non-Matched2 with *Other*: Set 4 (Used other modes, did not drive)
 - 35,278 = (Matched3) 5,416 + (Non-Matched3) 29,862
- ❑ Non-Matched3: Set 5 (household did not make any trips)
 - 29,862

Estimate Vehicles Within Each Usage/Non-Usage Set

Total weighted number of vehicles: **211,501,318**

➤ *Set 1: Vehicles used with reported travel distance and time*

➡ **126,321,101 (59.7%)**

➤ *Set 2: Vehicle used without reported travel distance and/or time*

➡ **868,583 (0.4%)**

➤ *Set 3: Vehicles left at home while other household vehicles used*

➡ **60,979,981 (28.8%)**

➤ *Set 4: Vehicles left at home while using other travel modes*

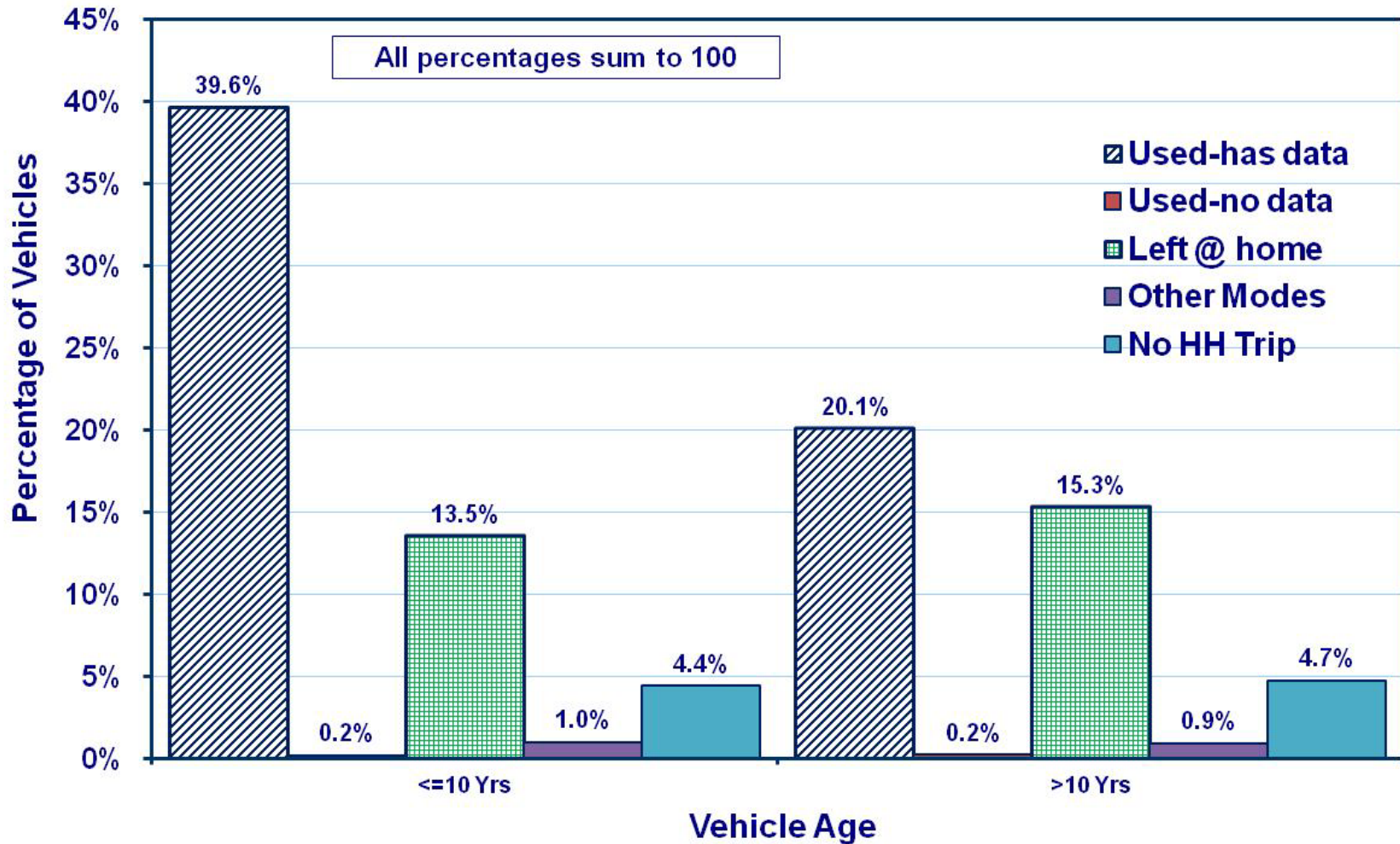
➡ **4,000,988 (1.9%)**

➤ *Set 5: Vehicles not used because household did not make any trip*

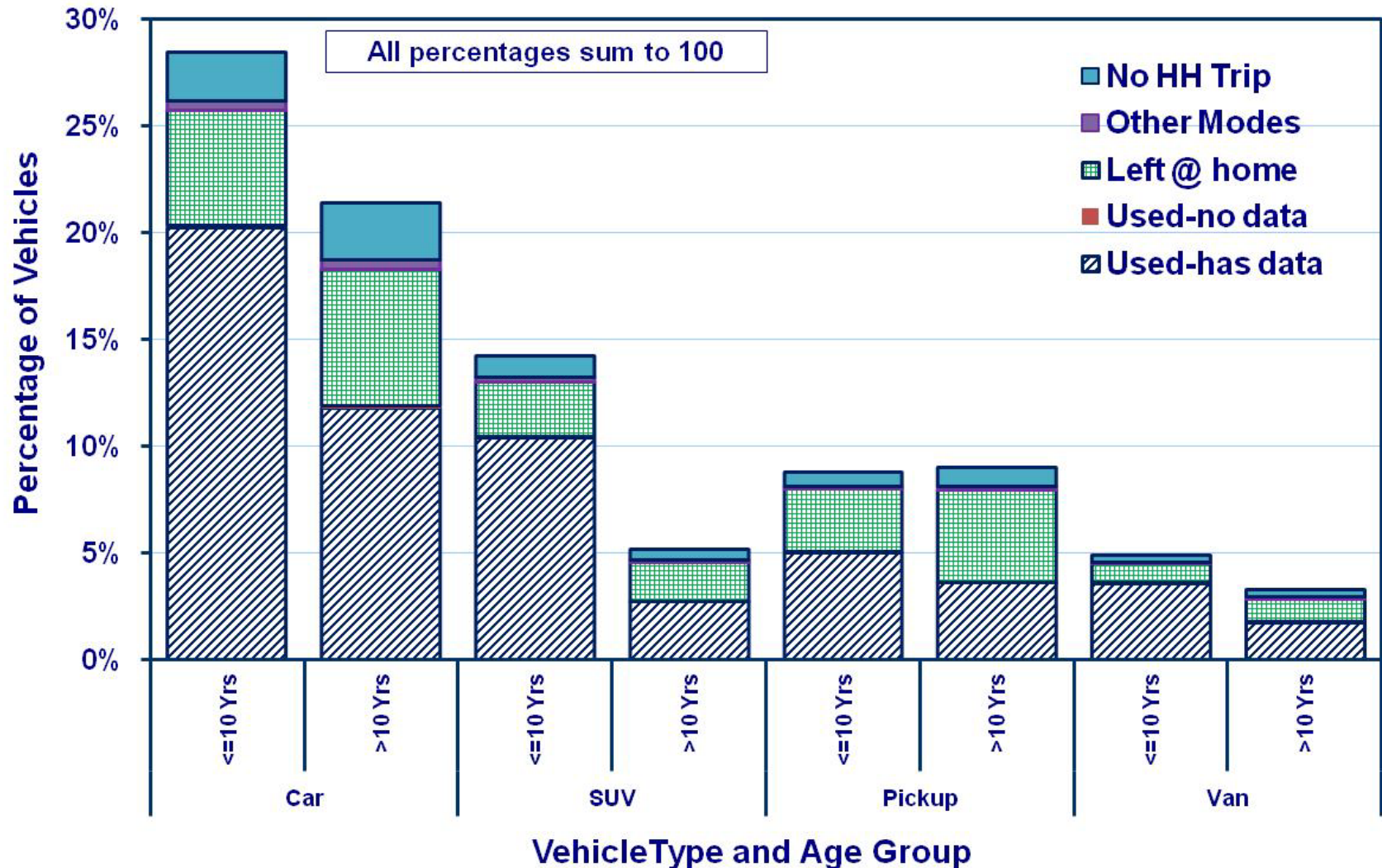
➡ **19,330,665 (9.2%)**



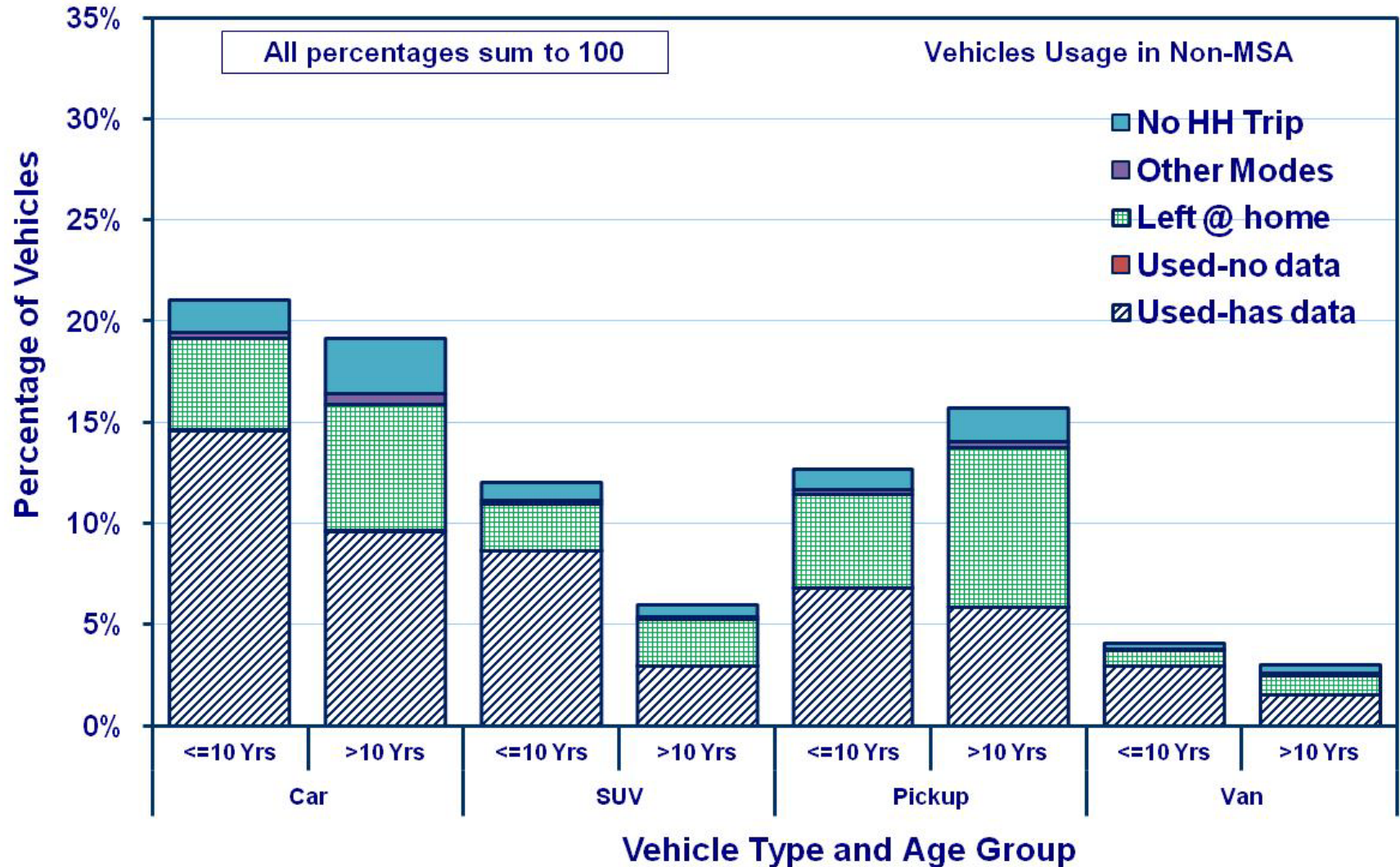
'Left@home' Is the Largest Not Used Vehicle Group



Cars and Pickups Greater Than 10 Years Old Are More Likely to be 'Left@home'

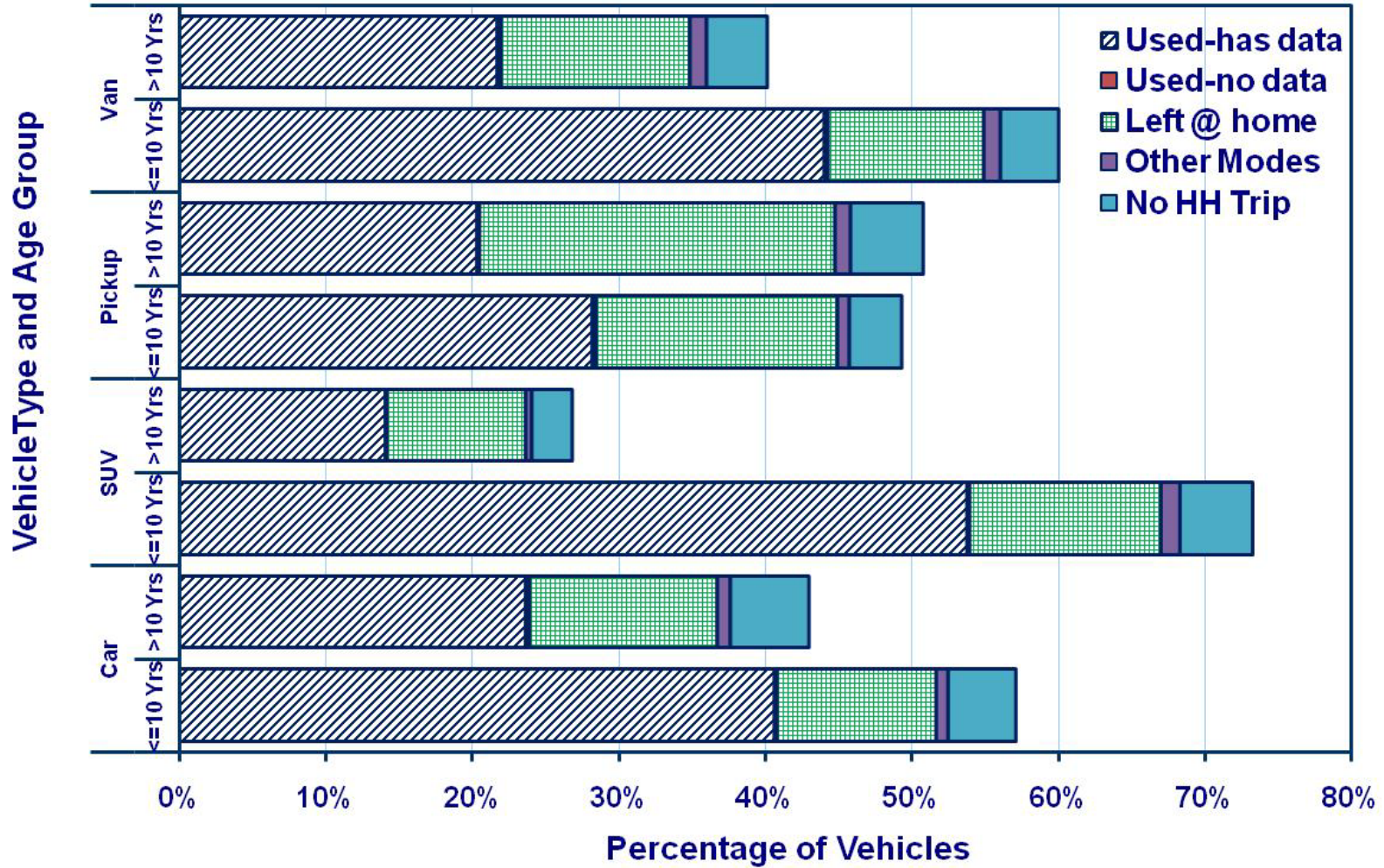


More Old Pickup in Rural Area, but They Are More Likely to be Among Vehicles Not Used

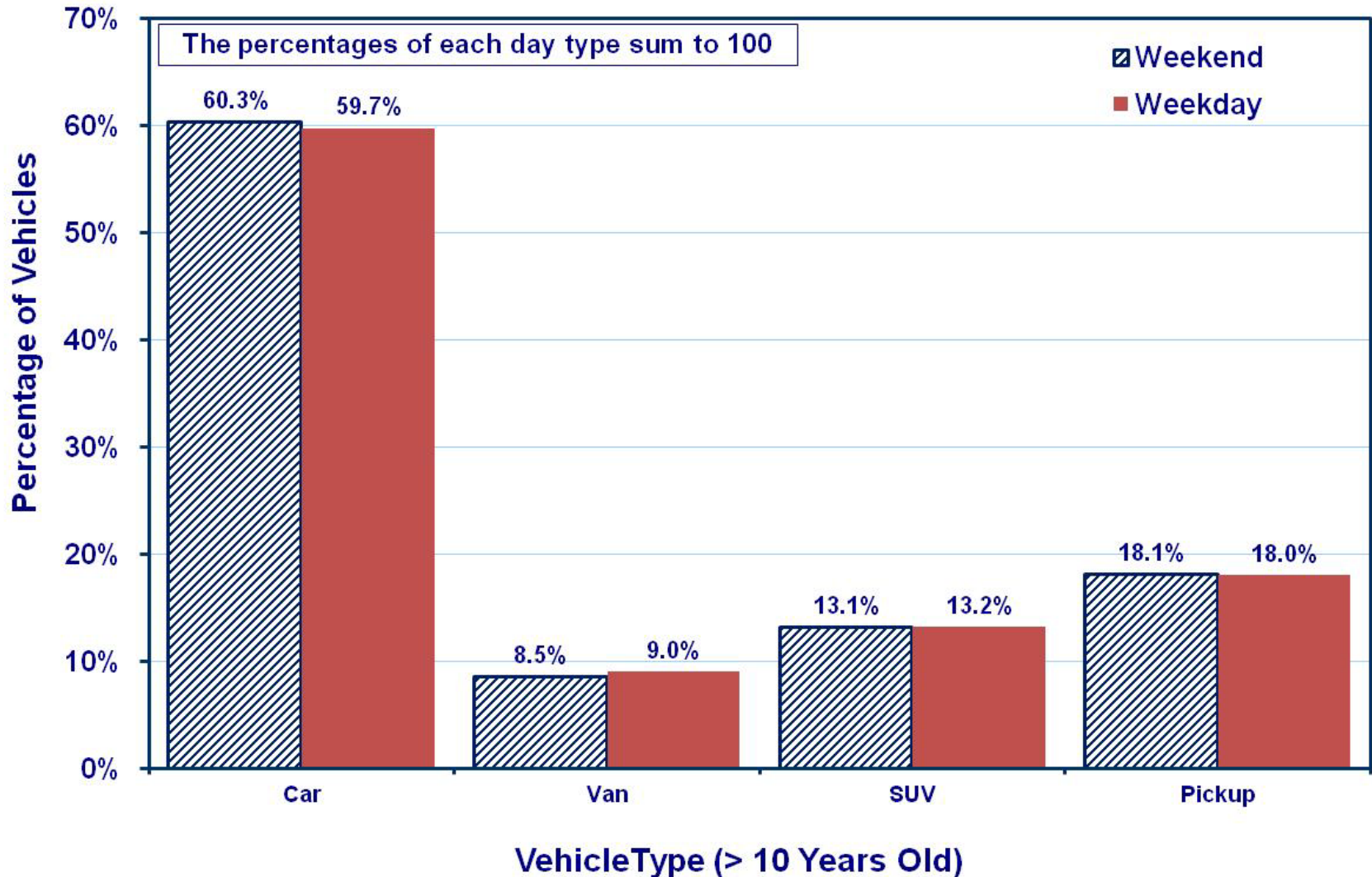


Comparing by Vehicle Type, Newer SUVs Are More Likely to be Used

The percentages of each vehicle type sum to 100



Vehicle Used in Weekend and Weekday Do Not Show Statistical Difference



Summary

- **NHTS is useful in conducting analysis regarding household vehicle usage and non-usage**
 - Most vehicles not used are ‘left@home’ because household (HH) members used other HH vehicle(s) to travel
 - Compared to other types, SUVs less than 10 years old tend to be used more
 - Most of the pickups are ‘left@home’ because HH members used other vehicles to travel, especially in rural areas
 - Car (in all age groups) is the most frequently used vehicle type, followed by SUV



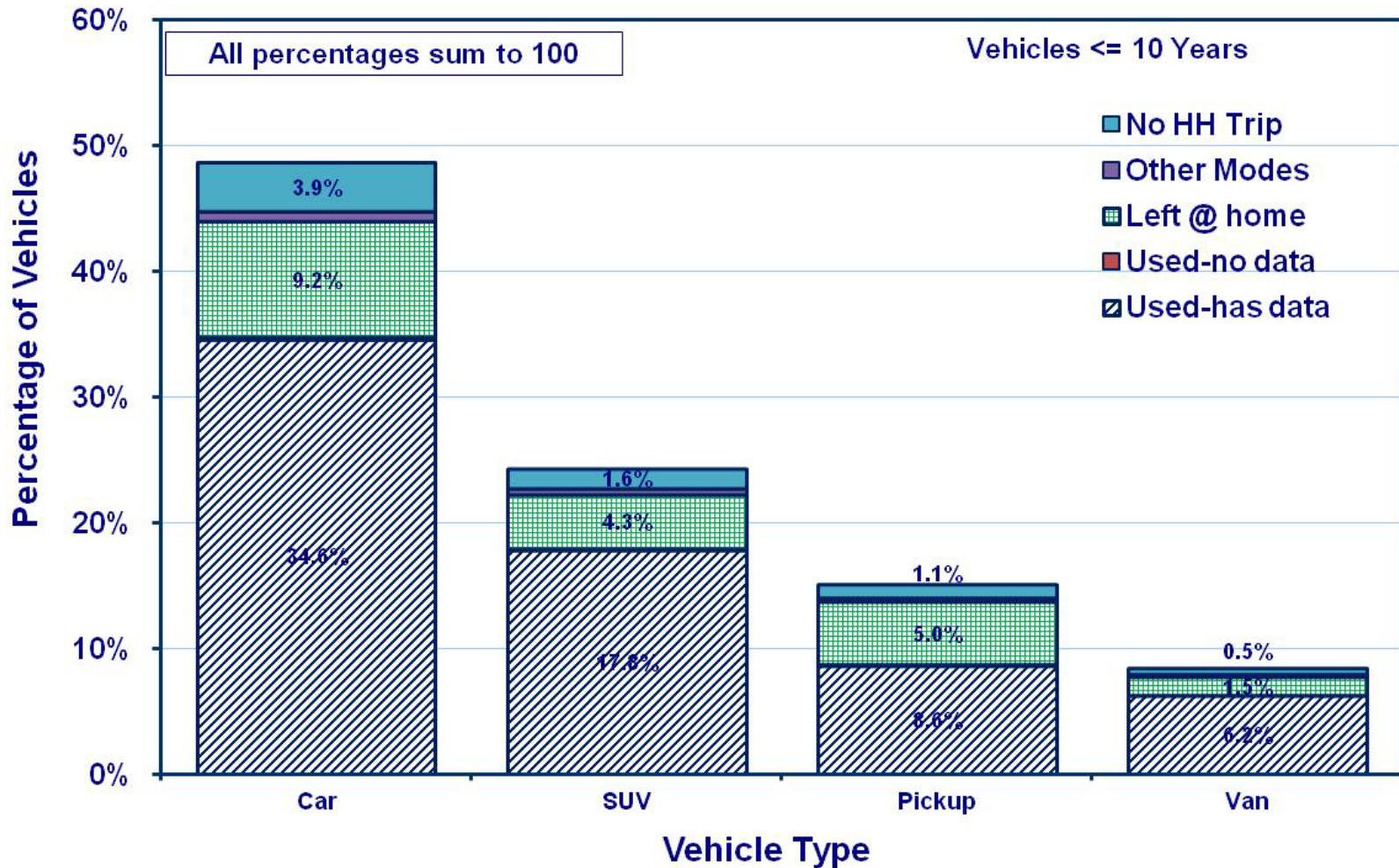
Thanks!

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Most of Vehicles 'Left@home' Are Cars Older than 10 Years



Vehicle Not Used in Weekend and Weekday Do Not Show Statistical Difference

