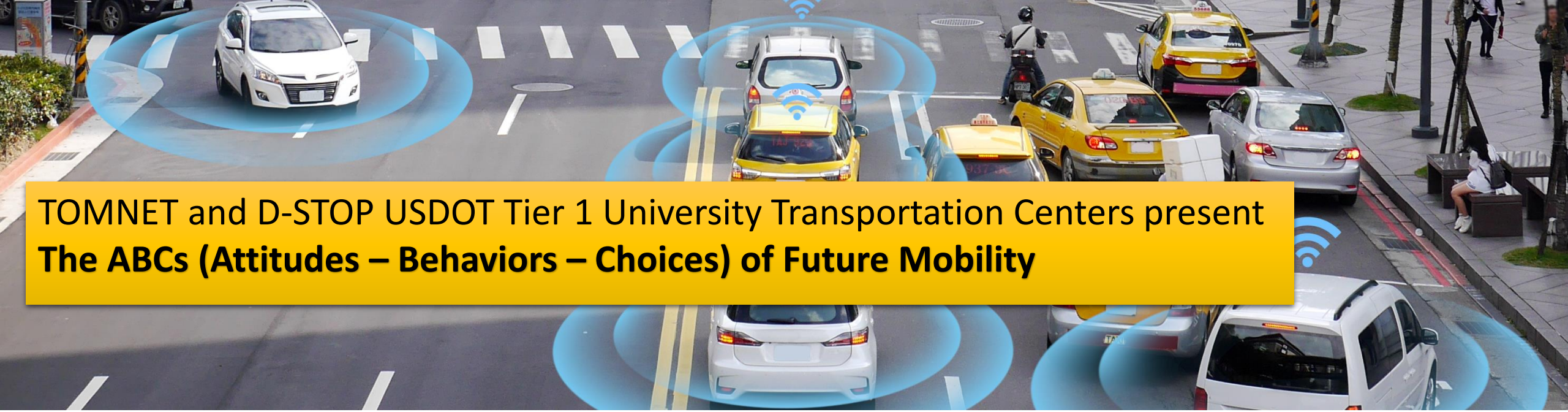

TOMNET and D-STOP USDOT Tier 1 University Transportation Centers present

The ABCs (Attitudes – Behaviors – Choices) of Future Mobility

Exploring Willingness to Pay for Autonomous Vehicles

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THE UNIVERSITY OF TEXAS AT AUSTIN

UNIVERSITY of SOUTH FLORIDA

UNIVERSITY of WASHINGTON

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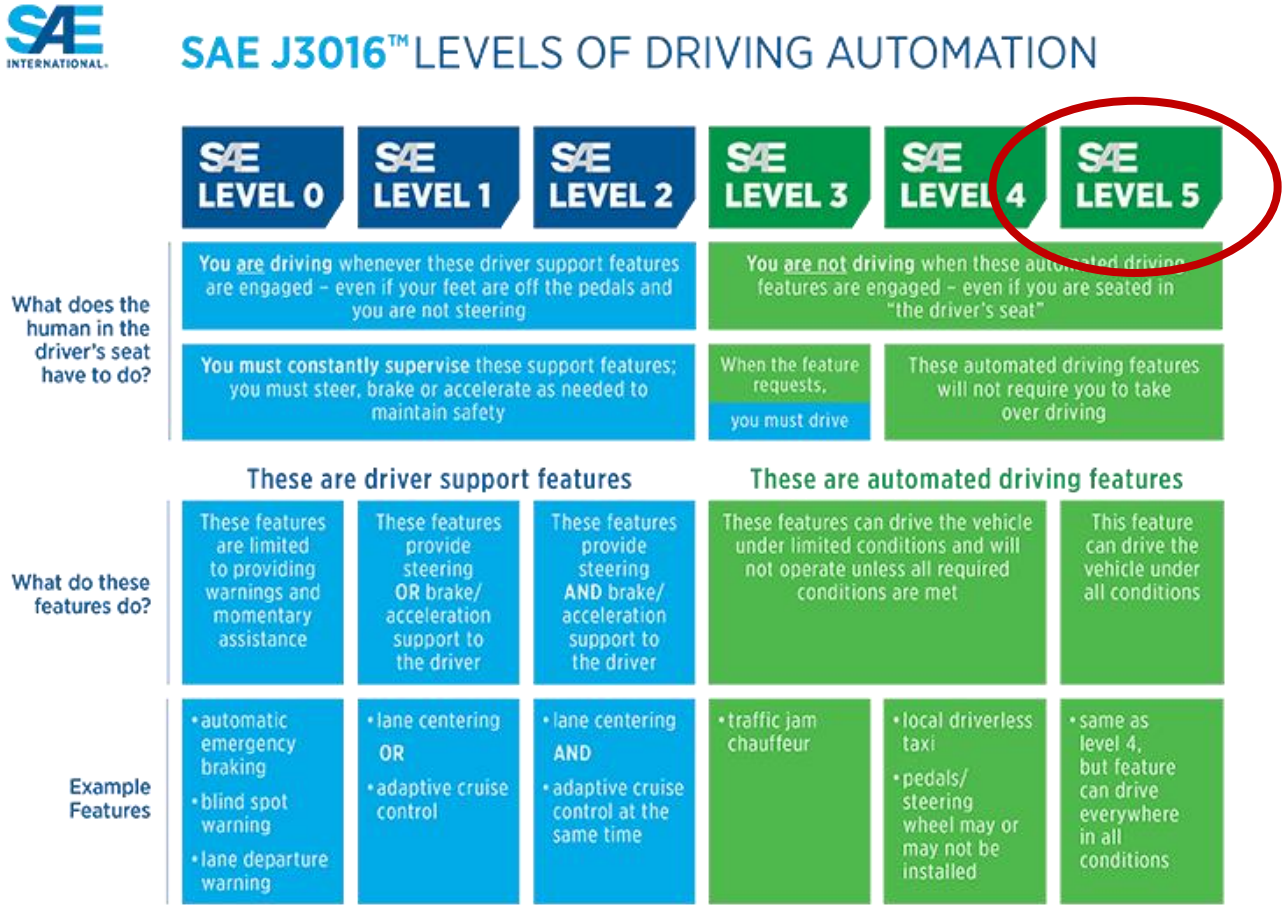
Introduction

- Automated Vehicles (AVs) defining the future of transportation
  - Collision avoidance systems enhance traffic safety
  - Enhanced mobility for those who cannot drive
  - Convenience for those who can drive, but would rather not

- Success of automated mobility depends on consumer adoption and willingness-to-pay (WTP)

Autonomous Vehicle Definition

An **Autonomous Vehicle (AV)** is a vehicle that drives itself without human supervision or control. It picks up and drops off passengers including those who do not drive (*e.g.*, children, elderly), goes and parks itself, and picks up and delivers laundry, groceries, or food orders on its own. When AVs become available, ridehailing companies (*e.g.*, Uber and Lyft) will use them to provide rides without a human driver in the vehicle. When answering the questions in this section, please assume a future in which **autonomous vehicles (AVs) are widely adopted, but human-driven vehicles are still present.**

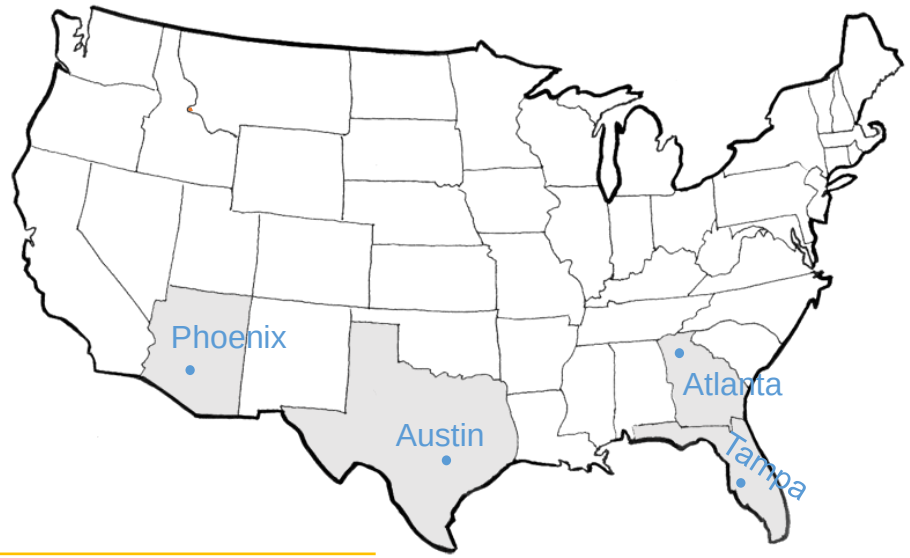


Recent Survey Findings in Literature

- Average WTP $3,252 with a human-driven-vehicle mode option or $2,783 without it (Quarles and Kockelman, 2019)
- 26.3% unwilling to pay extra for the AV version of the vehicle (Liua et al, 2019)
- 36% willing to maintain basic vehicle utilization. Average WTP varied from $652 for basic vehicles, to $1,769 for fully automated (Asgari and Jin, 2019)
- Average WTP (dynamic rideshare without additional time) in the US is $0.74/mile during the day, $0.87 during the night (Gurumurthy and Kockelman, 2020)

TOMNET D-STOP Transformative Technologies in Transportation Survey (T4 Survey)

- Phoenix, Atlanta, Austin, and Tampa metro areas
- Summer and Fall 2019
- Random address-based sample with online instrument
- Comprehensive attitudinal survey on MaaS and AV
- Weighted to better represent Census distributions



	Phoenix, AZ	Atlanta, GA	Austin, TX	Tampa, FL	Total
Sample Size	1,027	944	1,127	260	**3,358**
%	30.6%	28.1%	33.6%	7.8%	100%

Survey Instrument

Attitudes and Preferences

Vehicles You Have and Where You Live

Current Travel Patterns

Mobility on Demand and Shared Mobility Services

Autonomous Vehicles

Background Information

Overview

Willingness to Pay

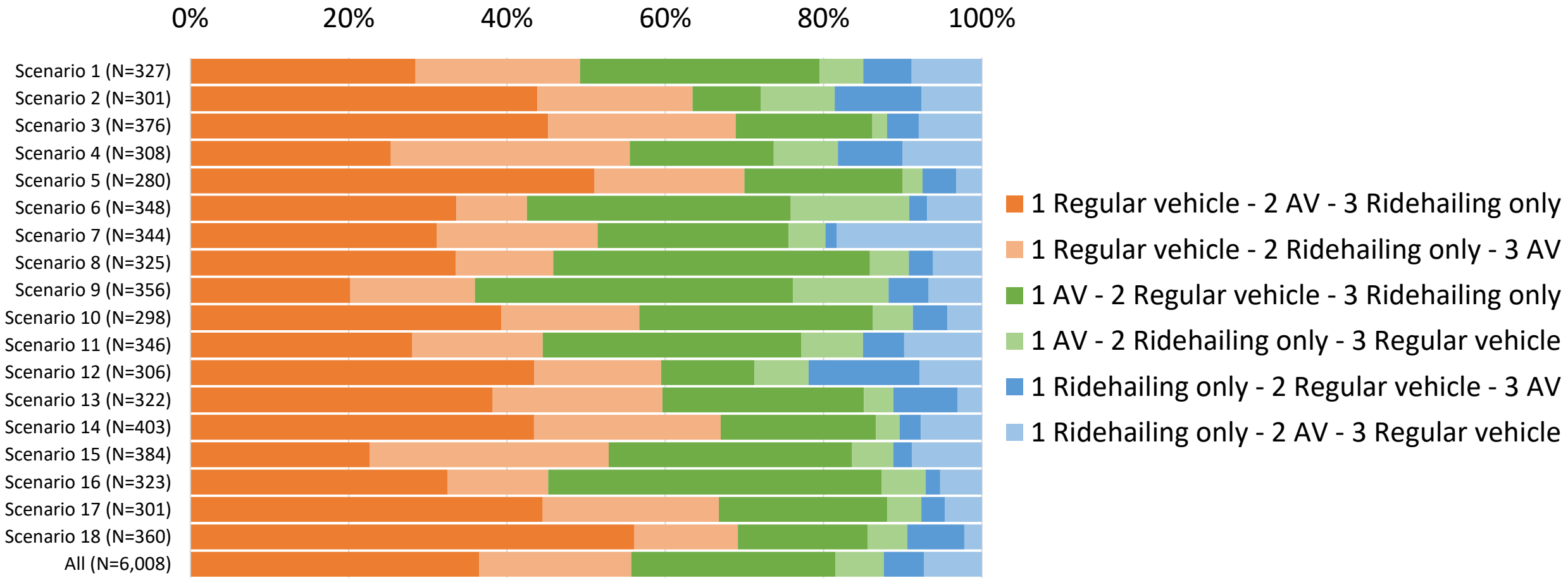
Ranked Purchase Preference

11. Suppose AVs are now available for purchase, lease/rent, or to use via automated ridehailing services, and **half of the vehicles on the streets are AVs**. What would you do when **faced with your next car purchase decision** in each of the following scenarios? Please rank the alternatives **based on your preference (1=most preferred; 3=least preferred).** *Please do not give the same rank to multiple alternatives.*

Scenario 1

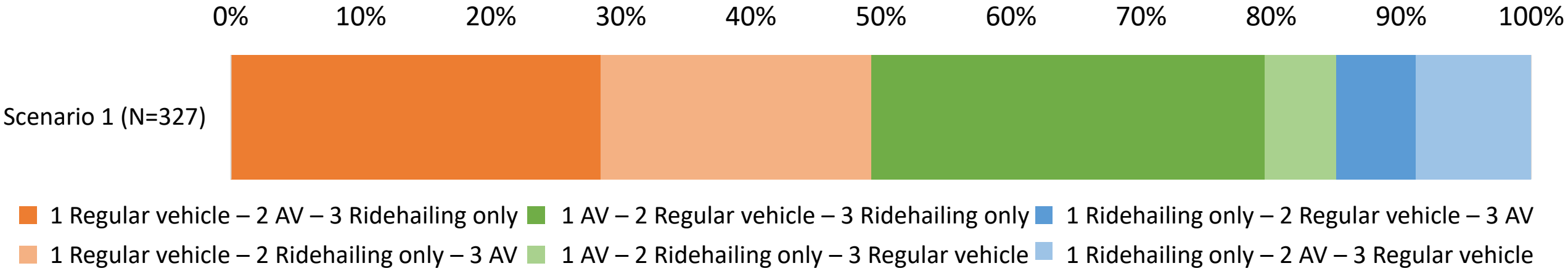
Options	**Option A:** Buy a regular vehicle	**Option B:** Buy an AV	**Option C:** Don't buy a vehicle and use AV ridehailing/rental services
Costs	$ 500/month + $ 0.75/mile Average wait time: 0 minutes	$ 500/month + $ 0.75/mile Average wait time: 0 minutes	$ 0/month + $ 2.25/mile Average wait time: 6 minutes
Rank	_____	_____	_____

Ranked Purchase Preference



Ranked Purchase Preference (Same Price)

Options	**Option A:** Buy a regular vehicle	**Option B:** Buy an AV	**Option C:** Don't buy a vehicle and use AV ridehailing/rental services
Costs	$ 500/month + $ 0.75/mile Average wait time: 0 minutes	$ 500/month + $ 0.75/mile Average wait time: 0 minutes	$ 0/month + $ 2.25/mile Average wait time: 6 minutes

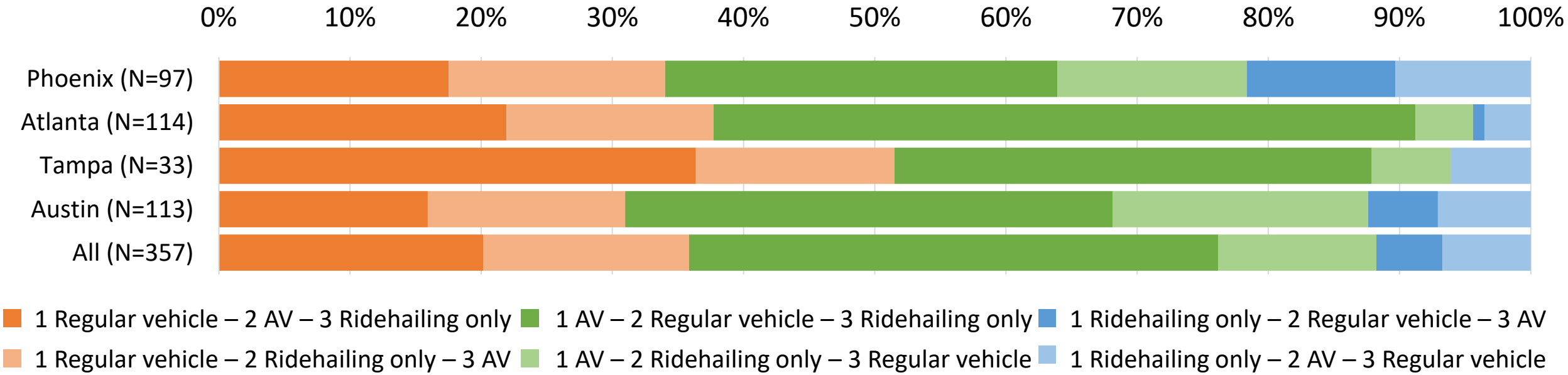


Ranked Purchase Preference (AV Cheaper)

Options	Option A: Buy a regular vehicle	Option B: Buy an AV	Option C: Don't buy a vehicle and use AV ridehailing/rental services
Costs	$ 500/month + $ 0.75/mile Average wait time: 0 minutes	$ **375** /month + $ **0.25**/mile Average wait time: 0 minutes	$ 0/month + $ **1.50** /mile Average wait time: **9** minutes

-25%

-66%



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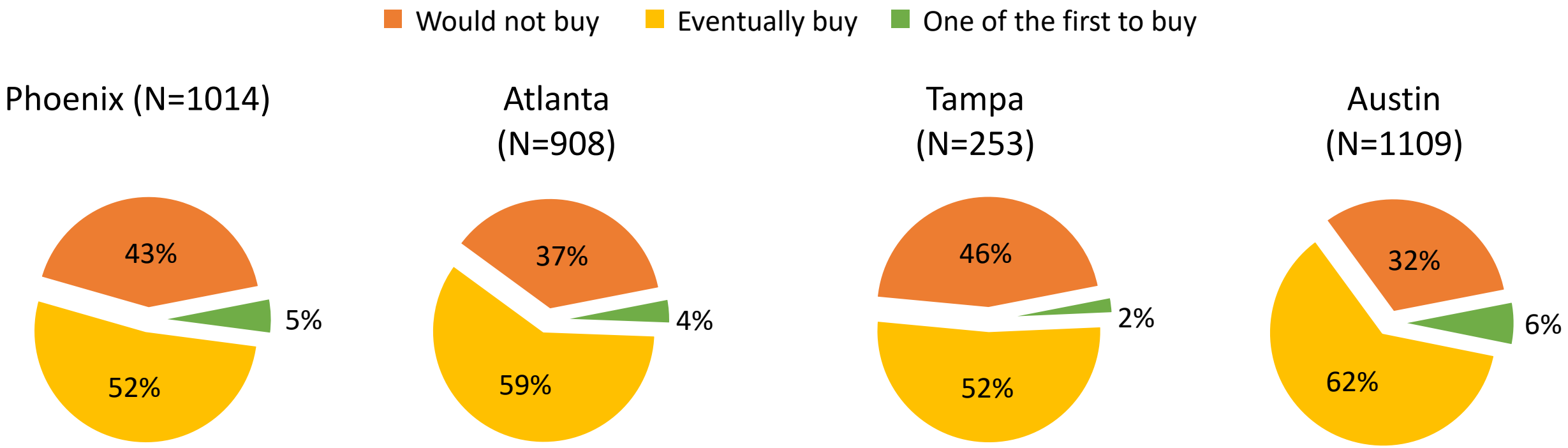
When do respondents expect to purchase an AV?



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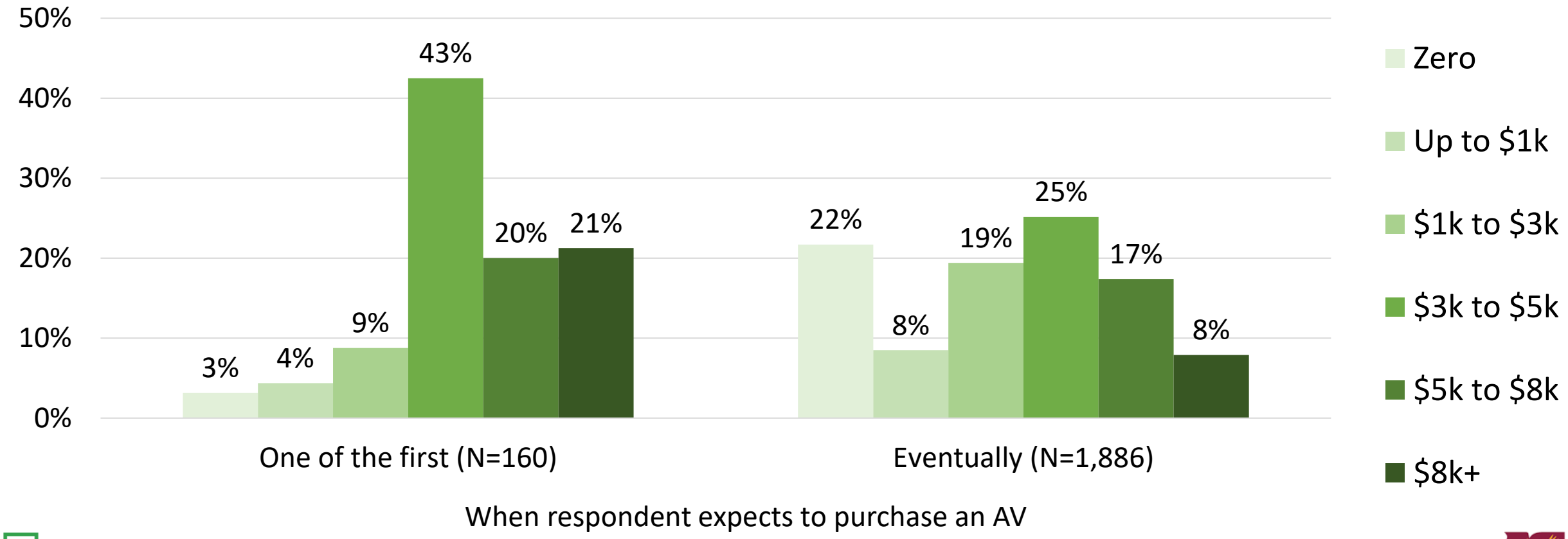
Among those who are willing to purchase an AV, how much are they willing to pay?

Additional price considering they are purchasing a new regular car of $25,000



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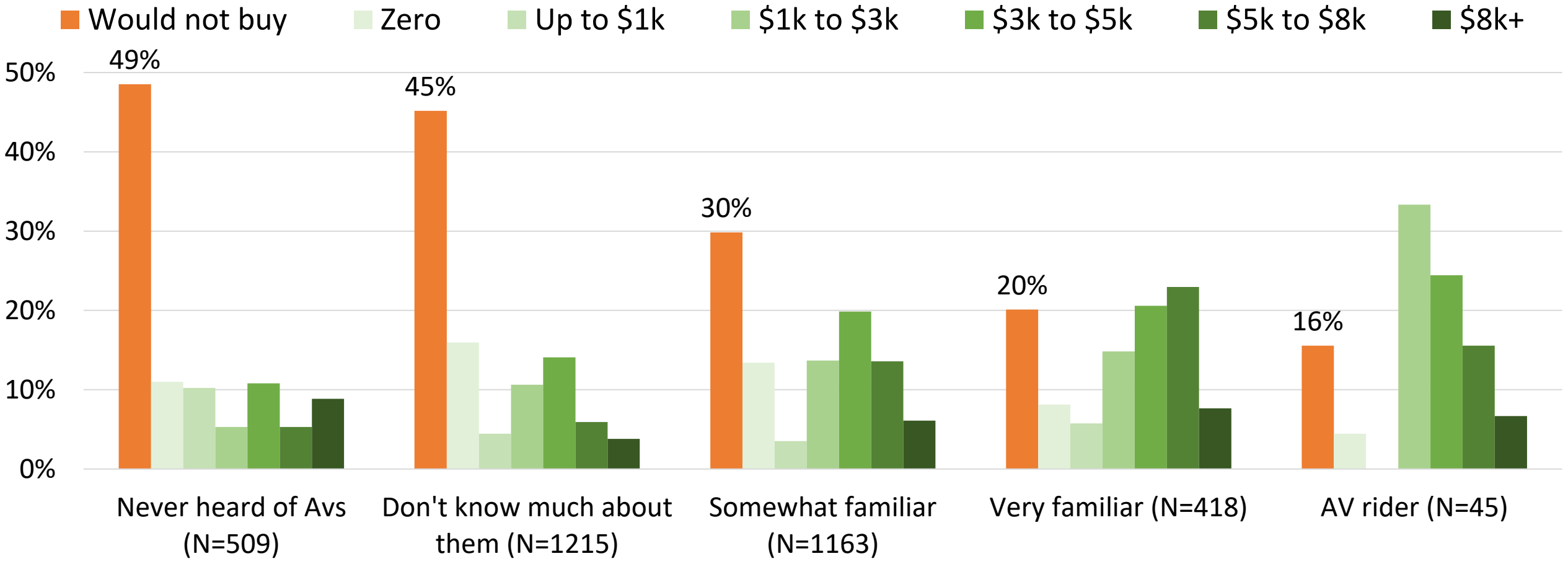
Willingness to Pay by AV Familiarity



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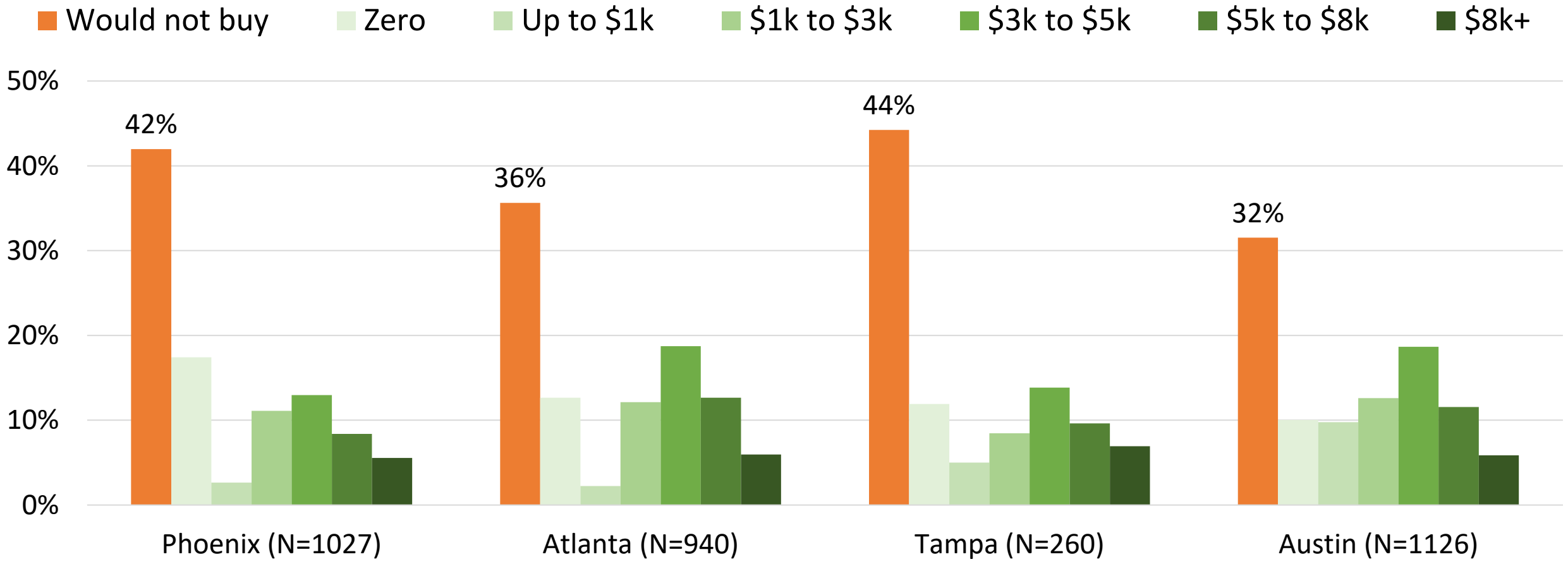
Willingness to Pay by Location



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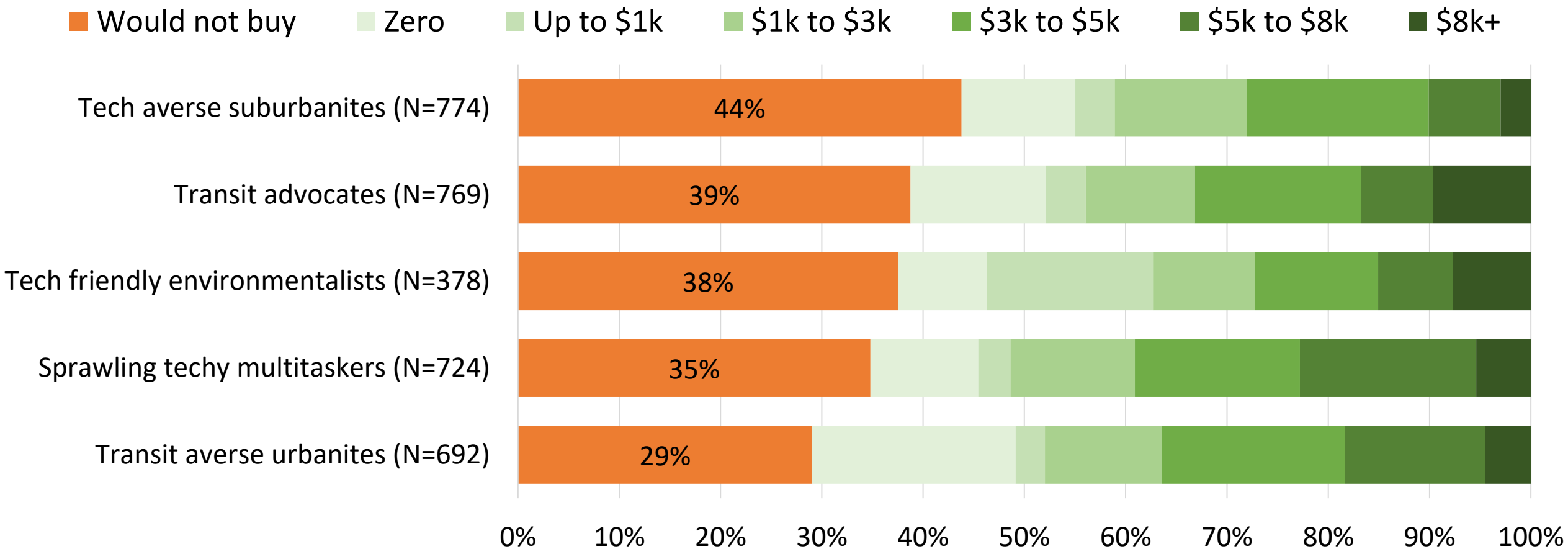
Attitudes &

Willingness to Pay

Willingness to Pay by Attitudinal Profile



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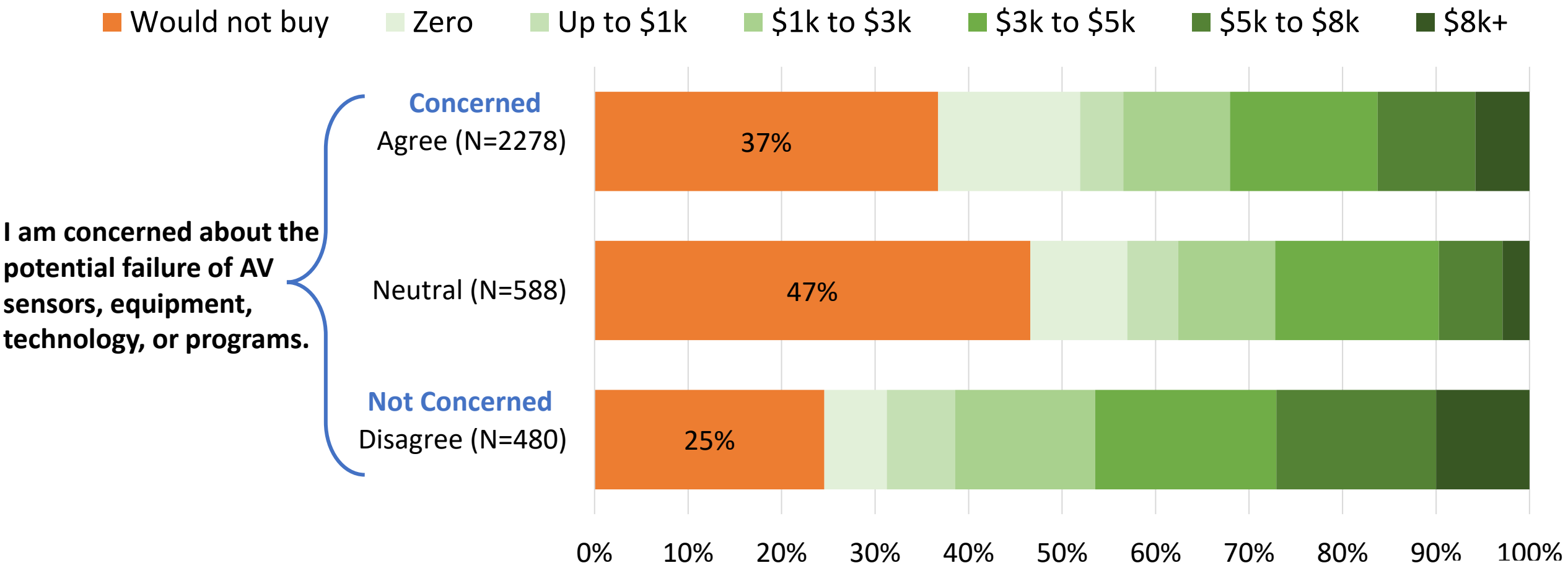
Willingness to Pay by AV Concern



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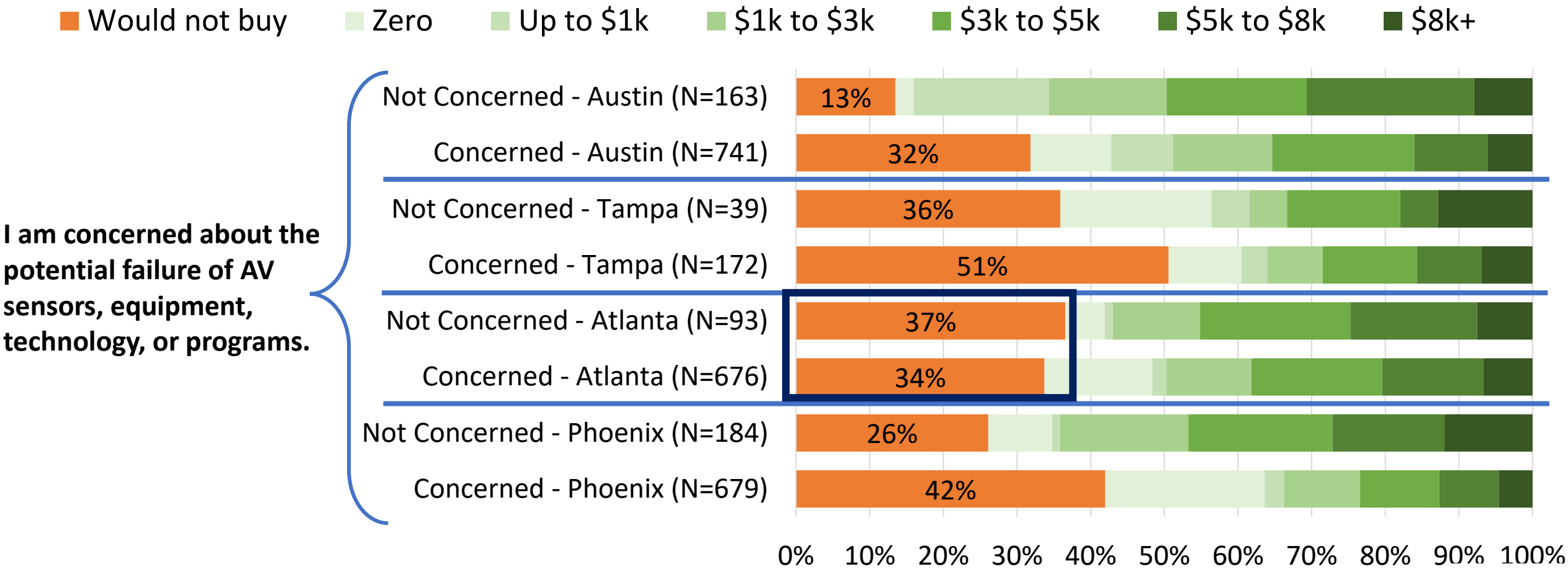
Willingness to Pay by AV Concern



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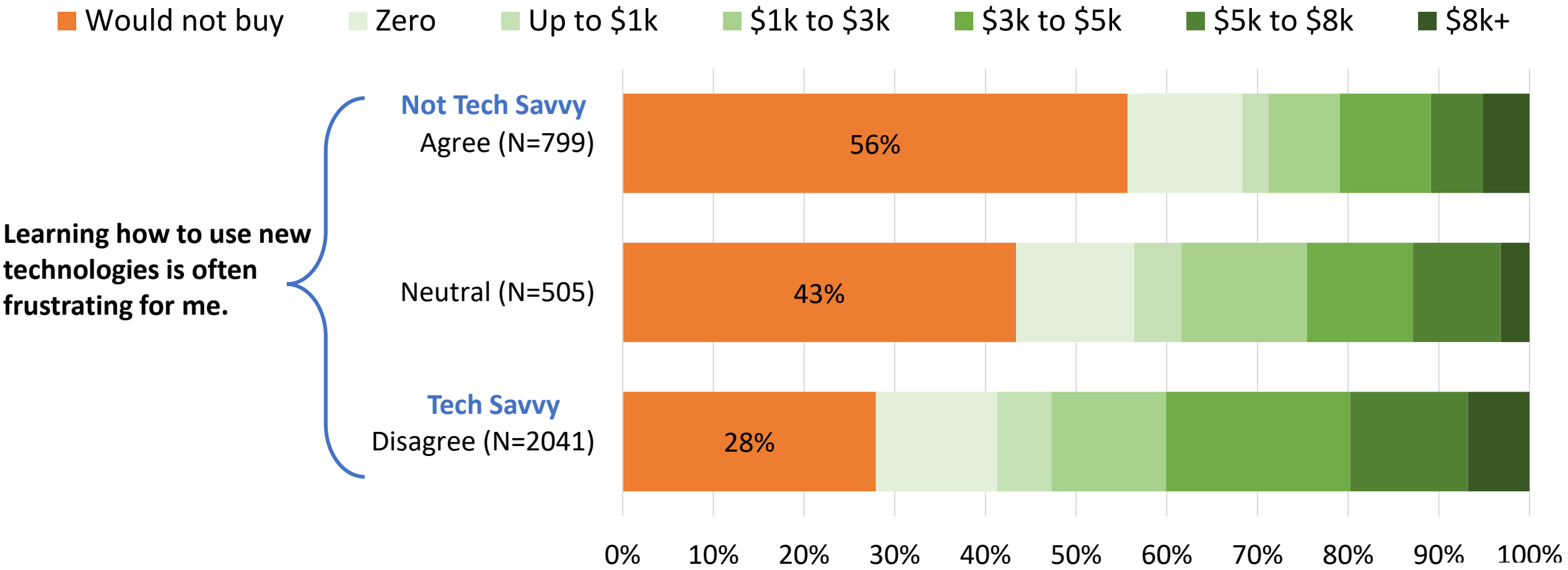
Willingness to Pay by Technology Savviness



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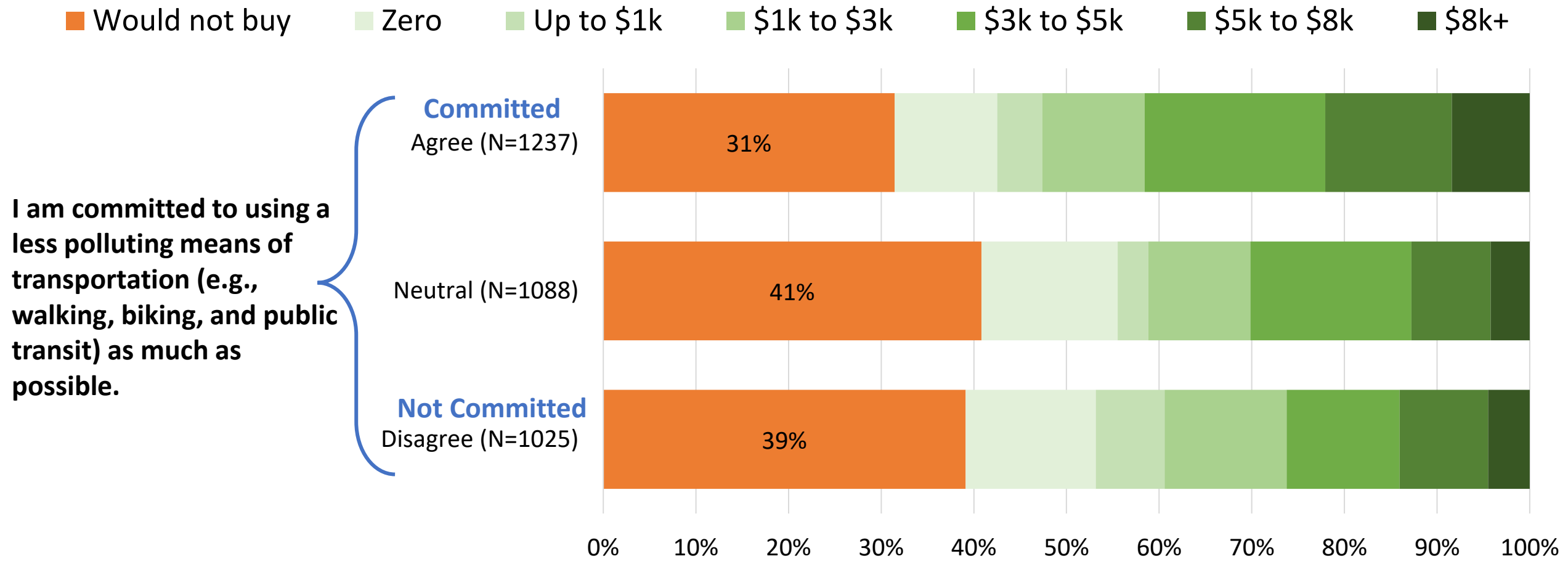
WTP by Commitment to Green Transportation



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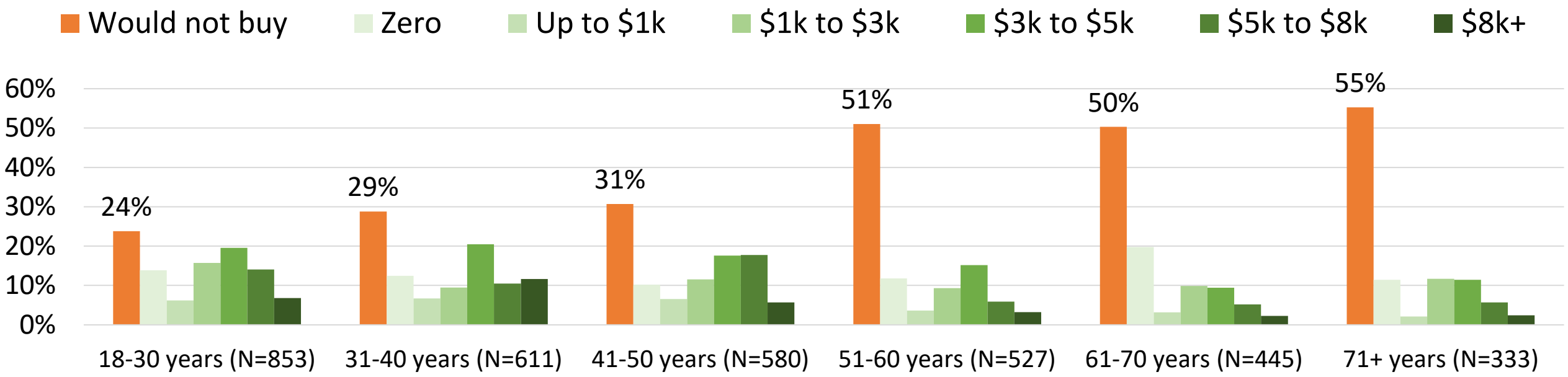
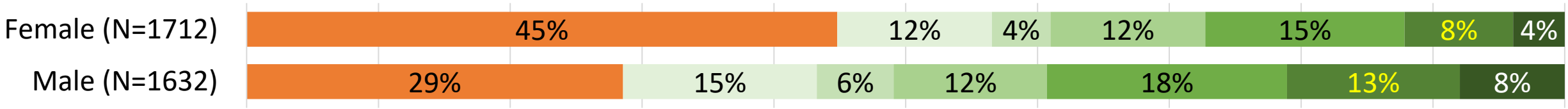
Demographics, Travel &

Willingness to Pay

Willingness to Pay by Age and Gender





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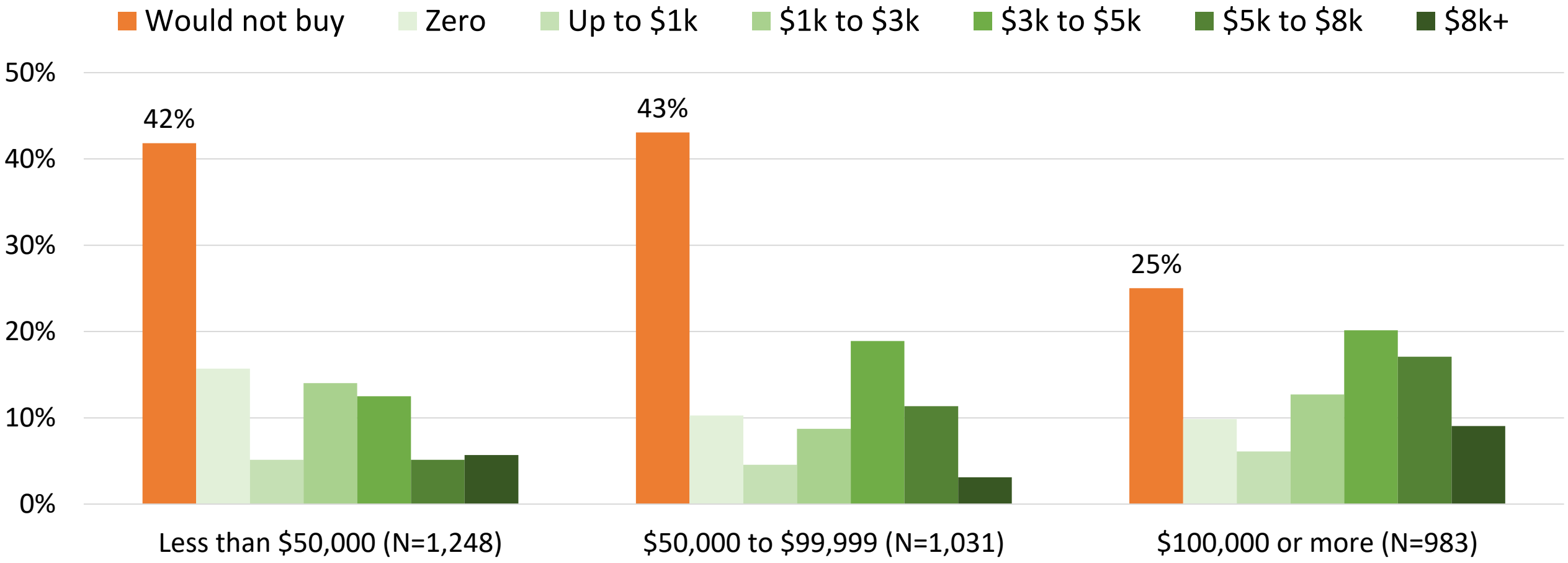
Willingness to Pay by Household Income



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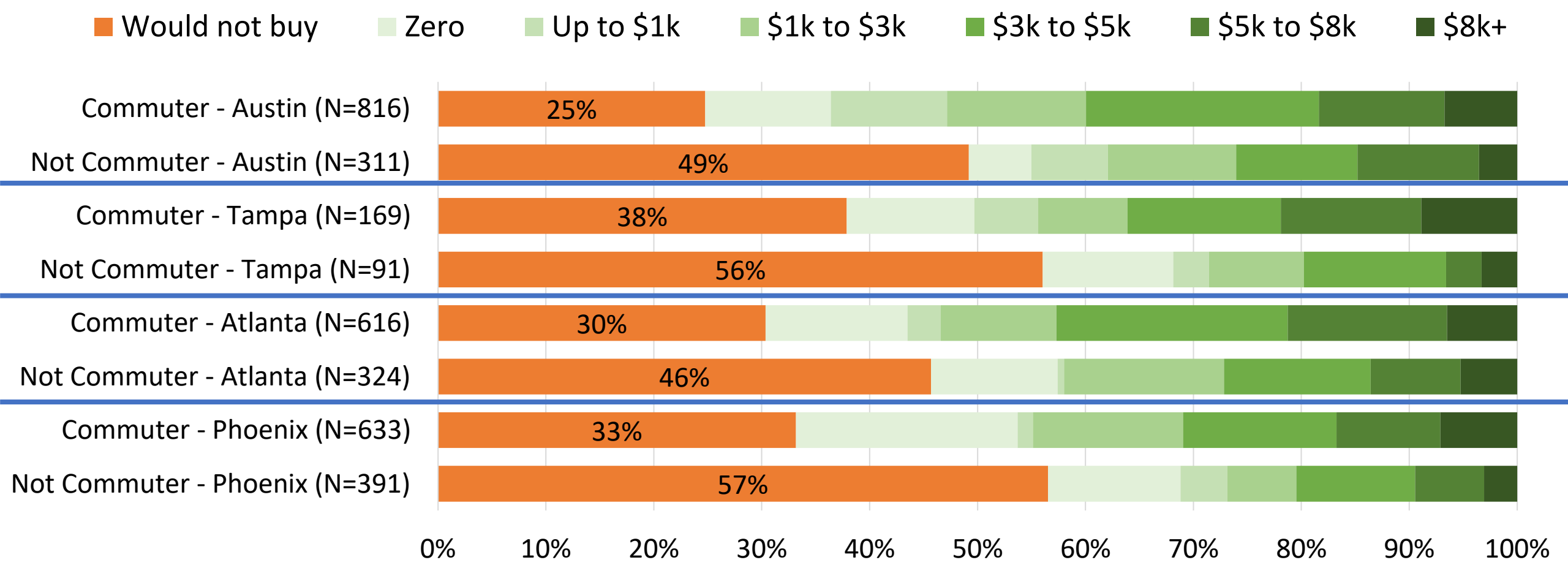
Willingness to Pay by Commuter Status



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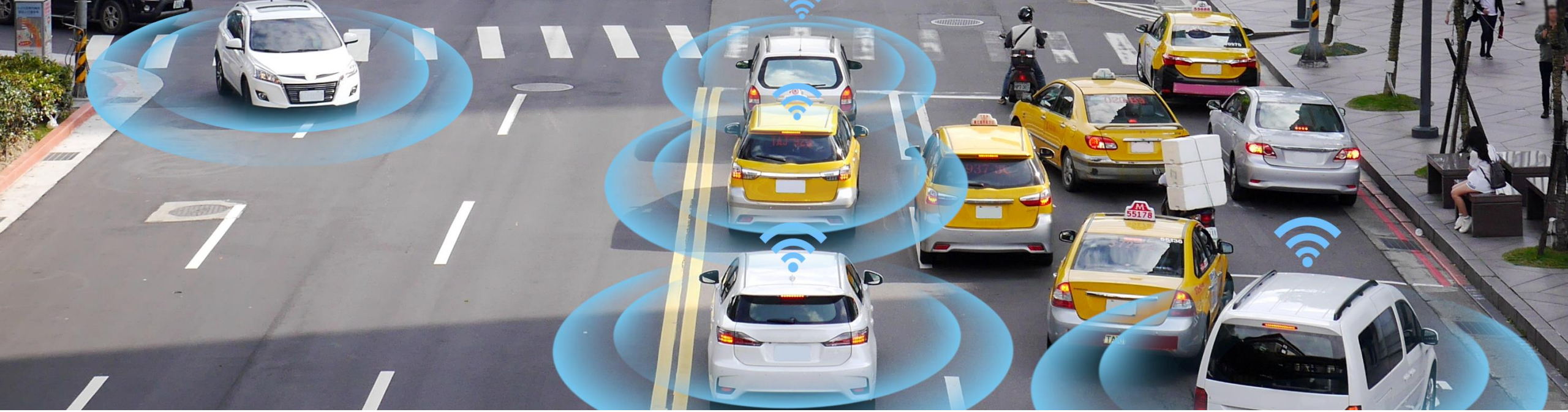
Key Findings

- **Interest in purchasing AVs is mixed:** 38% would never buy an AV even when AVs are cheaper than regular vehicles (a significant share of respondents prefer a regular vehicle)

- **Results across jurisdictions are fairly similar.** Tampa has the lowest willingness to pay for and buy AVs.
  - High(er) willingness to pay was observed in Austin and Phoenix

- **Attitudes matter:** Those who are tech savvy, driving-oriented, and multi-taskers are more prone to pay higher amounts for AVs

- **Women and older individuals are less interested** in purchasing an AV and are less willing to pay a premium for it



Thank you!

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