Worldwide Carsharing Trends and Research Highlights

CarSharing Association 2015 Annual Meeting

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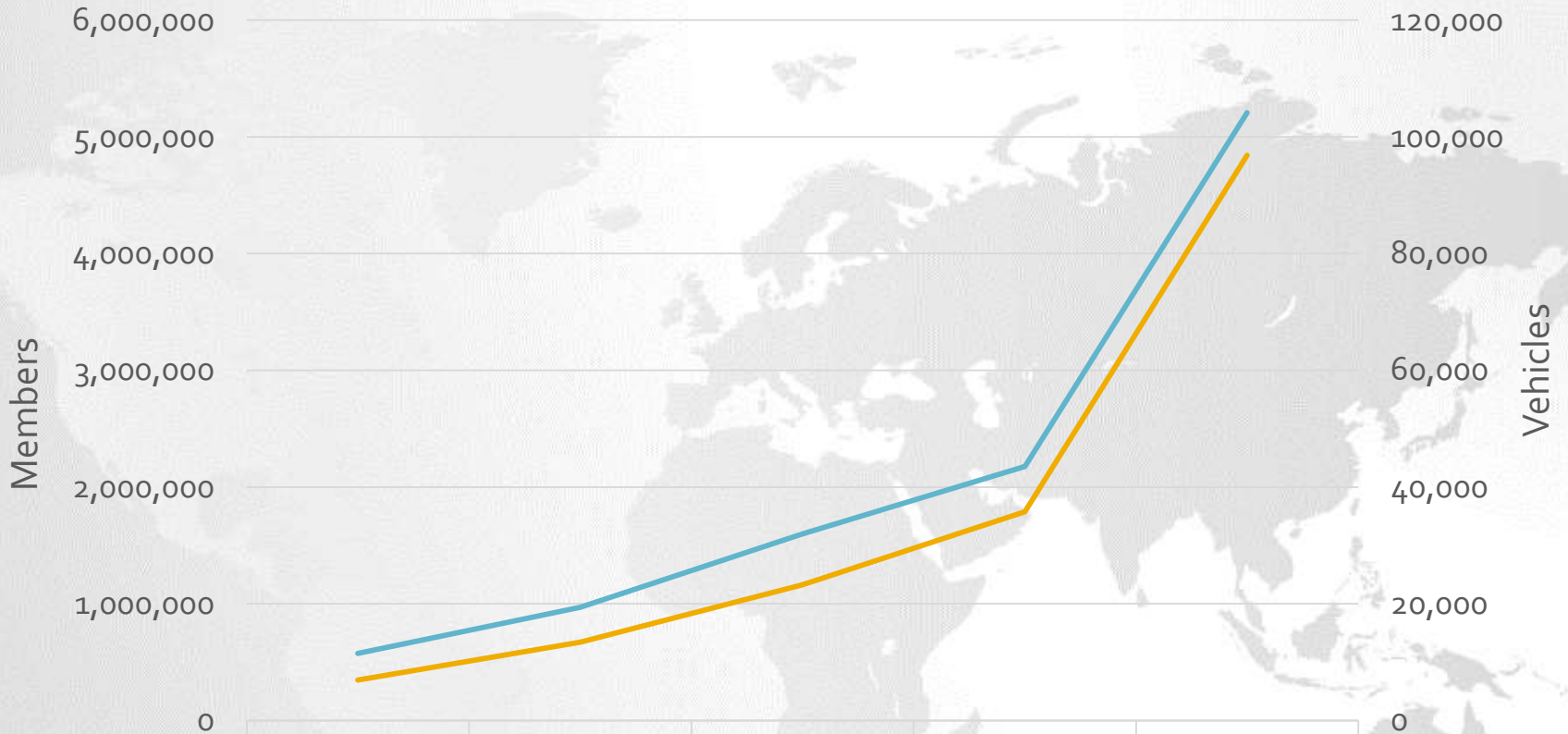
September 23, 2015

Overview

- Worldwide growth trends
- Insurance study highlights
- EV carsharing study findings
- Summary

Worldwide Growth Trends

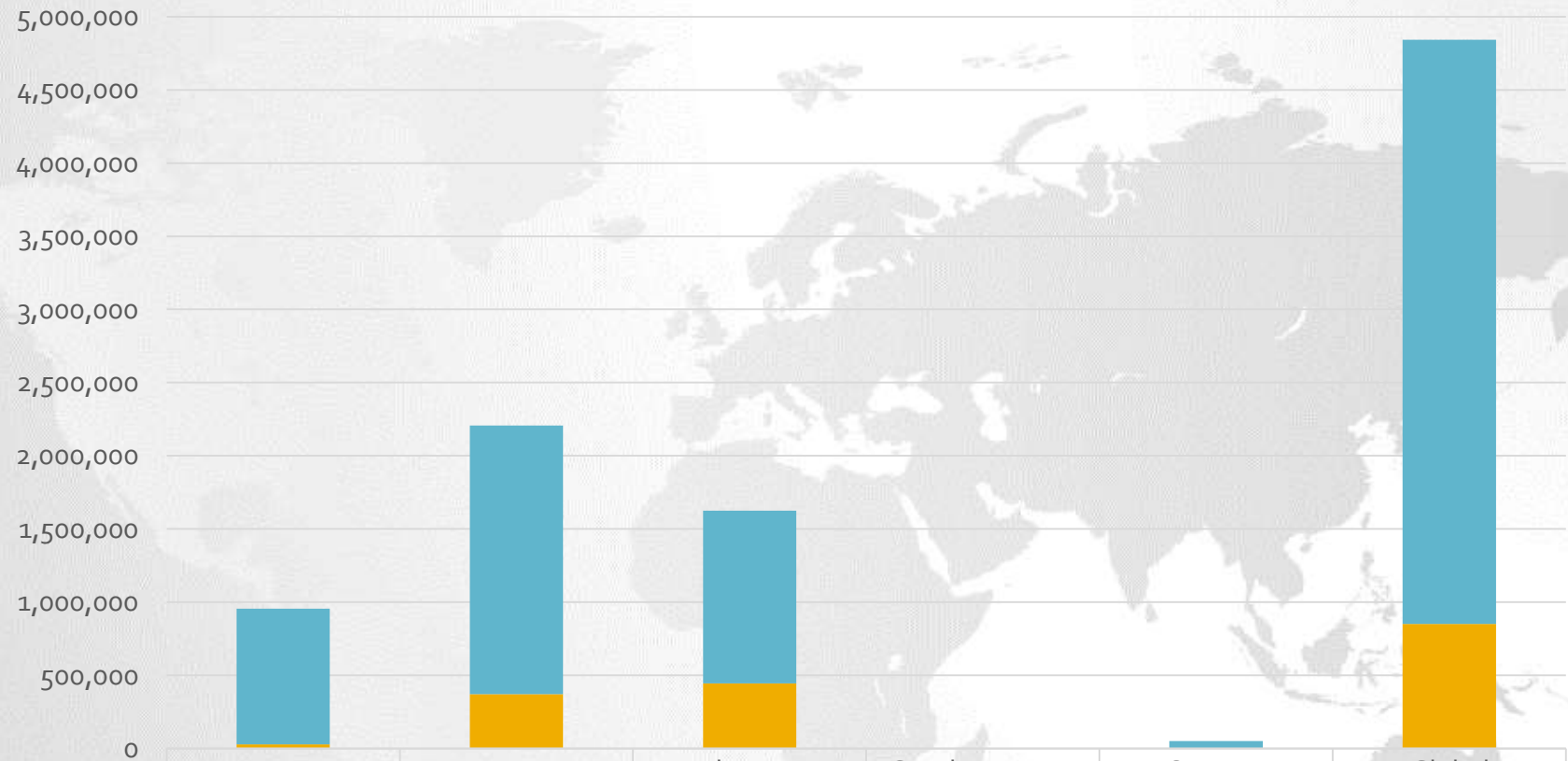
Growth of Worldwide Carsharing



	2006	2008	2010	2012	2014
Members	346,610	670,822	1,163,405	1,788,027	4,842,616
Vehicles	11,501	19,403	31,967	43,554	104,125

Shaheen and Cohen, 2015

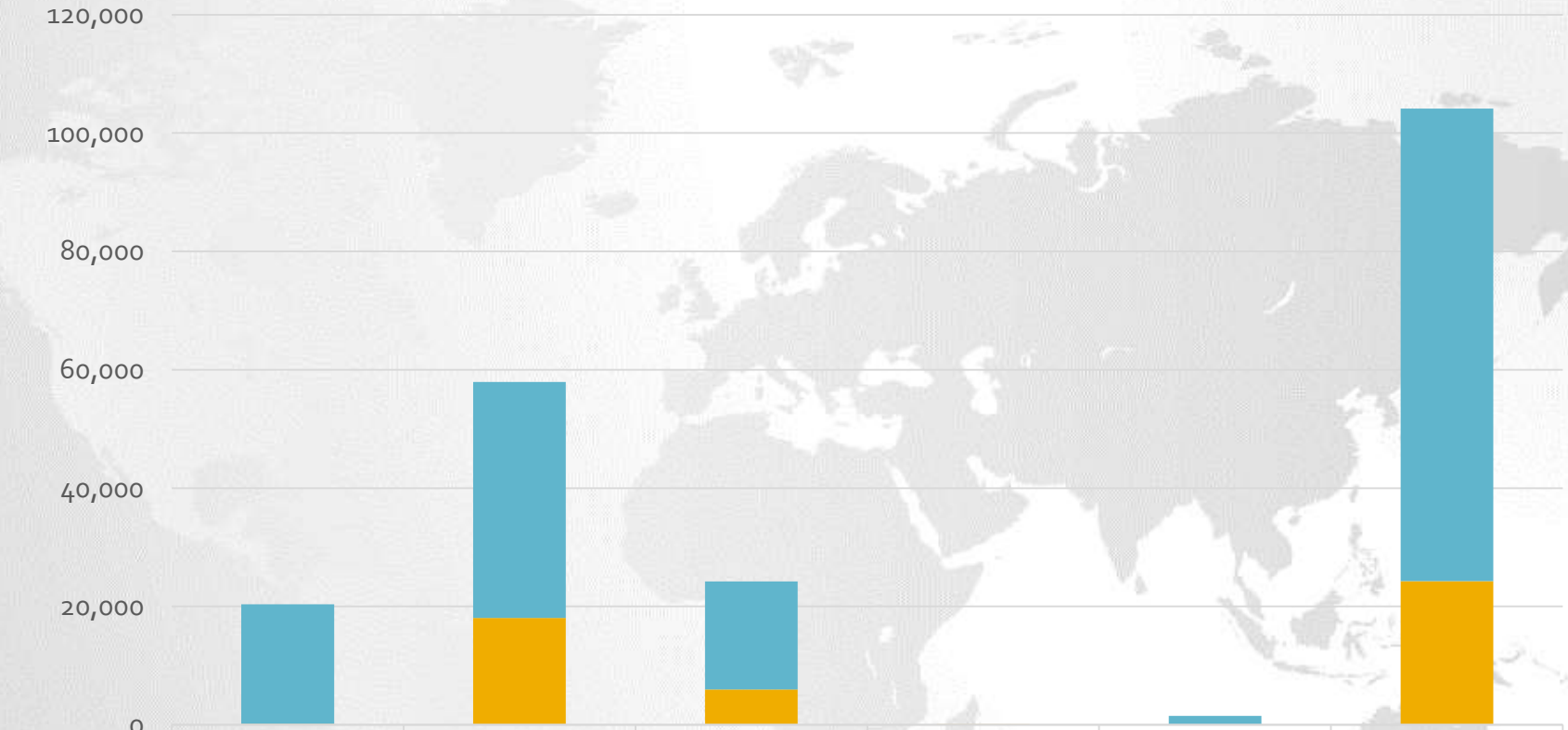
2014 Membership: One-Way & Roundtrip



	Asia	Europe	North America	South America	Oceania	Global
Round-trip	926,280	1,834,418	1,179,930	0	50,000	3,990,628
One-way	29,600	372,466	445,722	3,500	700	851,988

Shaheen and Cohen, 2015

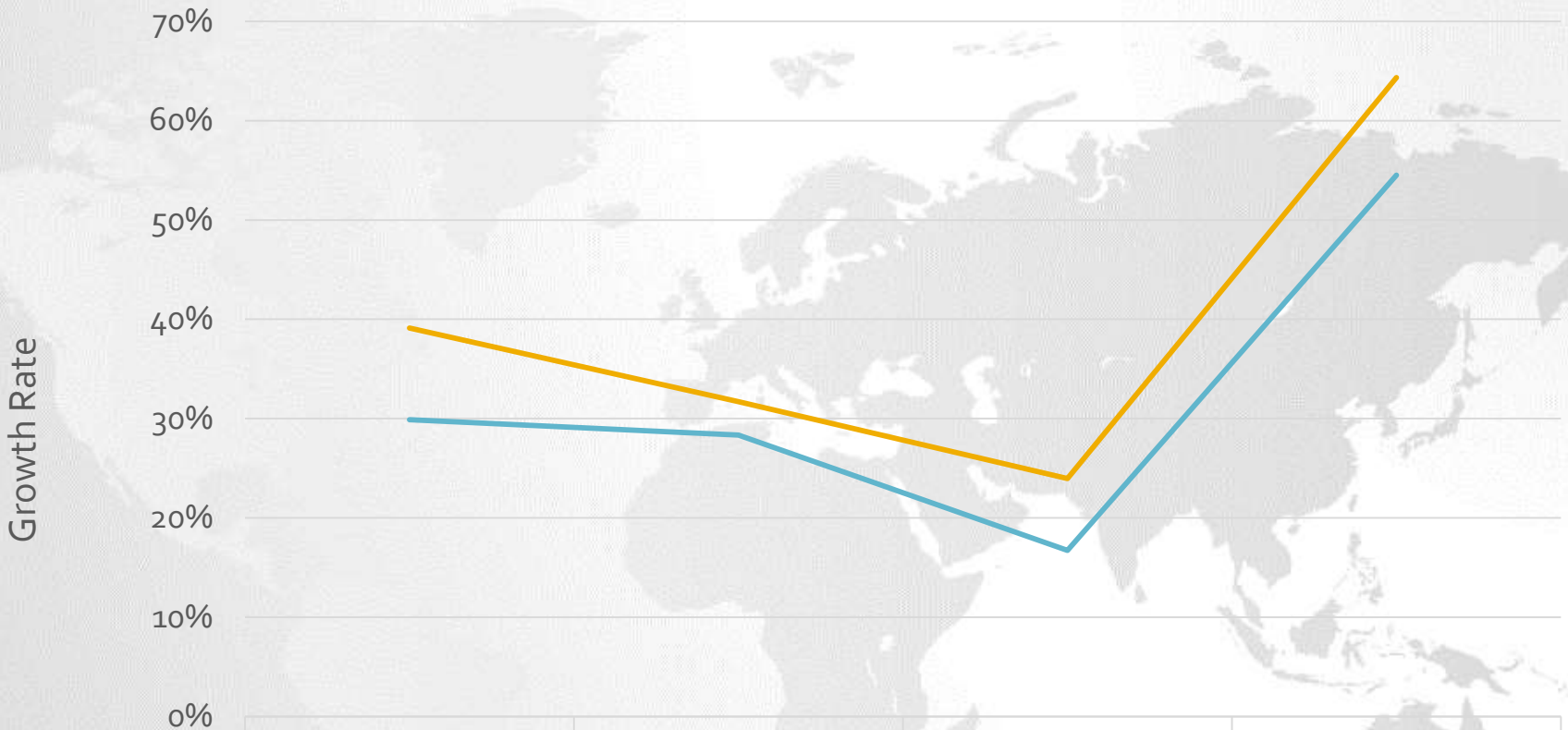
2014 Vehicles: One-Way & Roundtrip



	Asia	Europe	North America	South America	Oceania	Global
Round-trip	20,199	39,904	18,267	0	1,500	79,859
One-way	145	18,043	5,943	100	24	24,266

Shaheen and Cohen, 2015

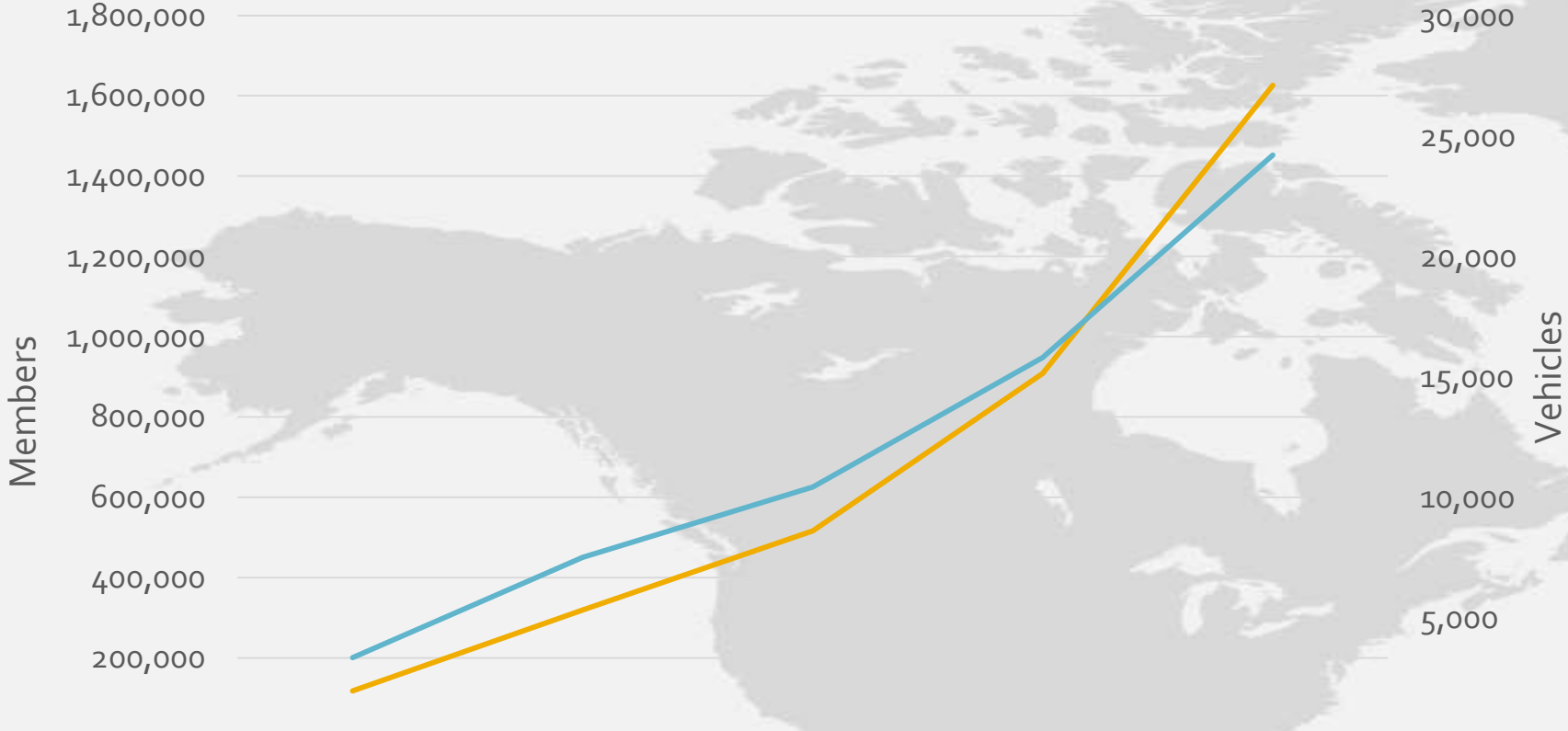
World Carsharing Growth Rates



	2006-08	2008-10	2010-12	2012-14
Members	39%	32%	24%	64%
Vehicles	30%	28%	17%	55%

Shaheen and Cohen, 2015

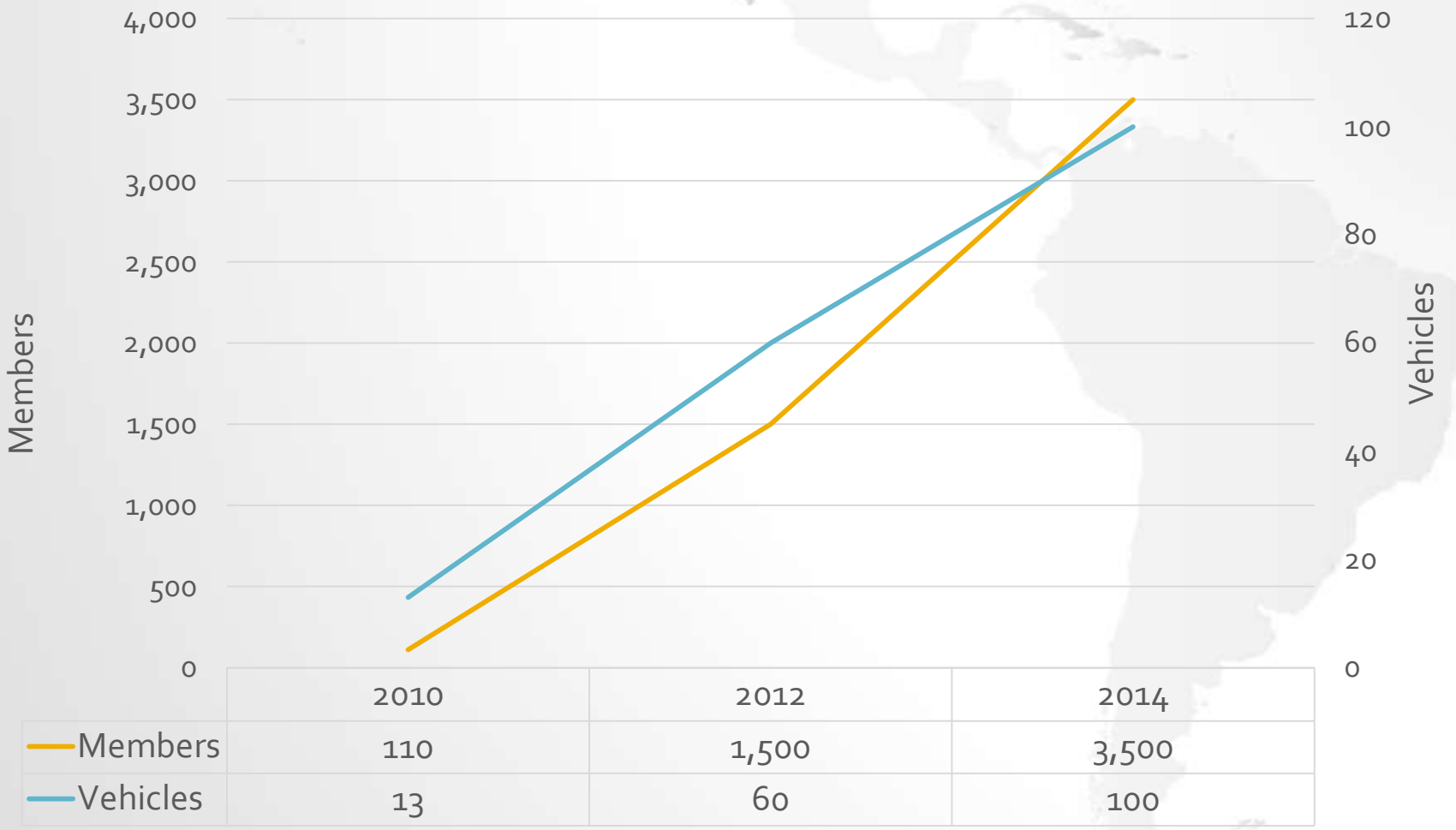
North American Longitudinal Trends



	2006	2008	2010	2012	2014
Members	117,656	318,898	516,100	908,584	1,625,652
Vehicles	3,337	7,505	10,420	15,795	24,210

Shaheen and Cohen, 2015

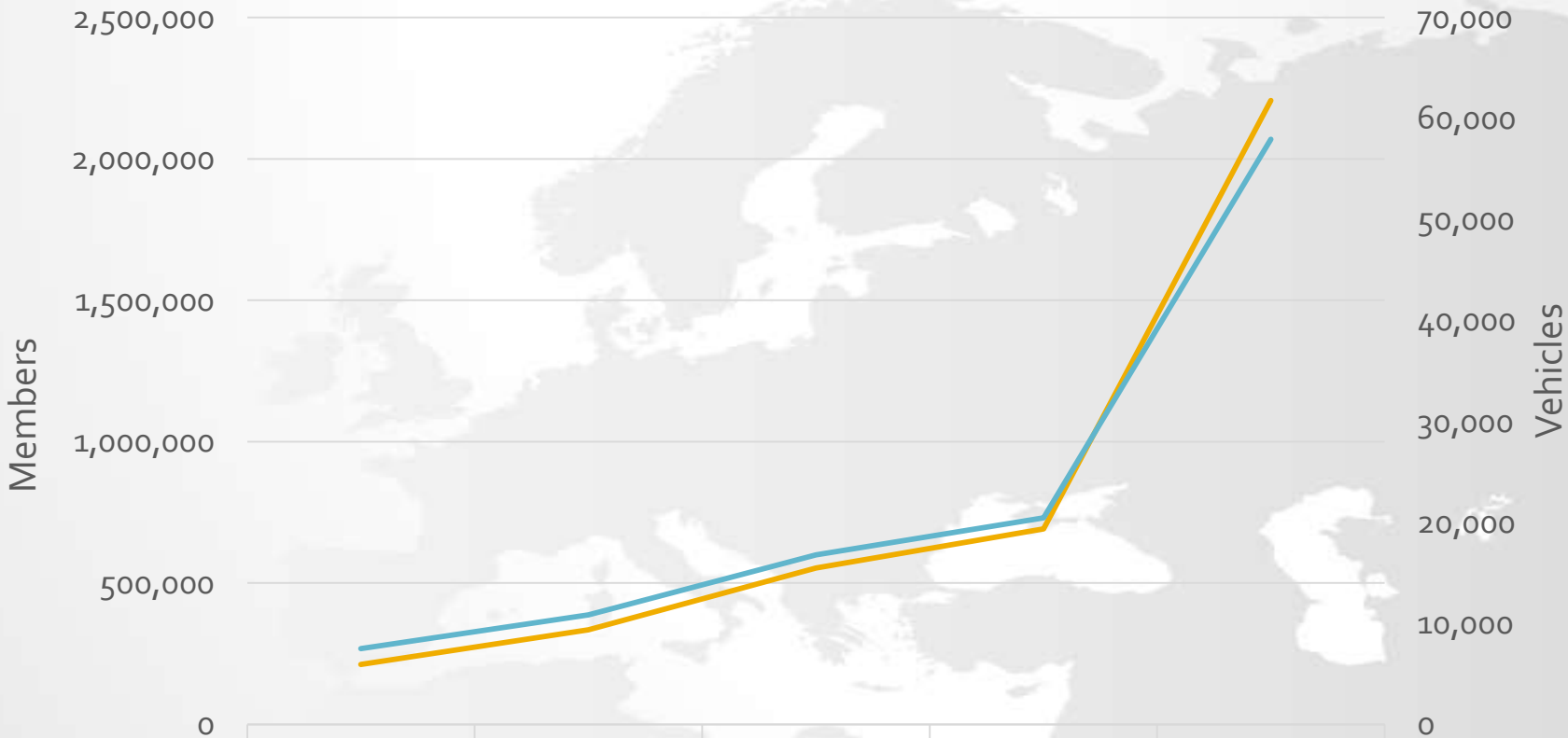
South American Longitudinal Trends



	2010	2012	2014
Members	110	1,500	3,500
Vehicles	13	60	100

Shaheen and Cohen, 2015

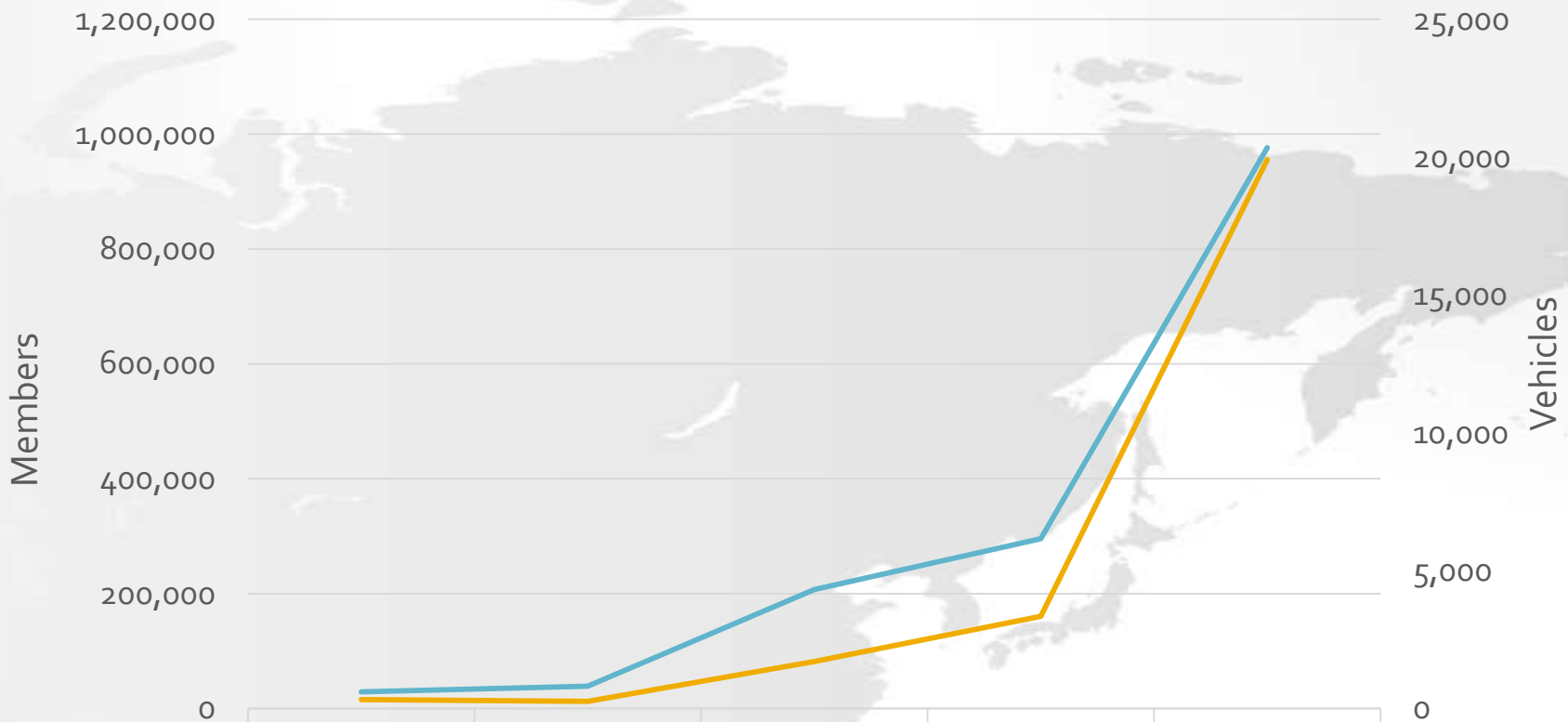
European Longitudinal Trends



	2006	2008	2010	2012	2014
Members	212,124	334,168	552,868	691,943	2,206,884
Vehicles	7,491	10,833	16,779	20,464	57,947

Shaheen and Cohen, 2015

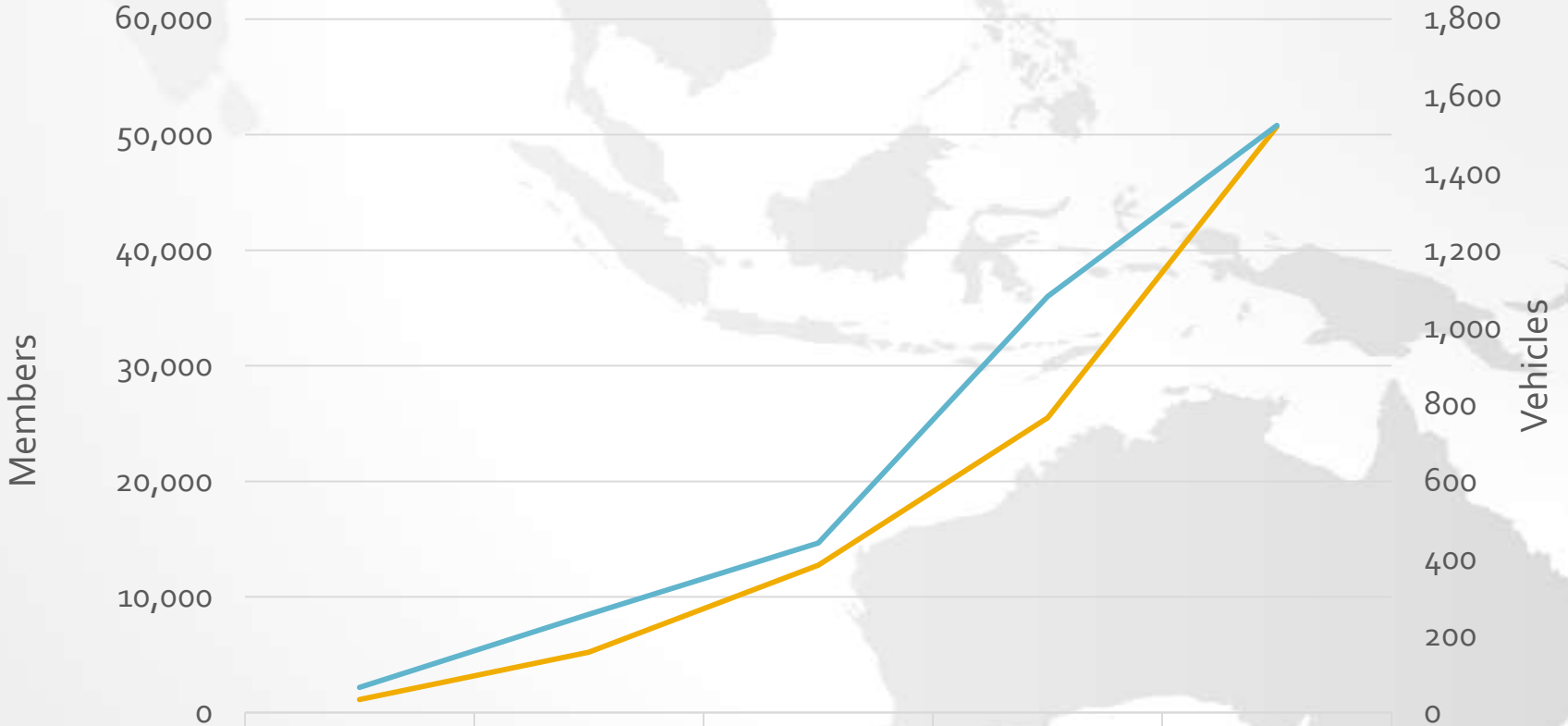
Asian Longitudinal Trends



	2006	2008	2010	2012	2014
Members	15,700	12,546	81,817	160,500	955,880
Vehicles	608	810	4,315	6,155	20,344

Shaheen and Cohen, 2015

Oceania Longitudinal Trends



	2006	2008	2010	2012	2014
Members	1,130	5,210	12,750	25,500	50,700
Vehicles	65	255	440	1,080	1,524

Shaheen and Cohen, 2015

Insurance Study Highlights

Methodology

- Analyzed 28 operator-years of trips and claims data for 334 vehicles
- Six U.S. carsharing operators, with data spanning a time range of 2008 to 2015
- Total of 328,726 valid trips
- 125 valid insurance claims occurred during this period
- Focus on estimating crash risk, measured on a per mile and per insured vehicle-year basis
- Deductible was US$1000, for policies in which the deductible was higher we calculated it as if it was US$1000

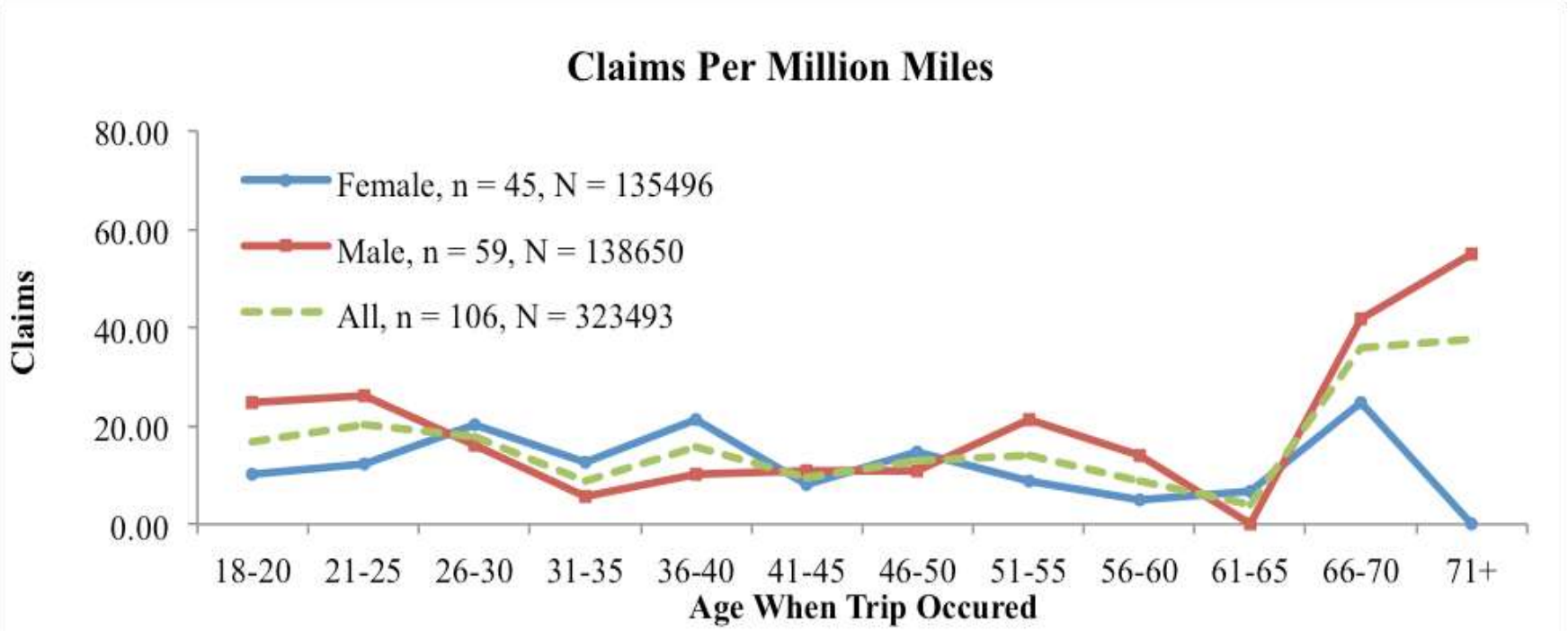
Key Observations

- During 2012-2014, number of claims and costs generally increased
- Average distance traveled 11, 185 miles/year; similar to national average (11,244 miles)
- Average trip distance 24.95 miles (40.15 km)
- Average duration of reservation = 3.72 hours
- Average crash claim = 17.05/100 insured vehicle years

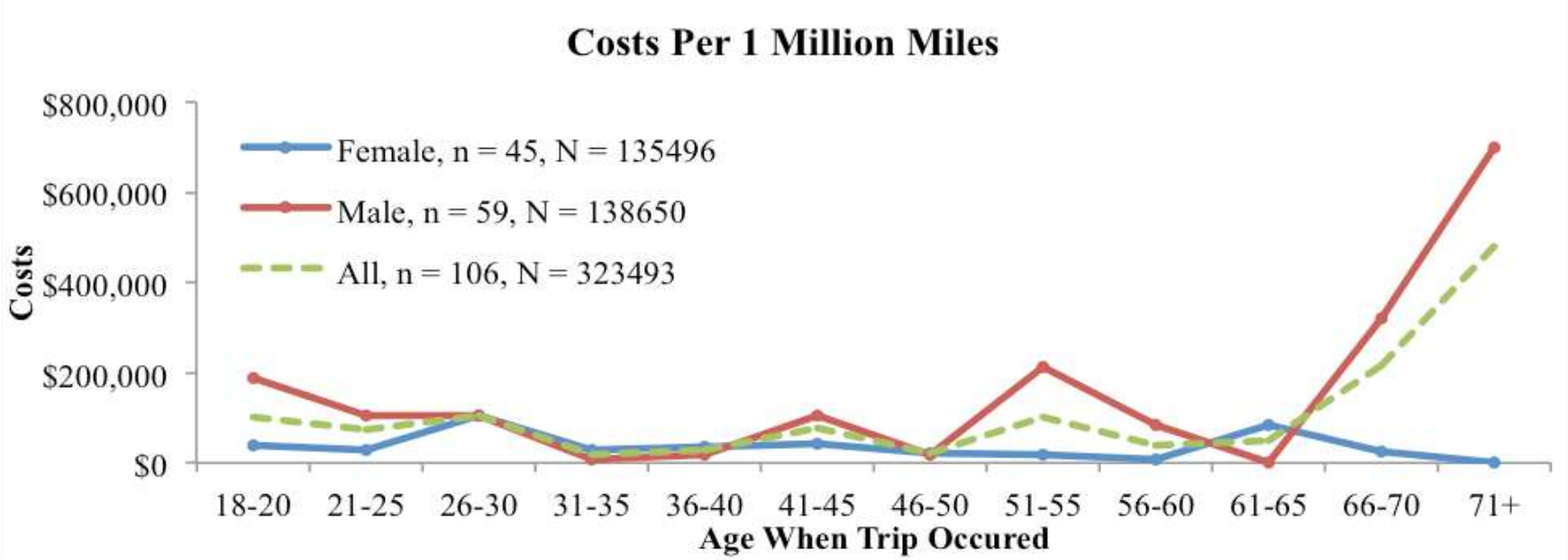
Summary of Trip Data

Year	2012	2013	2014	Overall 2008-2015
Data Availability (Operator-Years)	5	5	5	28
Summary of Trips Data				
Active Vehicles	137	192	209	334
Trips	62,563	68,703	78,456	328,726
Average Trip Distance (Miles)	24.93	24.46	23.5	24.95
Average Trip Distance (Km)	40.12	39.36	37.82	40.15
Average Trip Duration (Hrs)	3.65	3.67	3.55	3.72
Proportion of Female Trips	0.5	0.49	0.5	0.5
Average Age of Drivers	35.43	35.64	34.88	35.2
When Trips Occurred				
Proportion: Ages 18-25	0.26	0.25	0.28	0.27
Proportion: Ages 66+	0.01	0.02	0.03	0.02

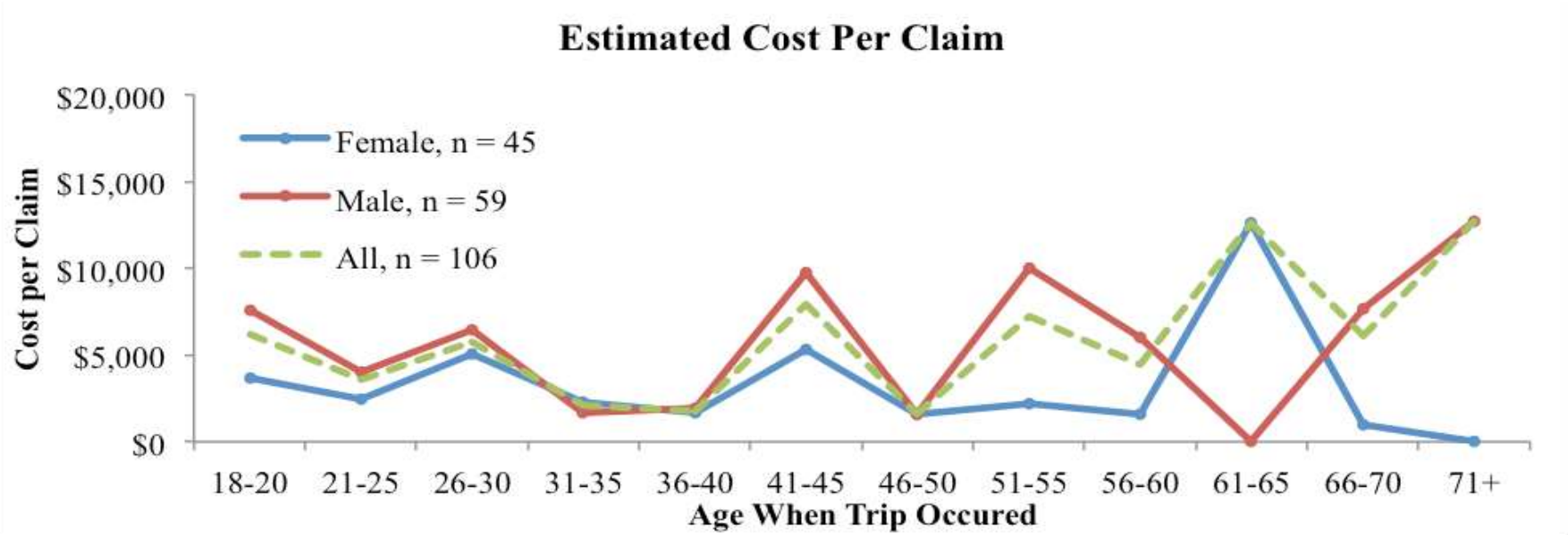
Claims Per Million Miles



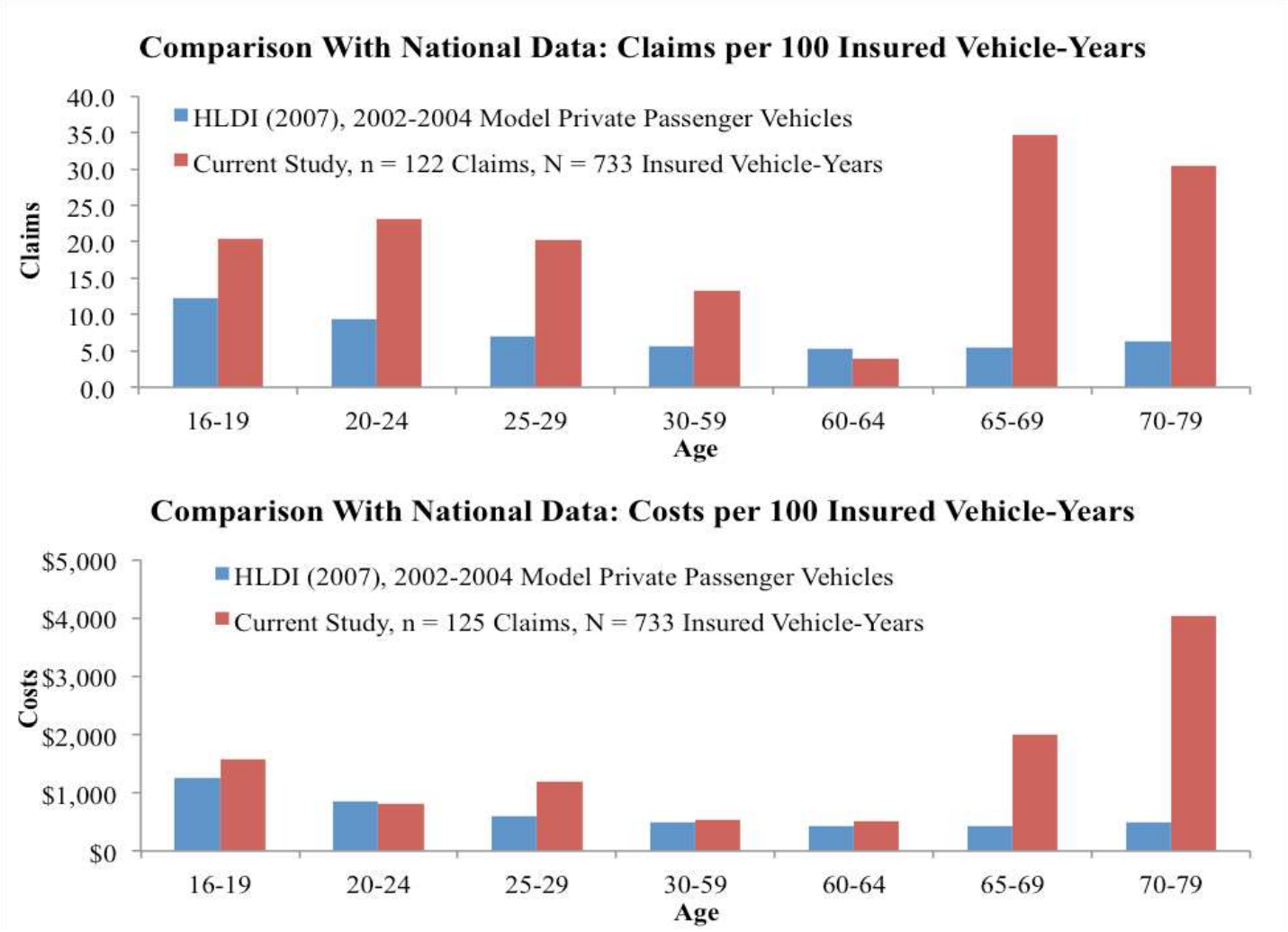
Costs Per 1 Million Miles



Estimated Cost Per Claim



National Comparison: Claims and Costs



Key Findings

- 50% made by female drivers
- 27% made by young adults 18-25
- 2% made by drivers at or about age 66
- Average age of drivers = 35.2
- Average cost per claim = US$4,630 and median US$2,189
- Average insurance claim cost/mile = US$.0.7
- Average insurance claim cost/trip = US$1.76

Key Findings (cont'd)

- Heightened risk for drivers above age 65
- 18-25 aged drivers had moderately higher risk compared to other adults
- Mid-age adults (30-65 age) had lowest risk (similar to national average)
- Average claims cost per insured-vehicle year of US$789 for carsharing
- Risk could be higher or lower due to local circumstances and unobserved factors

EV Carsharing Study Highlights

Overview of ZEV Mandate

- Adopted in 1990
- In 2001, CARB allowed for additional incentives for placing EVs in "transportation systems"
  - Carsharing
  - Station car fleets
- "Transportation systems" incentive program set to sunset in 2018

ZEV Accessibility

Carsharing programs featuring PHVs/EVs provide access to those who would otherwise not have access to such vehicles

Survey: Studying ZEVs in Carsharing

- Control: Active carsharing users (active in last 18 months) but had not used PHVs/ EVs through their carsharing provider
- Experiment: Active carsharing users who had used PHVs/EVs within the 6 months

Control Survey	
Launched	Dec 4, 2014
Closed	Feb 18, 2015
Avg. Completion Time	14 minutes
Total Completions	1,742
Completion Rate	77%
Participating Programs	car2go, Zipcar
Cities Surveyed	Portland, Austin, New York City, Boston

Experiment Survey	
Launched	Nov 7, 2014
Closed	Feb 15, 2015
Avg. Completion Time	15 minutes
Total Completions	1,920
Completion Rate	74%
Participating Programs	car2go, Zipcar, DriveNow, eGo
Cities Surveyed	Portland, San Diego, Austin, New York City, Boston, San Francisco Bay Area, Boulder

Study Partners

Demographics and Market Penetration

Carsharing appears to be exposing more women as well as younger individuals to PHVs/EVs relative to the traditional demographic profile of PHV/EV owners

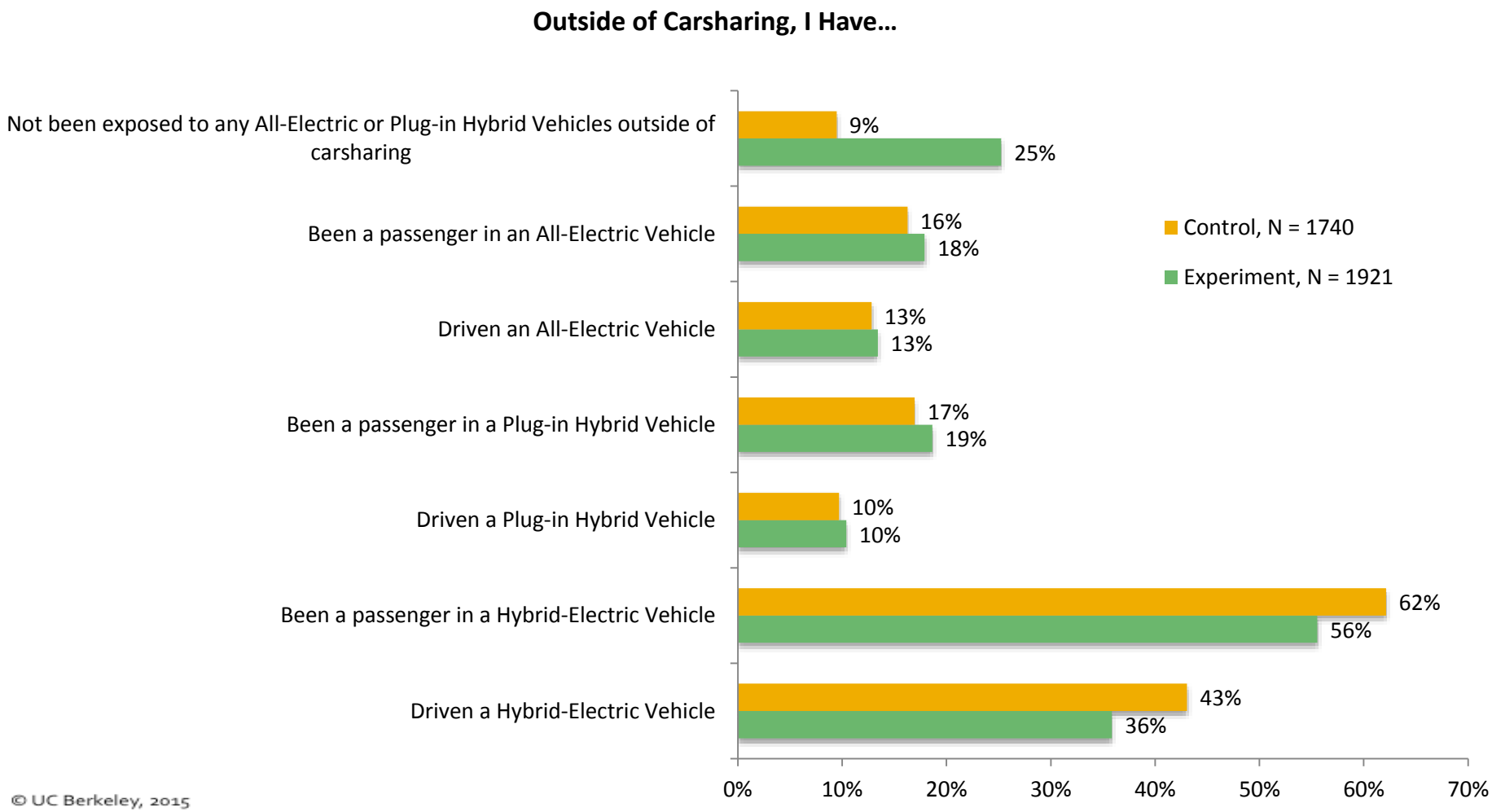
PHV/EV carsharing users also appear willing to play an influencer role among their social circles in spreading the use of these vehicles

Demographic Profile of Users

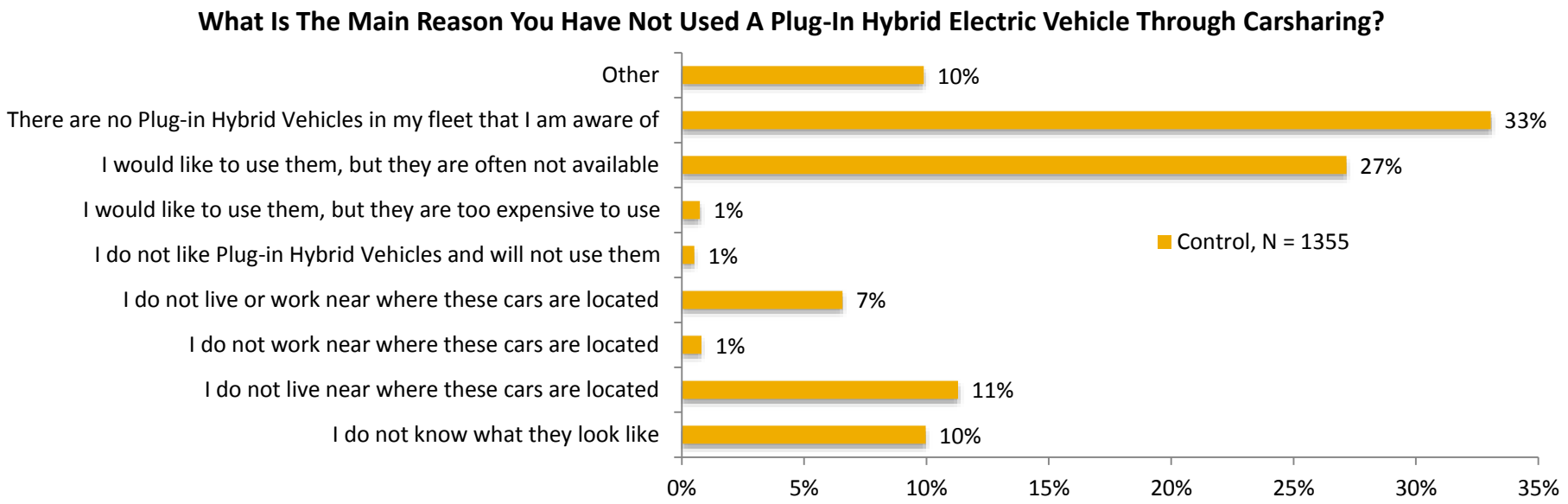
Comparison of Demographics Between California PHV Owners and PHV/EV Carsharing Users (CCSE, 2014)

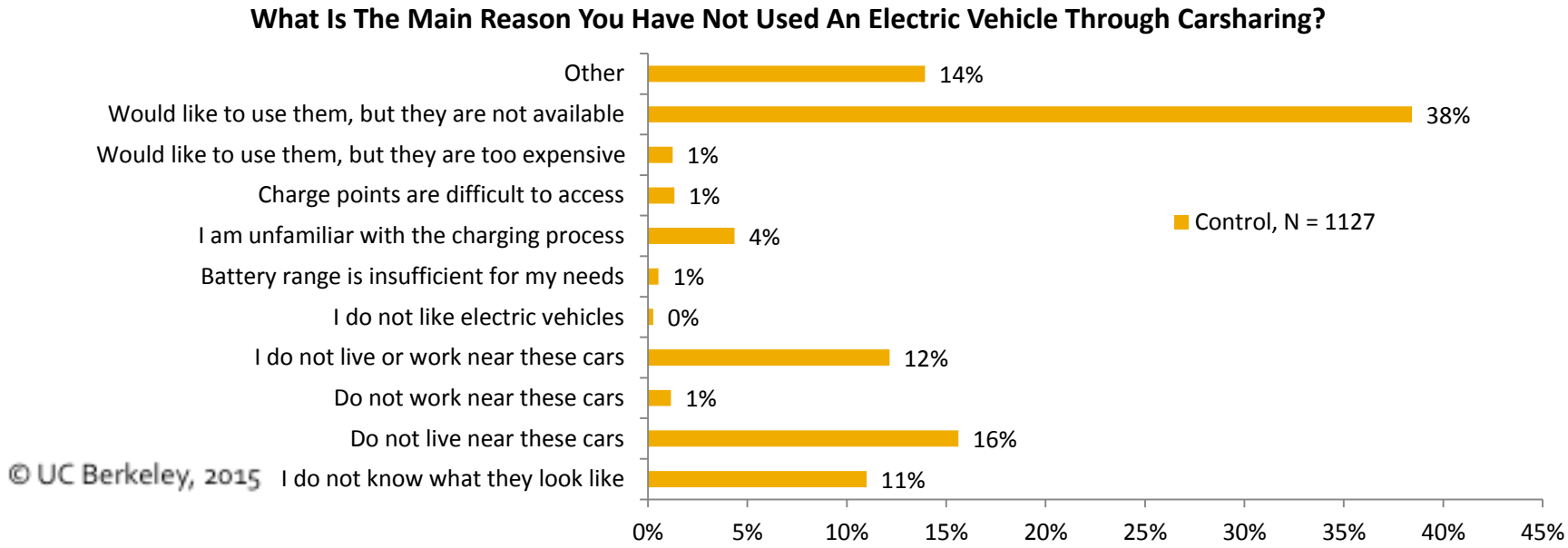
Respondent Category	CCSE 2013 Survey	TSRC 2014-2015 Survey
Ages 65 and over	12%	<1%
Ages 55 – 64	25%	6%
Ages 45 – 54	34%	12%
Ages 35 – 44	23%	26%
Ages 25 – 34	6%	50%
Ages 18 – 24	<1%	4%
Males	79%	59%
Females	21%	41%

Exposure to PHVs and EVs Outside of Carsharing

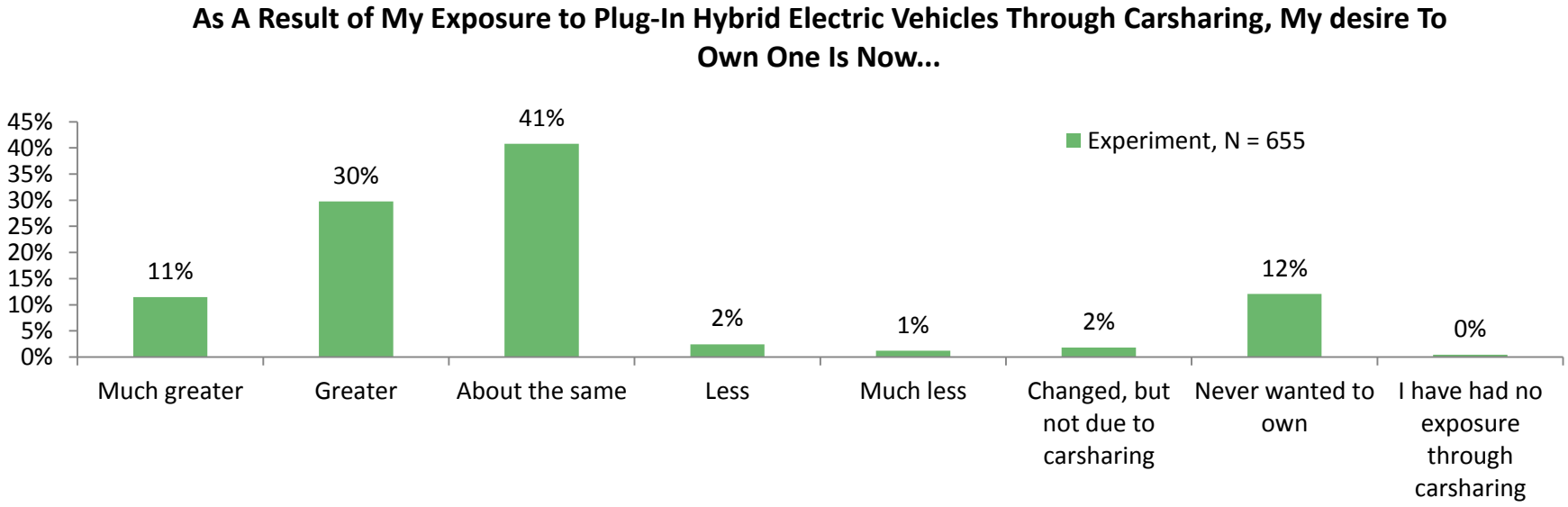


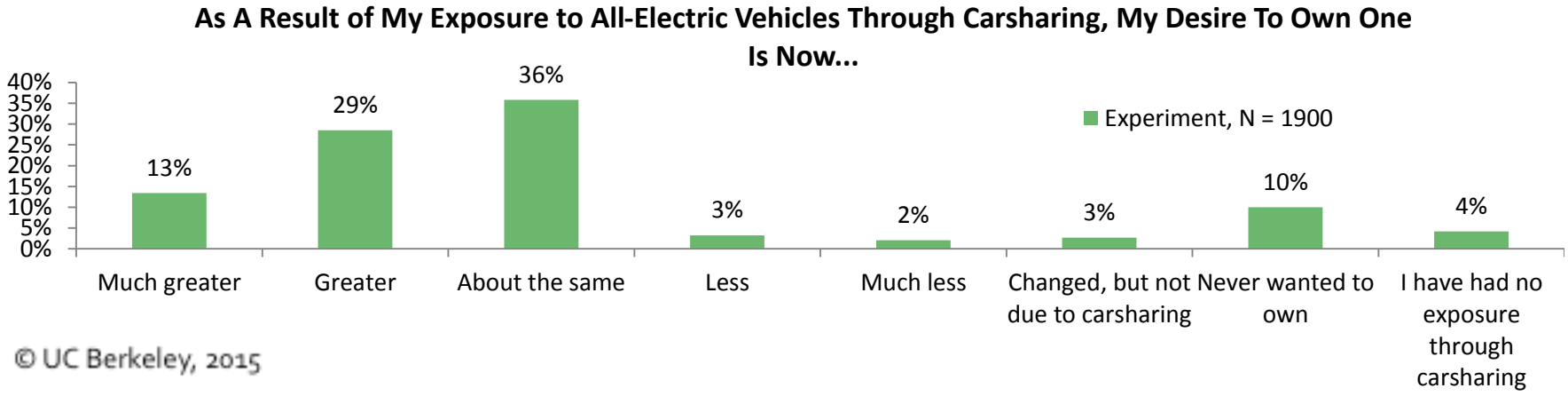
Reasons for Not Using a Plug-In Hybrid (PHV) or Electric Vehicle (EV)





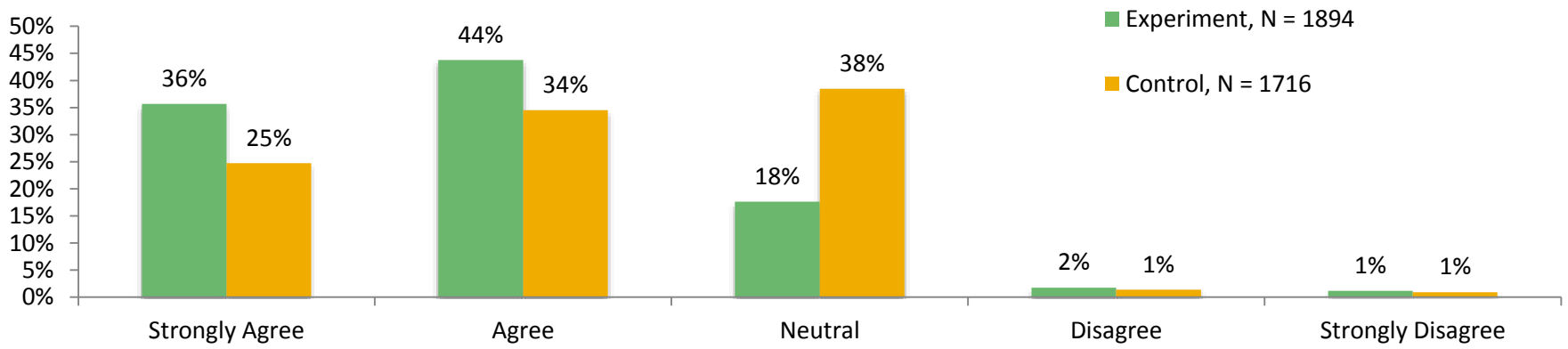
Impact of Exposure to PHVs on Desire to Own These Vehicles



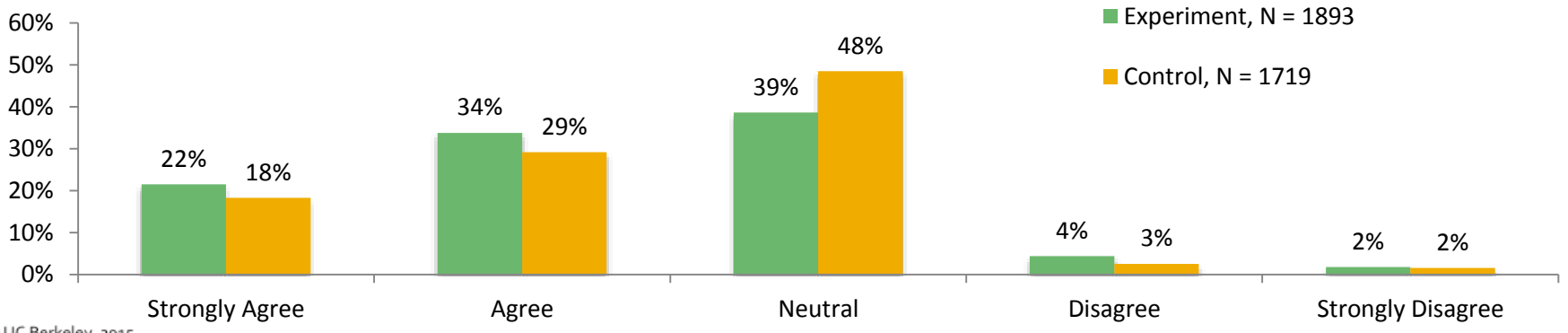


Distribution of Recommendations to Driving or Buying PHVs or EVs

I Would Recommend Others Try Driving A Plug-In Hybrid Electric Vehicle or All-Electric Vehicle



I Would Recommend Others Buy a Plug-In Hybrid Electric Vehicle or All-Electric Vehicle



Study Findings

- Data suggest carsharing programs with PHVs and EVs play a role in promoting greater adoption of these technologies
- 91% of control group exposed to ZEVs outside of carsharing, but greater impact on perceptions toward PHV/EVs in experimental group
  - Demonstrates use of these vehicles through *carsharing has had a distinct impact*
  - Positive disposition impacted by frequency of use (more than 1 /month)
- On a longer-term basis, carsharing programs with ZEVs could act as gateways to improving market penetration of PHVs and EVs

Summary

- Worldwide Growth Trends
- Insurance Study Highlights
- EV Carsharing Study Highlights

White Paper Released Today!

http://tsrc.berkeley.edu/node/956

Disrupting Mobility Summit

A Global Summit Investigating Sustainable Futures, November 11-13, 2015, Cambridge, MA

http://www.disrupting-mobility.org/#welcome-

Acknowledgements

- Apaar Bansal, Adam Cohen, Matt Christensen, and Elliot Martin, TSRC, UC Berkeley
- Special thanks to Assurant, Metavera, Guy Fraker, Alan Woodland, Tony Simopoulos, Paul Dyck, car2go, DriveNow, eGo CarShare, Zipcar, Nissan, Toyota, worldwide shared mobility operators, experts, and the CarSharing Association for making this research possible

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