Can car sharing facilitate a more sustainable car purchase?

Diana Ginnebaugh, Stanford University
Frances Sprei, Chalmers University of Technology
PEEC Sustainable Transportation Seminar
January 30th, 2015
Uses for your vehicle

Daily Uses
• Commute
• Transport kids to school and activities
• Grocery and small item shopping

Peak Uses
• Transport large items
• Vacation, eg. trips to mountains / snow
• Towing a boat or camper
• Hosting visitors
• Evening out
Mobility Insurance
Lots of considerations when buying a new car...
### Shift in consumer purchase behavior

#### Daily Vehicle
- More fuel efficient
- Less expensive
- Limited miles ok

#### Mobility Insurance
- Traditional car sharing
- Peer-to-peer car rental
- One way car sharing
- Car rental
- Car dealers
- New business model?
United States and Sweden/Europe

• Peer reviewed literature, case studies, and reports
• Car sharing companies’ vehicle models and locations (urban, college campuses)
• Interview practitioners and experts
United States and Sweden/Europe

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Car sharing impacts vary by business model

- **Traditional** (A to A) Car sharing
- **One-way** (A to B, free-floating) Car sharing
- **Peer to peer** car sharing

Traditional and one way car sharing July 2014, USA:
~ 1.34 million members, ~19,000 vehicles

Data from E. Martin and S. Shaheen, 2010 and 2011
Car sharing impacts vary by business model

• **Traditional** (A to A) Car sharing
  • 9-13 vehicles off the road per car sharing vehicle
  • Carless before membership – decrease PT, GHG emissions increase
  • Shed a vehicle after membership – increase PT, GHG emissions decrease
  • Overall GHG decrease and VMT decrease

• **One-way** (A to B, free-floating) Car sharing

• **Peer to peer** car sharing

Data from E. Martin and S. Shaheen, 2010 and 2011
Car sharing impacts vary by business model

- **Traditional** (A to A) Car sharing
- **One-way** (A to B, free-floating) Car sharing
  - Seattle pilot project, 3-4% shed vehicles
  - VMT may have increased – 63% did not change personal vehicle usage
- **Peer to peer** car sharing

Data from SDOT 2014 Report
Car sharing impacts vary by business model

- **Traditional** (A to A) Car sharing
- **One-way** (A to B, free-floating) Car sharing
- **Peer to peer** car sharing
  - under-utilized assets – penetrate lower density areas
  - Challenged by public policy, insurance, trust, and convenience
  - Environmental impact is uncertain

Note – Ride-sharing, TNC, and carpooling are not considered car sharing in this definition

Hampshire and Gaites 2011
United States and Sweden/Europe

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Interviews

- 12 interviews, 7 practitioners, 5 experts, ~ 1 hour each
- In person and over the phone, in offices and cafés
- Chosen to get a sampling of different types of car sharing
  - Traditional
  - One way
  - EV-only
  - Peer to peer
  - For profit and non profit
  - Coops
Themes from interviews

- Customers
- Fleet
- How can car sharing be supported?
- Future mobility
- Can car sharing impact car purchase behavior?
Car sharing today...customers

• Urban, high density, other mobility options
• Well-educated, young (25-45), tech savvy
• Parking restricted

Sweden – environmental interest, families
Car sharing today...fleet

United States
• Cheapest, closest vehicle (usually smaller, fuel efficient)
• Luxury / utility vehicle

Sweden
• Green and safe
• Commercial - larger, more expensive vehicles (Volvo Sunfleet)
• Low maintenance
How to support car sharing

United States
• Insurance!
• Visible, dedicated parking
• Limited / expensive non-car sharing parking

Sweden
• Visible, dedicated parking
• Limited / expensive non-car sharing parking
Future mobility

United States
• On-demand transportation

Sweden
• More integrated mobility
Can car sharing affect car choice?

Anecdotal evidence that people will purchase the same type of vehicle they usually drive in car sharing

Reaction to our idea?

Easier to sell car-free lifestyle, tough to compete with the convenience of having a car in your driveway – peer-to-peer may have best chance

Mobility insurance – maybe dealers? Maybe new models of car sharing – neighborhood fractional ownership, restricted circles of sharing
More fuel efficient vehicles on the road...

- New business model needed
  - Mobility insurance
  - Concierges service

- Needs to be as convenient as owning the vehicle
  - Walk to vehicle

- Peak demand on evenings, weekends, holidays
  - Partner / involve car rental or business customers
  - Fractional / shared ownership

- Trust for sharing – more flexible schemes
  - Community / neighbor / family / friends
Next steps (thoughts?)

• Scenario analysis
  • Actual driving profiles, energy impact of changing from “everything” vehicle to “daily use” fuel efficient vehicle (Gonder et al 2007, Pearre et al 2011, CHTS)
  • Some estimate of overall potential energy savings

• Consumer welfare analysis
  • How to maintain or improve consumer welfare, low transaction costs, improved access to vehicle types