



BASQUE CENTRE
FOR CLIMATE CHANGE
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Current development and future potential of carsharing in Spain: insights from experts and users' in-depth interviews.

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Structure

- Introduction
- Objective
- Methodology
- Results
- Concluding remarks

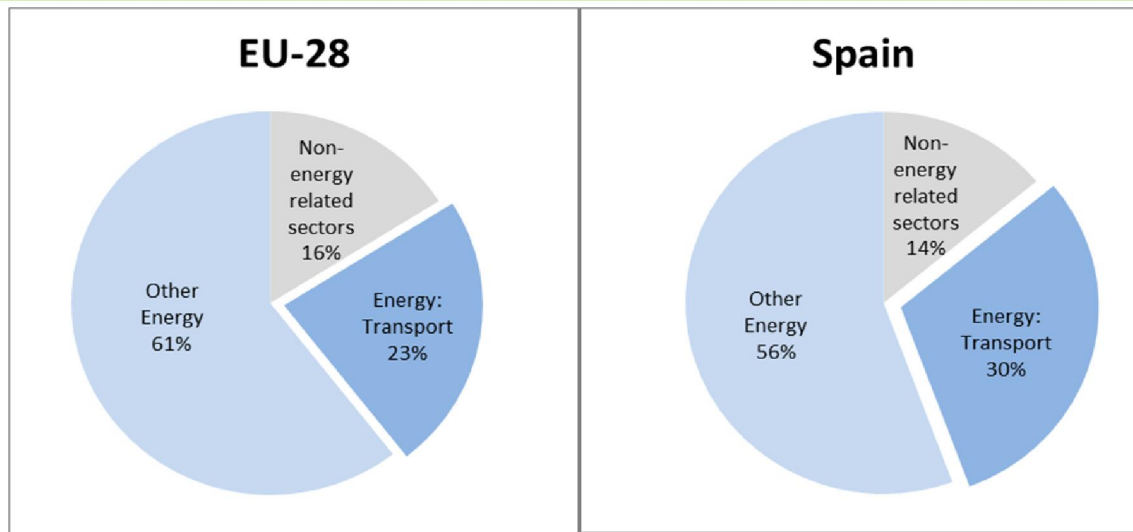


Figure 1 EU's and Spanish Transport and energy related shares of GHG emissions in 2016. Source: Eurostat.

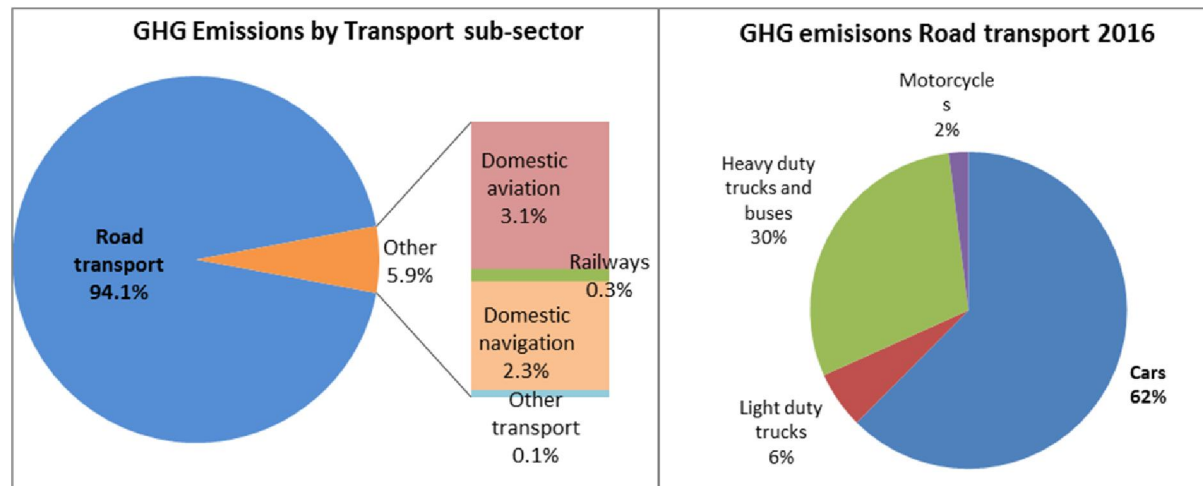
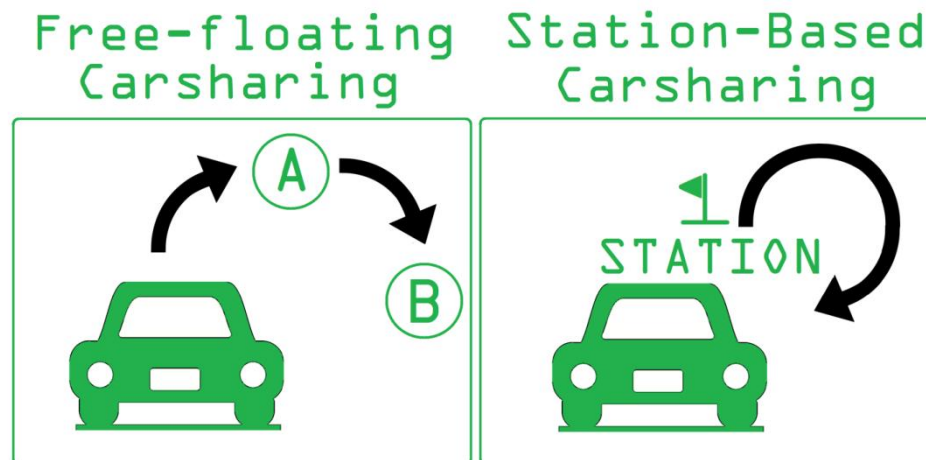


Figure 2 Spanish GHG Emissions of transport sectors by sub-sectors in 2016; Spanish GHG emissions from different road transport modes in 2016. Source: Eurostat.

1 Introduction: What is carsharing?

- Access-based mobility
- Focus on B2C carsharing
- Type of journey: One-way or Round-trip
- Parking system: Free-floating or Station based



1 Introduction: How does this contribute to low-carbon mobility?

- Alternative to private car, reduce use and ownership

(Litman, 2000; Martin and Shaheen, 2011; Nijland and van Meerkerk, 2017; Le Vine and Polak, 2017)

- Complement to Public Transit (?)

(Ceccato and Diana, 2018; Jung and Koo, 2018)

- Employment of electric vehicles

(Baptista et al., 2014; Ruhrort et al., 2014; Shaheen and Chan, 2015; Shaheen et al., 2016)

1 Introduction: Objectives

- Explore main motivations affecting carsharing use
- Gain qualitative insights into substitution and complementarity properties of carsharing
 - Public transport
 - Private vehicles
 - Limit the risk of modal shift from public transport
- How the employment of electric vehicle is perceived

2 Methodology: Sample selection

- Carsharing users
 - 15 interviews
 - Both Station Based and Free Floating carsharing
 - Gender, age, having or not children
 - Madrid, Barcelona

- Stakeholders
 - 13 interviews
 - Business, Public administration, Associations
 - National, regional and local level
 - Madrid, Barcelona and Bilbao

2 Methodology: Interviewing process and topic guidelines

- Semi-structured in depth interviews
- Users interviews guidelines:
 - Warming up and weekly routine
 - Factors affecting the use of carsharing
 - Relation with public transport
 - Relation with private vehicles
 - Considerations on Electric carsharing
- Stakeholders interviews guidelines
 - Warming up and info on the stakeholder institution
 - Facilitation of carsharing
 - Relation with other transport modes
 - Stakeholder specific questions

2 Methodology: Method of analysis

- Users interviews:
 - Transcript of records
 - Template analysis
 - Homogeneisation of concepts

- Stakeholder analysis
 - Transcript of records
 - Data-driven analysis

3 Results: .1 Current development of Carsharing in Spain

- 7 companies: 4 station-based, 3 free-floating BEV carsharing
- Madrid, Barcelona, Bilbao, Sevilla and Palencia
- Policy measures
 - Connection of carsharing with public transport service
 - Free parking
 - Labelling
 - German carsharing act

3 Results: .2 Use of carsharing

- Leisure, weekends and at night
- Shopping or moving equipment/furniture
- Differences between Free-Floating and Station based
 - Free-floating:
 - More frequent
 - Within the city
 - Less than an hour
 - Connected trips
 - Station-based carsharing:
 - Less frequent
 - Out of the centre
 - Few hours/Weekend trips
 - Car access

3 Results: .3 Factors motivating carsharing use

Factors by Category			
Convenience in use		Economic factors	
	Count		Count
Availability	9	Price affordable	10
Comfort	9	Free to park	4
Accessibility	7	Avoid car expenses	3
Fast	7	Pay per use	2
Easy to park	6	Saving money	2
Independence	6	Technological factors	
Flexibility	5		Count
Save time	1	Electric Vehicle	3
Accessibility	1	App control	2
Easy to use	1	Fleet	2
		Quality	2
Environmental	Count	Car size	2
Environment	9	Paying with card	1
		Novel	1

Int	1	2	3	4	5	6	7	8	
1A	Flexibility	Pay per use	Environment	Accessibility	Free to park				
2	Electric Vehicle	Availability	Environment	App control	Paying with card				
3	Comfort	Easy to park	Electric vehicle	Fleet	Flexibility				
4	Accessibility	Price affordable	Easy to park	Environment					
5	Comfort	Availability	Price affordable	Environment	Easy to park				Free to park
6	Electric vehicle (R)	Comfort	Avoid car expenses	Save time	Environment (R)	Easy to park	Quality	App control	
7	Comfort	Fast	Environment	Accessibility	Availability	Free to park			
8	Price affordable	Easy to park	Accessibility	Independence	Flexibility	Availability			Environment? No
9	Comfort	Fast	Car size	Availability	Environment	Price affordable			
10	Availability	Independence	Accessibility	Price affordable	Comfort	Environment			Fast
11	Flexibility	Free to park	Easy to use	Saving money	Car size	Environment (R)			Price affordable
1B	Avoid car expenses	Pay per use	Accessibility	Environment? No (S)					
12	Independence	Accessibility	Price affordable	Independence	Close	Fast	Comfort	Environment? No (S)	
13	Fast	Availability	Easy to park (S)	Price affordable	Environment? No (S)				
	14	Availability	Fleet	Comfort	Fast	Price affordable	Quality	independence	Environment? No (S)
15	Independence	Comfort	Avoid car expenses	Flexibility	Availability	Fast	Price affordable	Saving money	

3 Results: .4-5 Relation with other modes

Public Transport		Carsharing		Private Vehicle	
Advantages	Disadvantages	Advantages	Disadvantages	Advantages	Disadvantages
<ul style="list-style-type: none"> Cheap (4) Can do something else while driving (3) No stress of driving (2) Monthly ticket (1) Metro is faster (1) 	<ul style="list-style-type: none"> Crowded (5) Rigid Route (3) Timetables (3) Payment (3) Less comfortable (2) More distant (2) Doesn't connect directly (2) Slow (1) Animal limits (1) 	<ul style="list-style-type: none"> Choose route (6) Comfortable (6) Increase mobility (3) Fast (3) Independency from others (3) Cheap (2) Close (2) Freedom (2) Love driving (1) Easy (1) Privacy (1) 	<ul style="list-style-type: none"> Cost (3) Parking (2) Need to drive (2) Congestion (2) Restricted areas (1) Smartphone dependency (1) Low availability in periphery (1) No Child seat (1) 	<ul style="list-style-type: none"> Doesn't have limited area (5) Always available (4) For emergencies (2) Cheap if frequent (1) Needed for children (2) Multiple trips (1) Long trips (1) 	<ul style="list-style-type: none"> Maintenance costs (4) Parking cost (4) Stressful (2) Purchasing cost (1)
TOTAL: 11	TOTAL: 22	TOTAL: 30	TOTAL: 13	TOTAL: 16	TOTAL: 11

3 Results: .6 Electrification of carsharing

- Stakeholders have different views regarding the technology
- User had positive experience of electric vehicles
- Environmental friendliness
- Willingness to pay

Concluding remarks

- Both models can play a role in low carbon mobility transition
 - Free-floating benefits -> Electric vehicles
 - Station-based carsharing -> Complement public transport
- Integration with public transportation
 - Payment method
 - App and maps
- Parking and road pricing
 - Development of carsharing
 - Attention to competition with public transport

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THANKS!

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