

# **Mobility impairments among the elderly in rural areas of Germany**

Flemming Giesel

Institute of Transport Research

German Aerospace Center (DLR)

**Ageing and Safe Mobility**

**International Interdisciplinary Conference**

Session Human Factors

27.-28.11.2014

Knowledge for Tomorrow



# Outline

1. Demographic change in Germany
2. Mobility of the elderly in rural areas
3. Methods
4. Results
5. Conclusion



# 1. Demographic change in Germany

## Decreasing population

82m in 2008 → 70m in 2060

## Ageing society

65 years and older:

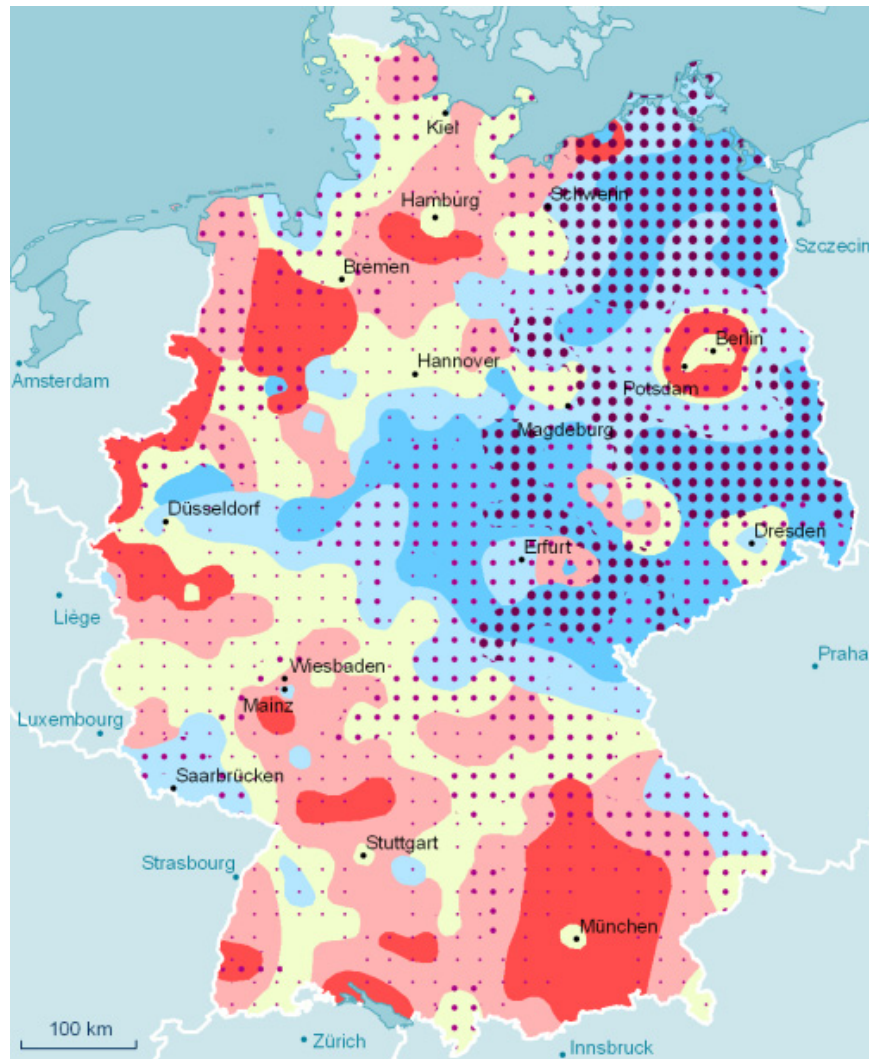
20% (16m) in 2008 → 34% (24m) in 2060

80 years and older:

5% (4m) in 2008 → 14% (10m) in 2060



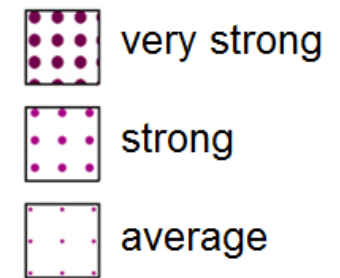
# 1. Demographic change in Germany



## Changes in population 2002-2020



## Ageing



→ Especially rural areas are affected by ageing populations and population decrease

Source: BBR 2006



## 2. Mobility of the elderly in rural areas

- Mobility is central to quality of life, subjective well-being and maintaining independence in particular for elderly people (Banister & Bowling 2004; Lehr 2008)
- Due to the higher distances and smaller range of transport options compared to urban areas, it is also more difficult to alleviate mobility impairments in rural areas
- But within German transport research little is known about the travel behaviour of elderly people in rural areas (infas & DLR 2010; BMVBS 2012)





## 3. Methods

### Main research questions

1. To what extent are elderly people mobile in rural areas?
2. How does travel behaviour differ according to age, gender and mobility impairments?
3. Which sociodemographic and spatial-structure factors can be seen to influence mobility?



### 3. Methods

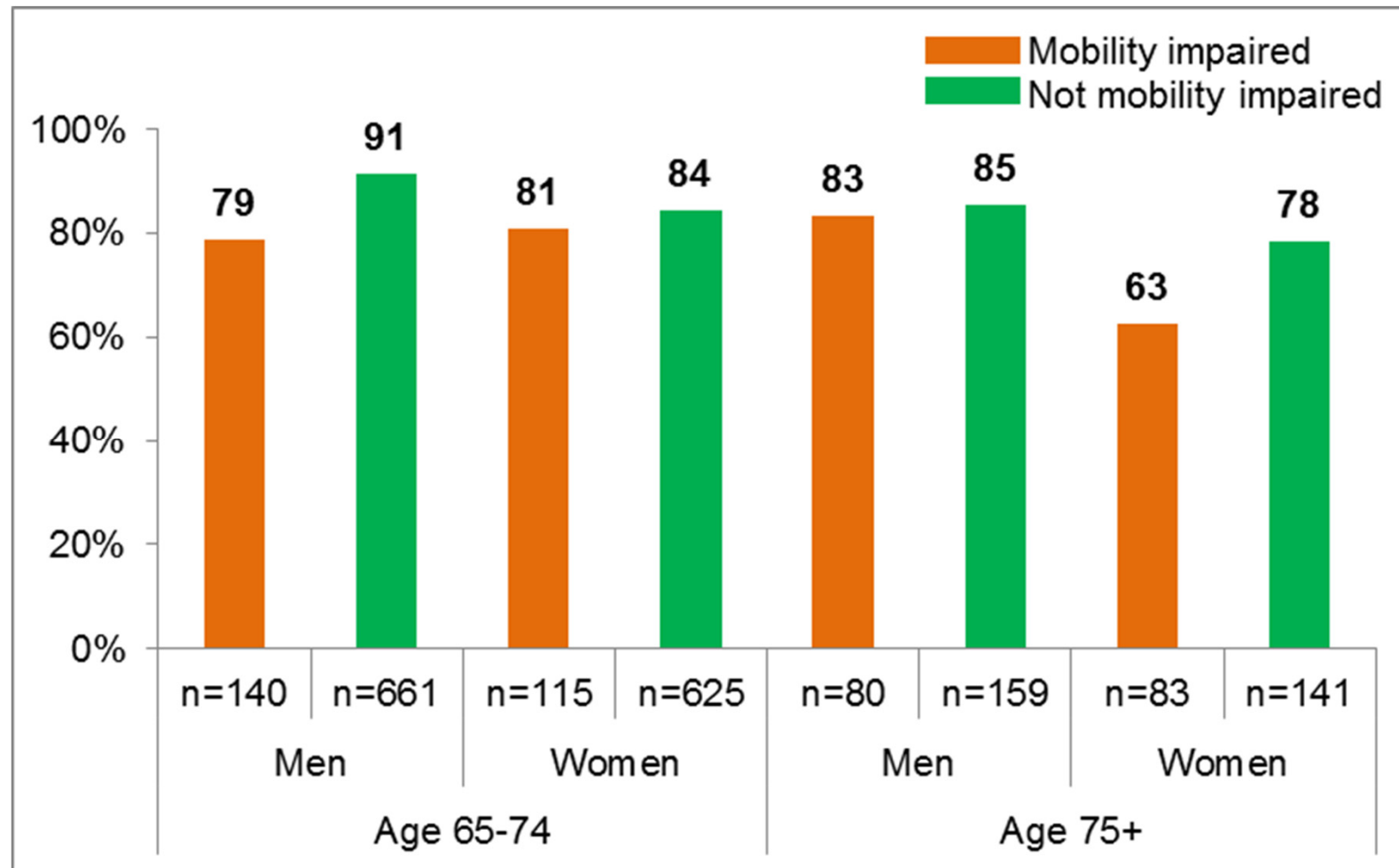
#### Data background „Mobility in Germany 2008“ (MID 2008)

- Nation-wide survey; funded by the Federal Ministry of Transport, Building and Urban Affairs
- Daily mobility patterns of 60,000 people on 25,000 German households
- Spatial focus: rural areas with a density under 150 inhabitants/km<sup>2</sup>



### 3. Main Findings

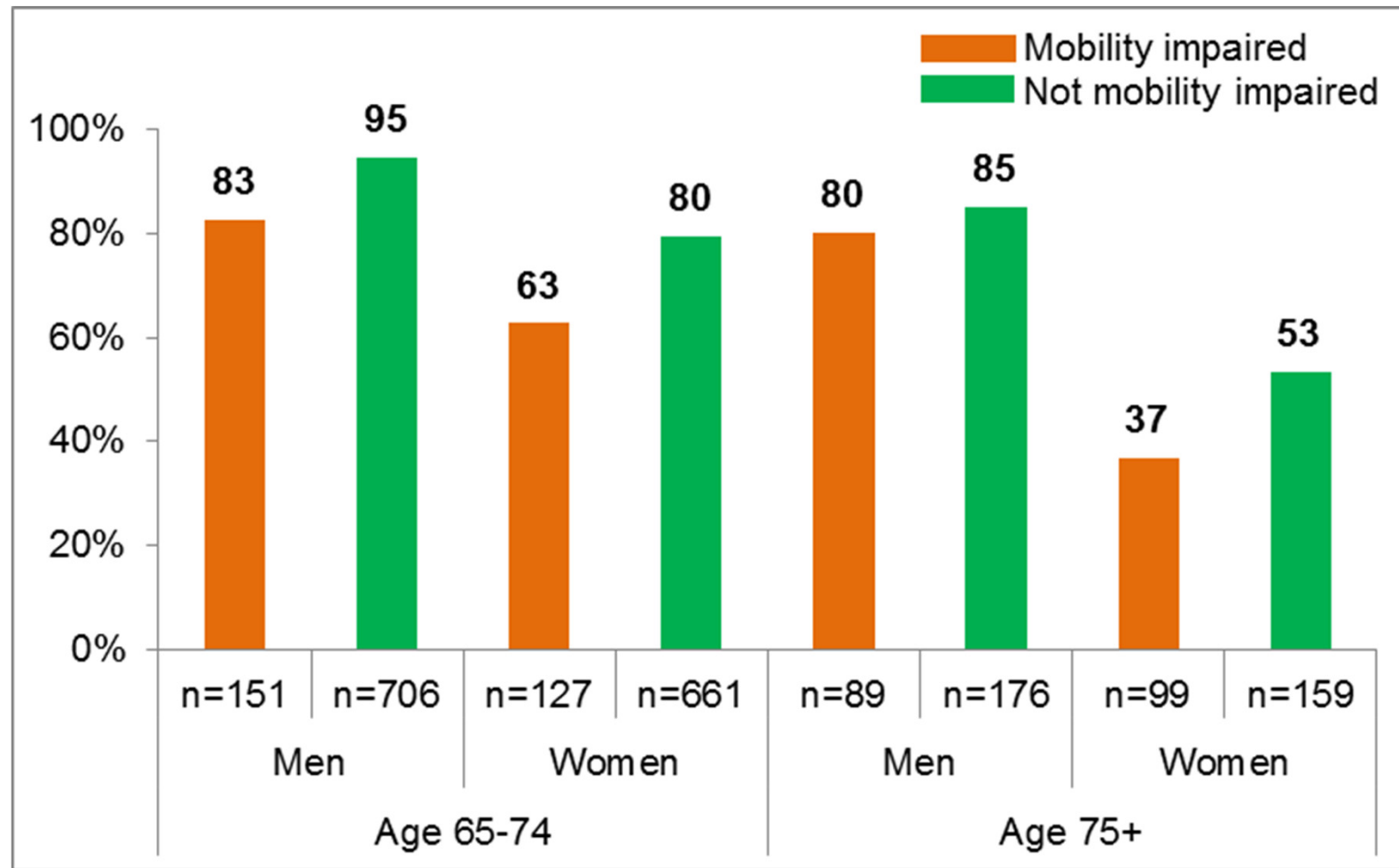
#### Mobility rate in rural areas (Source: MiD 2008)





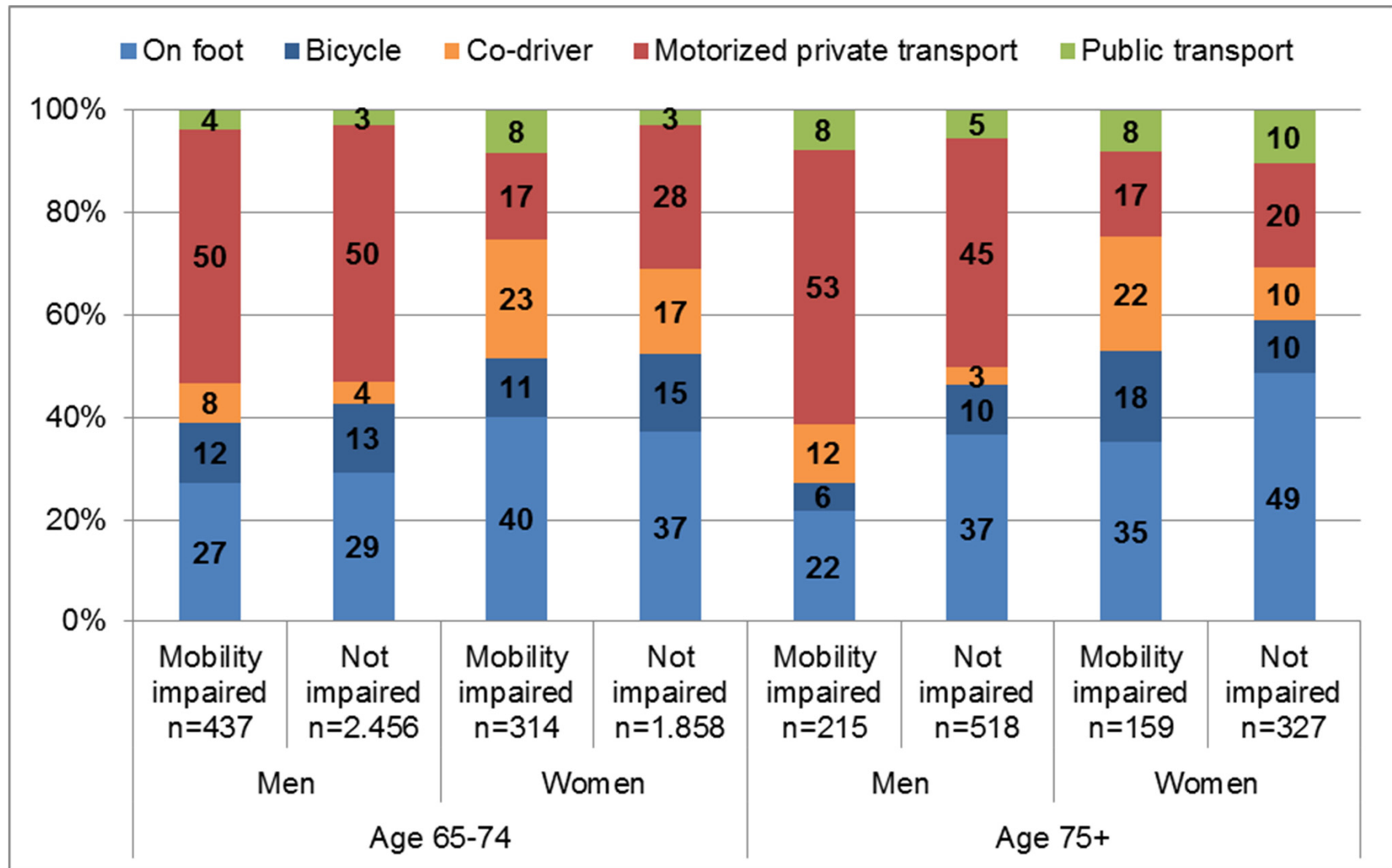
### 3. Main Findings

#### Car availability rate in rural areas (Source: MiD 2008)



### 3. Main Findings

#### Modal split in rural areas (Source: MiD 2008)



### 3. Main Findings

## Factors influencing the mobility rate of older women (65+) in rural areas (Source: MiD 2008)

n = 1,020; 0.146 McFadden's pseudo R-squared

	Reference category	B	S.E.	Wald	df	Sig.	Exp(B)
<b>Age (65+)</b>		-.041	.013	10.112	1	.001	.960
<b>Access to car (yes/no)</b>	no	1.333	.180	54.799	1	.000	3.793
<b>High school graduate (yes/no)</b>	no	1.072	.363	8.714	1	.003	2.922
<b>Weather (dry/wet)</b>	wet	.675	.188	12.917	1	.000	1.963
<b>Shops reachable on foot (good/bad)</b>	bad	.929	.181	26.302	1	.000	2.533
<b>Constant</b>		2.327	1.008	5.326	1	.021	10.247

B = logit-coefficient; S.E. = standard error; Wald = Wald-test statistic;  
df = degrees of freedom; Sig = significance level; Exp(B) = effect coefficient



## 4. Conclusion

- The mobility of the elderly in rural areas differs according to age, gender and mobility impairments
- Woman in older age (75+) made a trip outside of the house and had access to a car less frequently than men; these parameters are also lower when mobility is physically impaired
- Elderly women's mobility depends to a great extent on the availability of a car
- Socially disadvantaged elderly women in monofunctional residential environments are thus dependent on support in their mobility



## 4. Conclusion

- It's essential to support the mobility of the elderly (in particular elderly woman) in rural areas as much as possible
- Possible measures:
  - Health promotion
  - Senior-friendly local public transport
  - Introduction of alternative service concepts
  - Measures of transport safety



# Contact

## **Flemming Giesel**

German Aerospace Center (DLR)  
Institute of Transport Research  
Rutherfordstraße 2  
12489 Berlin

Tel.: +49-30-67055-238

Mail: [flemming.giesel@dlr.de](mailto:flemming.giesel@dlr.de)

