

# Non-ownership Mobility Services for Low-Income Consumers in India: An Empirical Investigation

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## Non-Consumption at the ,Base of the Pyramid‘

***“If non-consumption were a company in Nigeria,  
or in almost any other emerging market,  
it would have a monopoly in most industries.”***

(Ojomo 2016)

#	Country	% of household - Possession of refrigerator	% of household - Possession of air-conditioner	# of passenger vehicles per household
1.	Argentina	96.5	38.3	0.7
2.	Brazil	98.1	13.8	0.8
3.	China	87.6	72.7	0.3
4.	India	23.8	13	0.1
5.	Indonesia	44.2	8.3	0.2
6.	Mexico	83	12.9	0.8
7.	South Africa	73.4	5.3	0.4
8.	Turkey	99	18.4	0.5
9.	Egypt	96.9	6.6	0.2
10.	Iran	87.6	16	0.5
	Average	78.98	20.53	0.45

(Source: Euromonitor / Ojomo 2016)

## Access as an Opportunity?

***At the BoP, „the key barrier to ownership is affordability”***

(Zainudeen et al. 2007, p. 6)

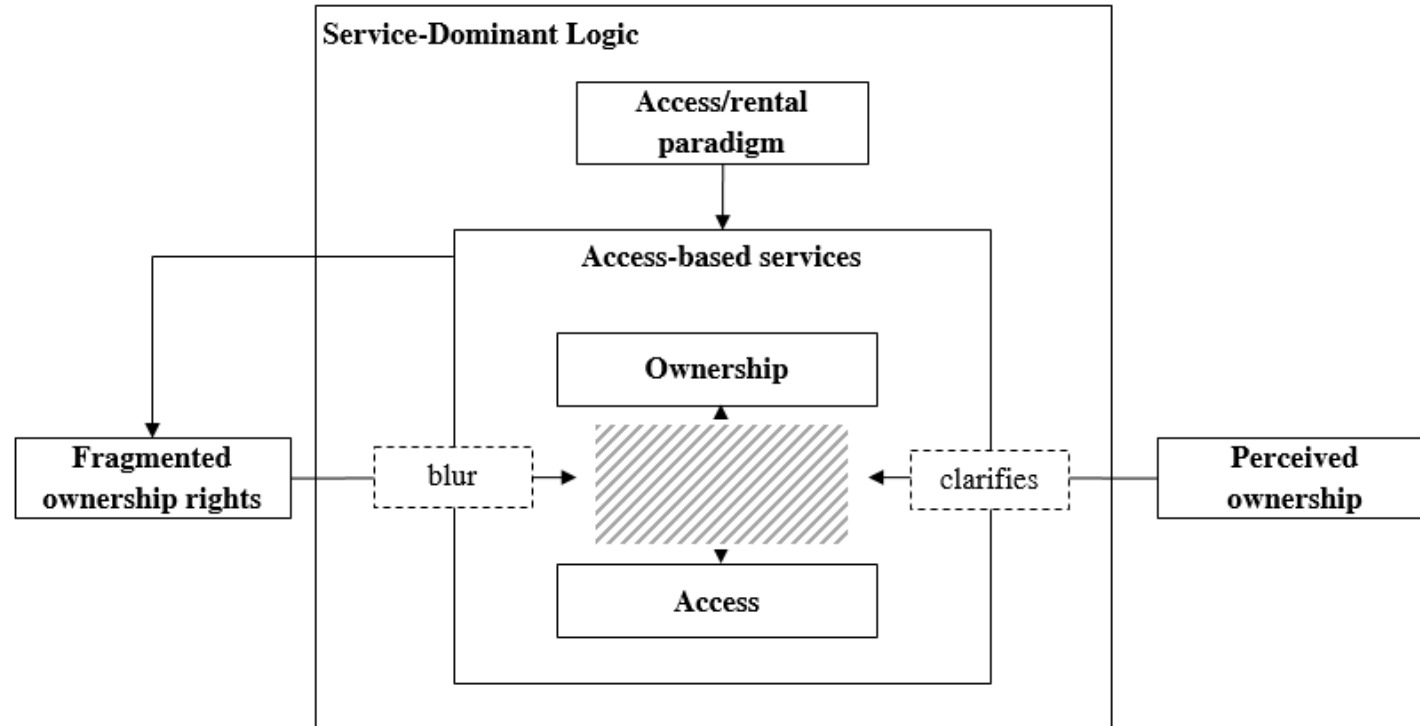
***“The BOP proposition correctly celebrates the “shared access” model as a way to make products more affordable to the poor.”***

(Karnani 2007, p. 102)

***“In developing economies, prospects for improved quality of life may revolve around finding creative ways of sharing access to goods [...] in ways that bring the price down to affordable levels.”***

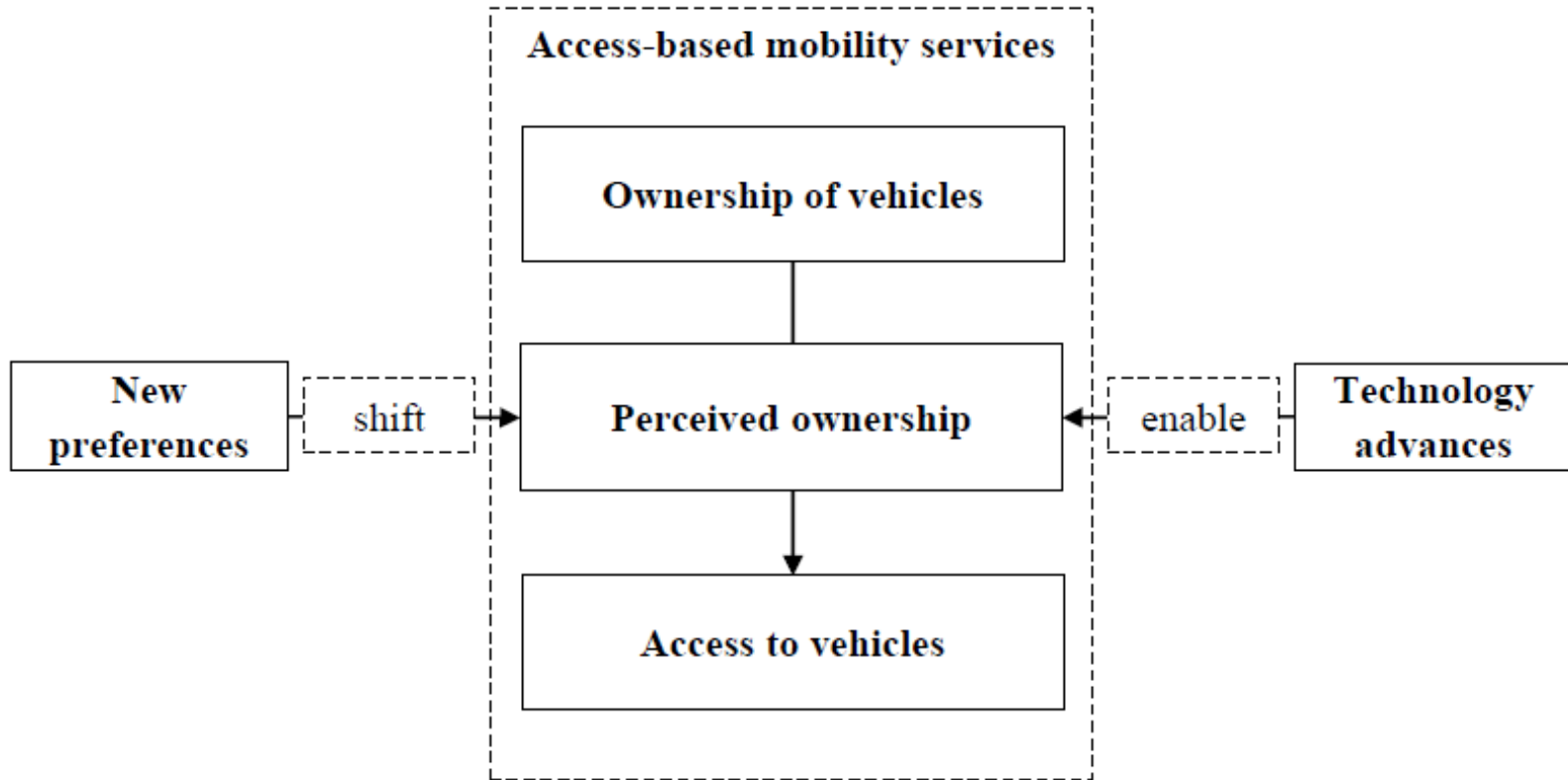
(Lovelock & Gummesson 2004, p. 36)

## Access as an Opportunity? Previous Research (Conceptual)



**Figure 1:** Conceptual framework of the role of perceived ownership in access-based services

## Access as an Opportunity? Previous Research (Conceptual)



**Figure 2:** Perceived ownership in access-based mobility services

# Access as an Opportunity? Previous Research (Conceptual)

Determinants of perceived ownership	Explanations	(Sub-)Dimensions	References
Availability	Existence of accessible service-delivery mechanisms of mobility	Ability to restrict access	(Demsetz (1967); Brunso et al. (1979); 1987; Meijkamp (1998); Shaheen and Cohen (2007); Lambertson and Rose (2012); Le Vine et al. (2014))
		Available duration of access	(Chen (2009); Bardhi and Eckhardt (2012); Belk (2014b))
		Available capacity	(Alchian and Demsetz, 1973; Lees-Miller et al., 2009; Herbon and Hadas, 2015)
		Available alternative choices	(Meijkamp (1998); Shaheen and Cohen (2007))
Accessibility	Convenience and ease of obtaining access-based mobility services	Proximity and flexibility of access points	(Alchian and Demsetz (1973); Grossman and Hart (1986); Price et al. (1995); Shaheen and Martin (2010); Bardhi and Eckhardt (2012); Cheng and Chen (2015); Kim (2015))
		Technical costs	(Hennig-Thurau et al. (2007); Lambertson and Rose (2012); Le Vine et al. (2014); Möhlmann (2015))
		Search costs	(Berry and Maricle (1973); Moeller and Wittkowski (2010); Lambertson and Rose (2012))
Affordability	Financial viability and flexibility of access-based mobility services	Initial costs	(Steininger et al. (1996); Litman (2000); 2004; Belk (2010); Lambertson and Rose (2012); Belk (2014b))
		Variable costs	(Pretenthaler and Steininger (1999); Bardhi and Eckhardt (2012); Lambertson and Rose (2012); Le Vine et al. (2014); Kim (2015))
		Fixed costs	(Pretenthaler and Steininger (1999); Litman (2000); Shaheen and Cohen (2007); Shaheen and Martin (2010); Lambertson and Rose (2012); Le Vine et al. (2014); Martin and Shaheen (2014); Kim (2015))
Acceptability	Congruency of mobility services with cultural and social values	Sign value	(Snare (1972); Belk (1988); Durgee and Colarelli O'Connor (1995); Dibben (2001); Kenyon et al. (2002); Mont (2004); Botsman and Rogers (2010); Bardhi and Eckhardt (2012); Catulli et al. (2013); Schaefers (2013))
		Political consumerism	Bardhi and Eckhardt (2012)
		Social interaction	(Demsetz (1967); Alchian and Demsetz (1973); Meijkamp (1998); Stanley (2004); Bardhi and Eckhardt (2012); Le Vine et al. (2014))

# Access as an Opportunity? Previous Research (Conceptual)

		Access-based mobility services							
		Ownership	Long-term rental	Short-term rental	Vehicle sharing	Public transportation	Ride sharing		
		Vehicle ownership	Car leasing	Car rental	Car sharing Bike sharing	Public bus or train service, metro	Taxi	Car pooling	Peer-to-peer sharing
<b>Availability</b>	Ability to restrict access	Unlimited	Unlimited	Medium	Medium	Limited ( <i>Metro</i> ) / Medium ( <i>Seat reservation</i> )	Medium	Medium	Medium
	Available duration of access	Unlimited	Long-term	Short-term	Short-term	Short-term	Short-term	Short-term	Short-term
	Available capacity	Unlimited	Unlimited	Unlimited	Unlimited	Limited ( <i>Single spot</i> )	Unlimited	Limited ( <i>Single spot</i> )	Unlimited
	Available alternative choices	Broad ( <i>before acquisition</i> ) / Narrow ( <i>after acquisition</i> )	Broad ( <i>before acquisition</i> ) / Narrow ( <i>after acquisition</i> )	Broad	Broad	Narrow	Narrow	Narrow	Narrow
<b>Accessibility</b>	Proximity and flexibility of access points	Close and flexible	Close and flexible	Distant and inflexible	Distant and inflexible ( <i>closed loop/stationary</i> ) / Close and flexible ( <i>free floating</i> )	Distant and inflexible	Close and flexible ( <i>pick-up service</i> ) / Distant and inflexible ( <i>taxi stand</i> )	Close and flexible ( <i>pick-up service</i> ) / Distant and inflexible ( <i>meeting points</i> )	Close and flexible ( <i>pick-up service</i> )
	Search costs	Low ( <i>after acquisition</i> ) / High ( <i>before acquisition</i> )	Low ( <i>after acquisition</i> ) / High ( <i>before acquisition</i> )	Medium	Medium	Low	Low	Medium	Low
	Technical costs	Medium ( <i>one-time</i> )	Medium ( <i>one-time</i> )	High	High	Low	Low	Low	Low
<b>Affordability</b>	Initial costs	High	Medium ( <i>deposit</i> )	Low	Low	Very low	Very low	Very low	Very low
	Fixed costs	High	Very high	Low	Low	Low ( <i>one-time</i> ) / High ( <i>periodic</i> )	Very low	Very low	Very low
	Variable costs	Medium	Medium	High	High	High ( <i>one-time</i> ) / Low ( <i>periodic</i> )	Very high	Very high	Very high
<b>Acceptability</b>	Sign value	High	High	Medium	Medium	Low	Low	Low	Low
	Political consumerism	Medium	Medium	Low	High	High	Low	High	High
	Social interaction	Low	Low	Low	Low	High	Medium	High	Medium
Degree of perceived ownership*		26	22	19	12	6	9	5	9

\*Scoring scales from perfect conformity compared to ownership to no perceived ownership

2 Points

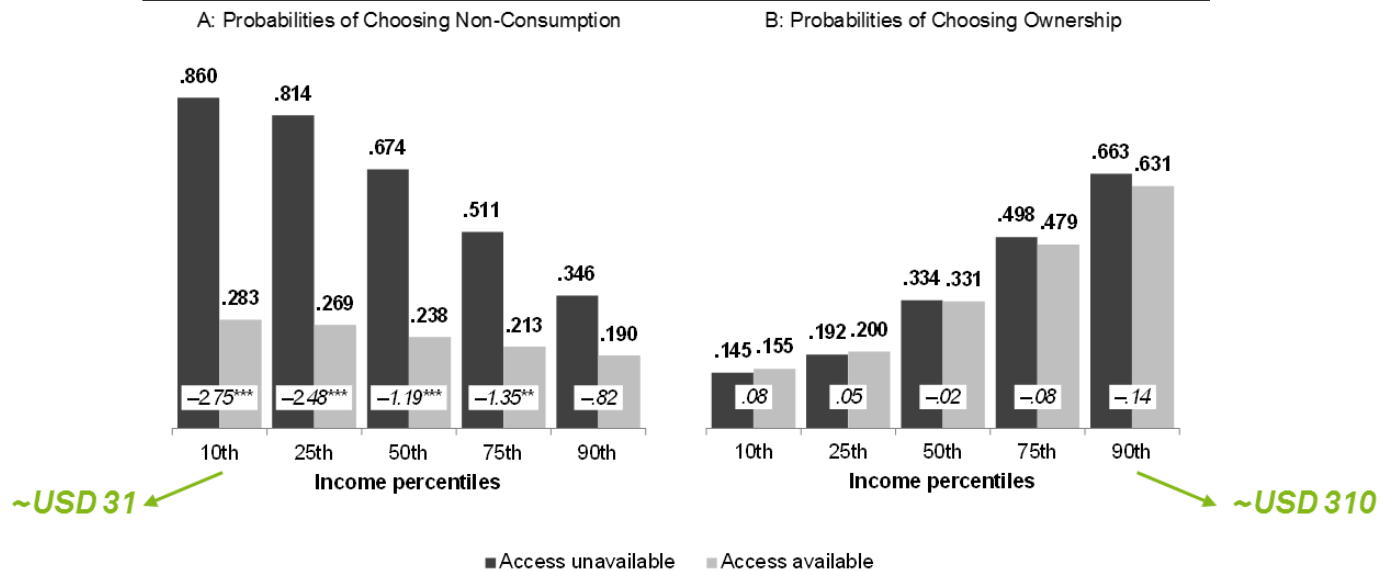
1 Points

0 Point

# Access as an Opportunity? Previous Research (Empirical)

## Empirical Study

### Results



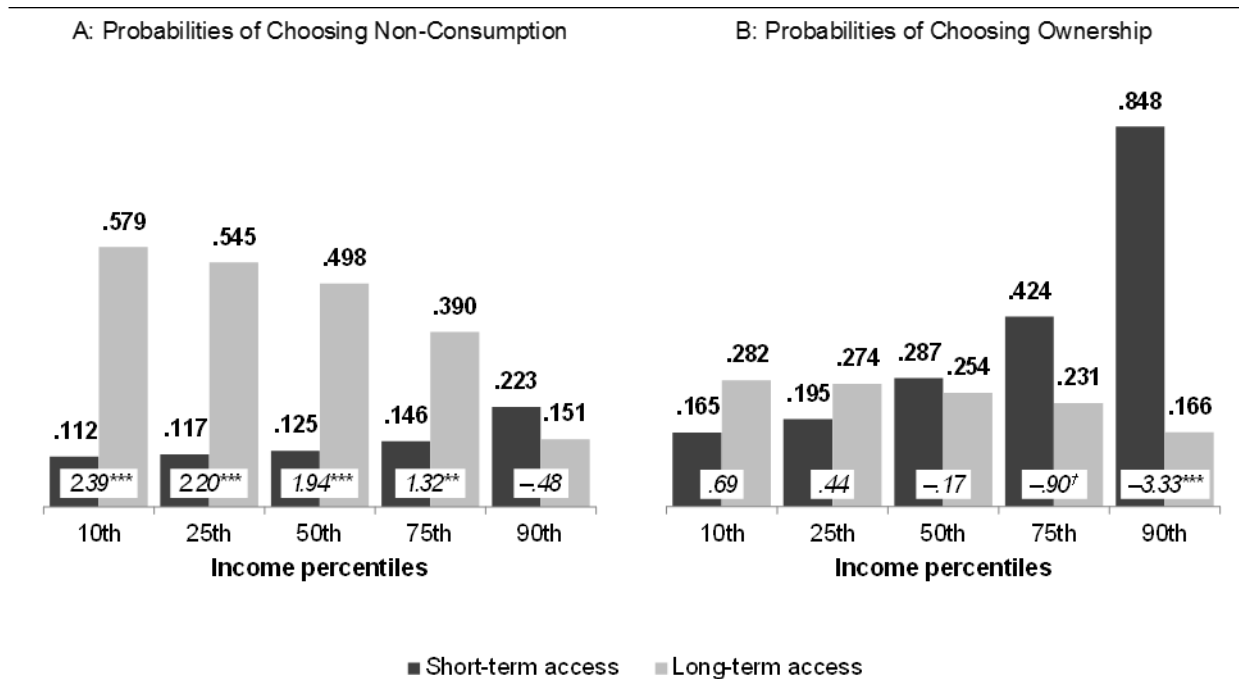
**Figure 1.** Study 1: Estimated Choice Probabilities and Spotlight Results

*Note.* Values in bold are estimated probabilities based on logistic regression results; covariates included are, gender, risk aversion, attitude toward the focal product, and expected livelihood impact. Values in italics are spotlight analysis regression coefficients.

\*\*\* $p < .001$ , \*\* $p < .01$



## Access as an Opportunity? Previous Research (Empirical)



**Figure 4.** Study 2: Estimated Choice Probabilities and Spotlight Results

*Note.* Values in bold are estimated probabilities based on logistic regression results; covariates included are, gender, risk aversion, attitude toward the focal product, and expected livelihood impact. Values in italics are spotlight analysis regression coefficients.

\*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$ , † $p < .1$

# Access as an Opportunity in the Mobility Sector?

*Changing the perspective on access-based services  
Transformative Research*

Developed economies

Upper middle class

Urban environments



Emerging / frontier economies

Low-income levels

Rural areas

## Access as an Opportunity in the Mobility Sector?

### Product-centered Ownership

- Satisfaction of *one individual's* (i.e., the owner's) desire for *permanent* access to a single object (bike/car/truck)
- High investment or long-term financing
- Burdens of ownership



### Service-centered Access

- Satisfaction of *multiple individuals'* (i.e., the users') desire for *temporary* access to a single object (bike/car/truck)
- Access fee < purchase price
- Avoidance of the burdens of ownership



# Access as an Opportunity in the Mobility Sector ?

## Basic Hypotheses

***H<sub>1</sub>: The availability of access to bikes/cars/trucks decreases non-consumption. This effect is moderated by income, such that at lower income levels, access preference and thus the decrease in non-consumption are greater than at higher income levels.***

Resource restrictions and lower thresholds (Blocker et al. 2013; Hill & Stephens 1997; Karnani 2007)

***H<sub>2</sub>: Compared to ownership, access to bikes/cars/trucks is perceived to (a) entail less financial risk, (b) be more affordable, and (c) possess greater utility. This effect is moderated by income, such that at lower income levels, the perceptual differences are greater than at higher income levels.***

Utility maximization (Foxall & Schrezenmaier 2003; Thaler 1985)  
Risk perception theory (DeVecchio & Smith 2005; Dowling & Staelin 1994)

***H<sub>3</sub>: The perceptual differences between ownership and access to bikes/cars/trucks in (a) financial risk, (b) affordability, (c) utility and (d) social risk mediate the effect of income on access preference over ownership.***

# Empirical Study

## Method

### *Setting & Data Collection*

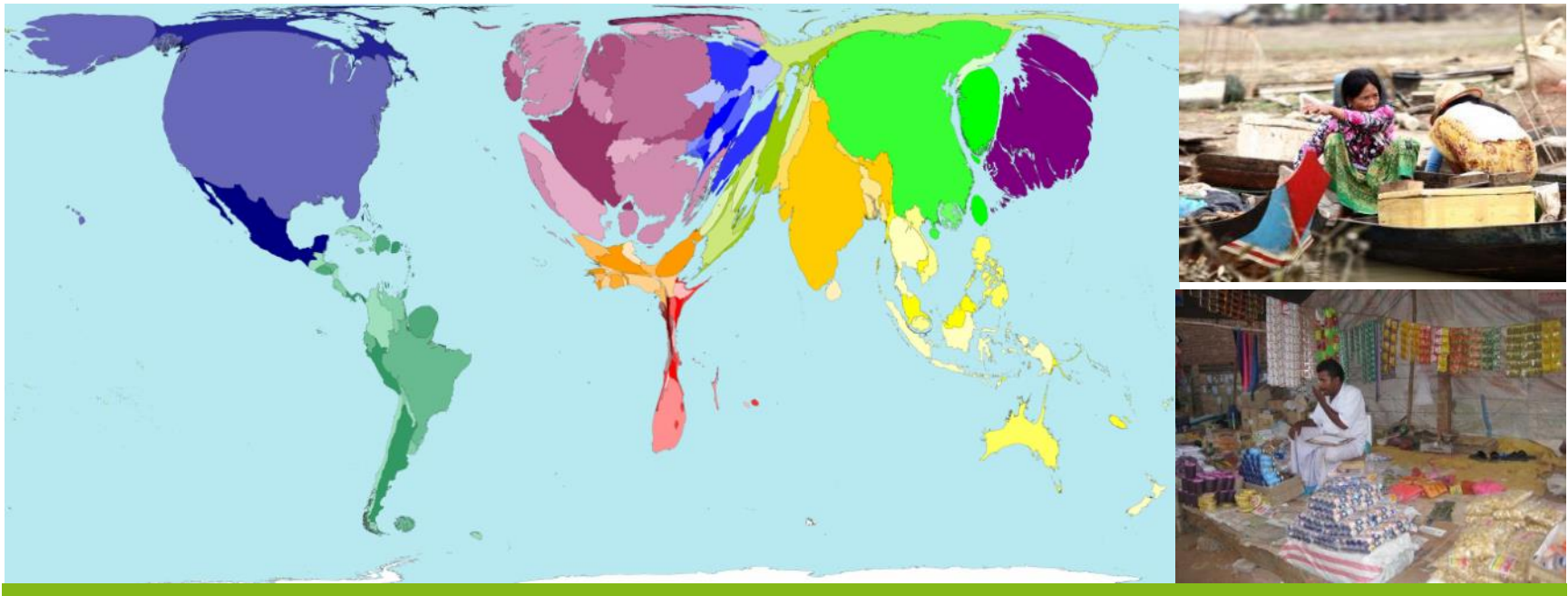
- **Between-subjects experimental study: access availability (no/yes) × income**
- **Context: Car Sharing (Bikes / Trucks)**
- **Outskirts of Bangalore / Udaipur in Rajasthan, India**
- **Paper-and-pencil questionnaires, personal interviews**
- **Translation back-translation method**
- **Cooperation with local NGO**
- **Sample of 600 participants each**
- **Trucks: only small shop/production plant owners**

### *Measures*

- **Perceived financial risk of ownership and access** (DelVecchio & Smith 2005)
- **Affordability of ownership and access**
- **Utility of ownership and access** (Lamberton & Rose 2012)
- **Monthly household income (INR)**
- **Perceived product scarcity risk** (Lamberton & Rose 2012)
- **General risk aversion** (Mandrik & Bao 2005)
- **Utilitarian attitude toward the product** (Voss et al. 2003)
- **Social risk** (Kaplan et al. 1974)

## Discussion (*Transformative Research implemented*)

- Previous research on other goods ((water filters, air coolers etc.) suggests that hypotheses are likely to be basically confirmed. – Still details matter.
- The actual question is what the implications are for companies and policy makers in India (or other markets) if the results are (not) confirmed:
  - Is it sustainable to still focus on the produce & sell model?
  - Is the government required to offer financial or other benefits to increase access to mobility rather than ownership?
  - How substantial is the aspect of social risks (social status signaling) and if high, are ‘we’ allowed to influence it?
- Future research: Detailed understanding of different forms of car sharing (car hailing/taxi vs. Peer-to-Peer sharing & self-driving; e.g. zoomcar).
- Future research: Research collaborations with local mobility service providers?



**Thank you!!!**

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