8th Urban Mobility India Conference & Expo 2015

Transforming Mobility for Liveability

A Study of Active Commuting among Urban Indian Population through Gendered Lens

Theme: Accessibility & Gender In Urban Transport

Presented By:

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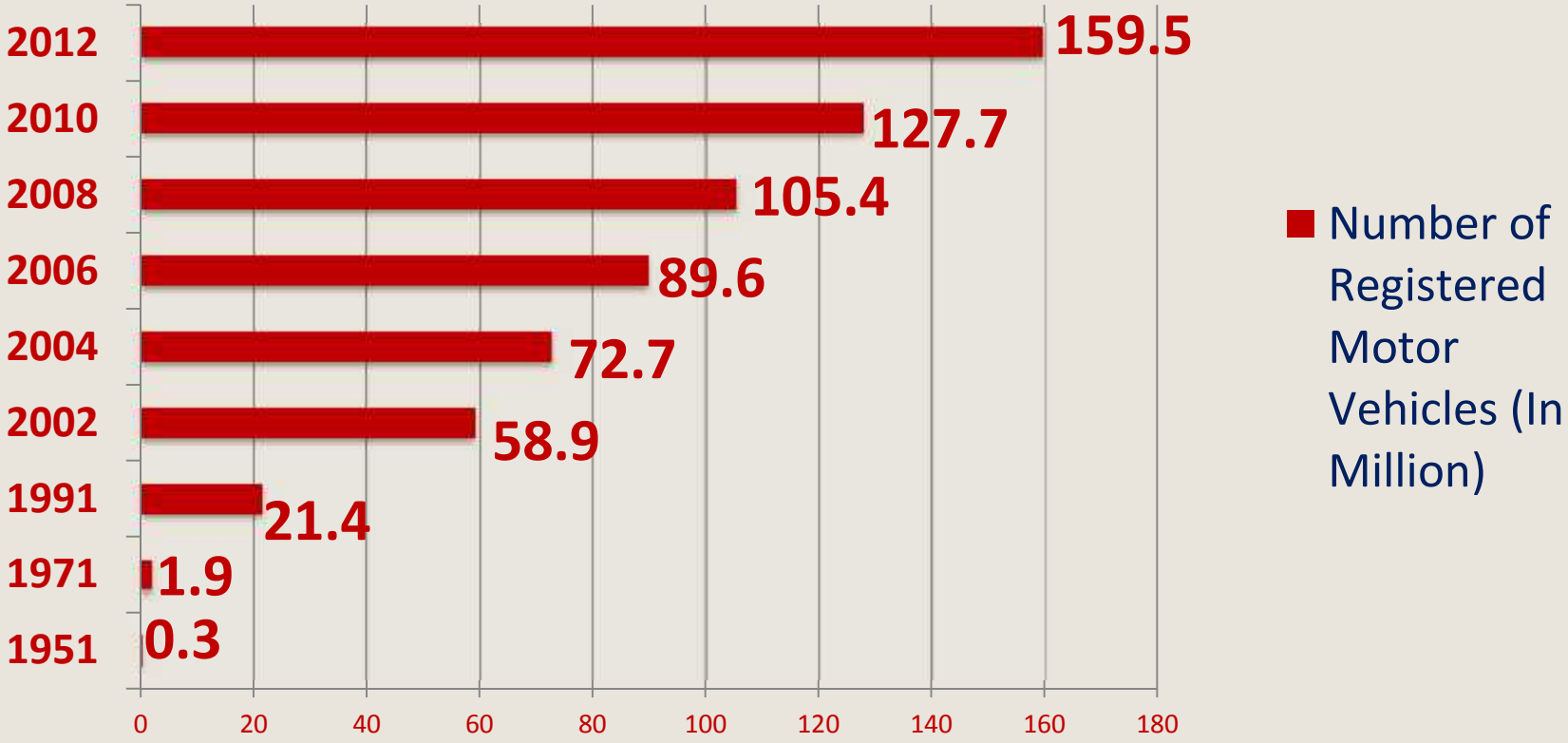
Need of the Study

Number of Registered Motor Vehicles (In Million): 1951-2012



Mobility Crisis

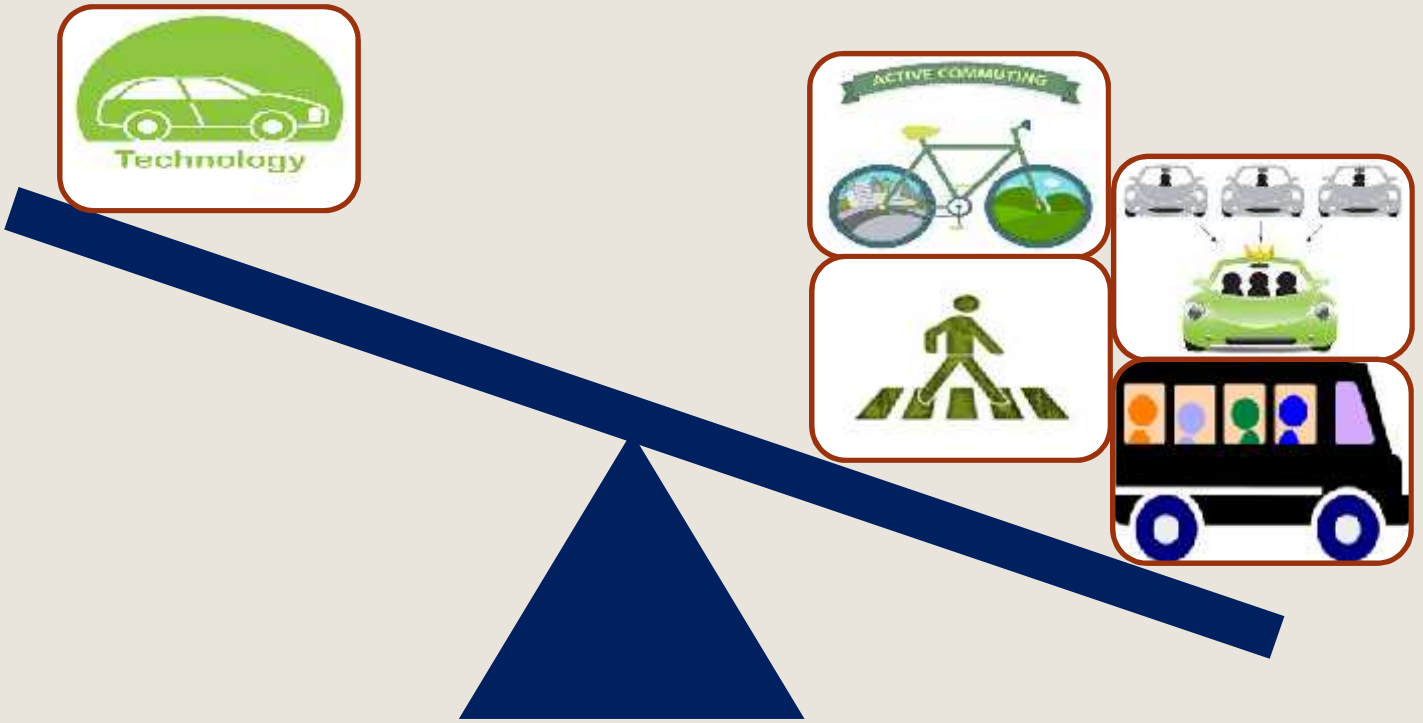
Current concerns	Future Concerns
• Traffic Congestion • Traffic Injuries and Deaths • Environmental Impact	• Limited availability of fuels • Traffic Congestion • Traffic Injuries and Deaths • Environmental Impact

References: *Black, 1996; Greene, 2004; Steg & Gifford, 2005; Gore 2006, 2007 Gilbert & Perl, 2008; Newman, Beatley, & Bower, 2009*

Possible Solutions to Mobility Crisis

Technological Intervention: Supply Side Measures	Behavioral Intervention: Demand Side Measures
• Jevon's effect (Herring, H., 2006) • Rebound effect (Berkhout, Muskens & Velthuijsen, 2000) • Not completely efficient (Steg, 2005)	• Encouraging sustainable modes (Hounsham, 2005; Pooley and Turnbull. 1999) • Behavioral shift (Diana & Mokhtarian, 2009; Steg and Gifford, 2005)

Solutions to Mobility Crisis



Supply Side Vs. Demand Driven

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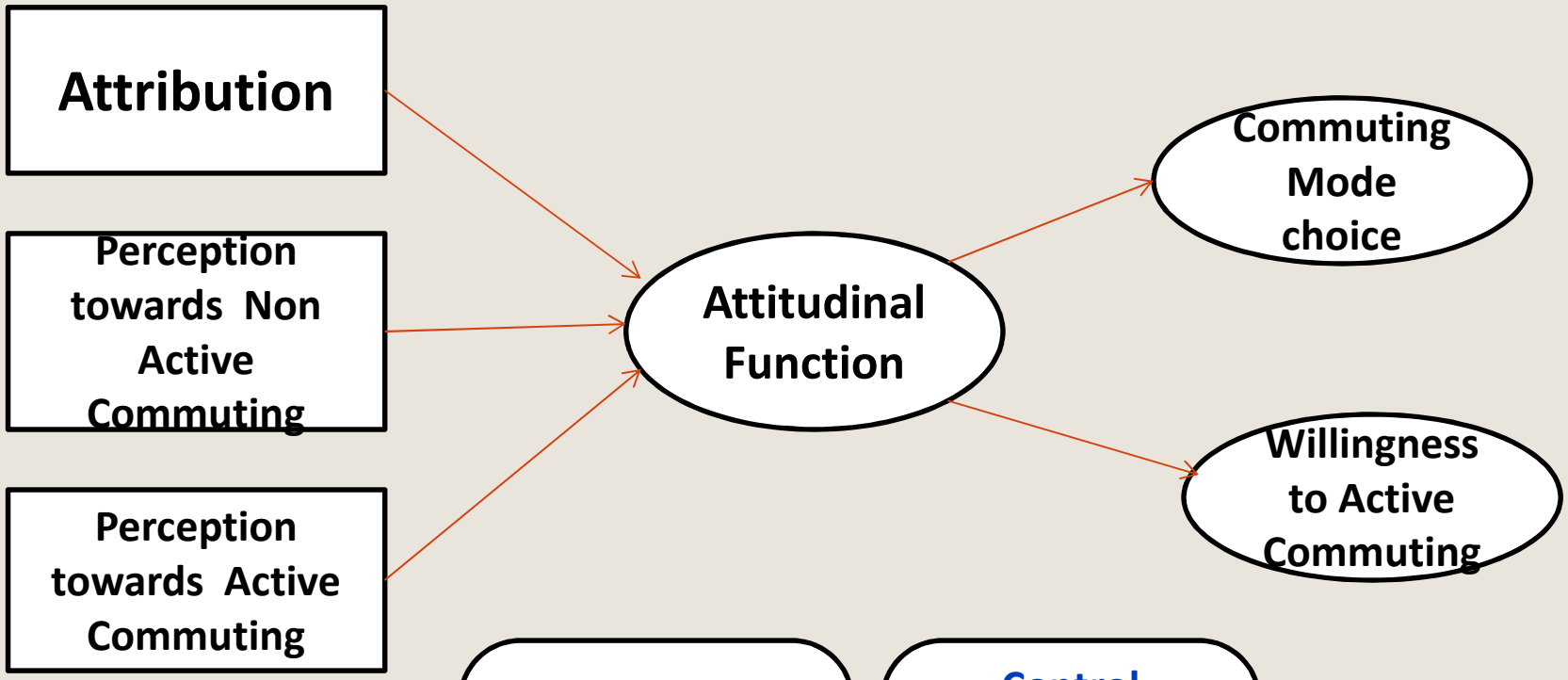
How Active Commuting?

- Understanding of its determinants
- Interaction of Determinants
- Consideration of these determinants while policy/ program/infrastructure designing

Active Commuting Model



Moderators:
- Socio-Economic Status
- Health Profile

Control Variables:
- Gender
- Age
- Working Status
- City

Present Study: Objective

- To study the attitudinal function of purposive commuters among Urban Indian Population.
- To study the interaction between gender, attitudinal function, and mode choice.

Construct Definition

- **Attitudinal Function:** It refers to importance or value assigned to an object based on the function it seems to fulfill.
  - **Affective Function:** It deals with the emotional component associated with personal motorized mode usage.
  - **Control Function:** Whether usage of personal motorized modes provides one the privilege to determine his/her course of movement.
  - **Knowledge Function:** Whether an individual is equipped with the required information of public/intermediate modes.
  - **Utilitarian function:** Encompasses benefits associated with personal motorized vehicle usage over other public, intermediate and non-motorized mode usage.

Literature Review: Attitudinal Determinants

Affective Function:

(Jensen, 1999

Gatersleben, 2007)

Control Function:

(Sandqvist & Kristrom, 2001

Mokhtarian & Solomon, 2001)

Knowledge Function:

(Ajzen, 1991

Bamberg & Schmidt, 1993, 2001)

Utilitarian Function:

(Steg, Vlek, & Slootegraaf, 2001

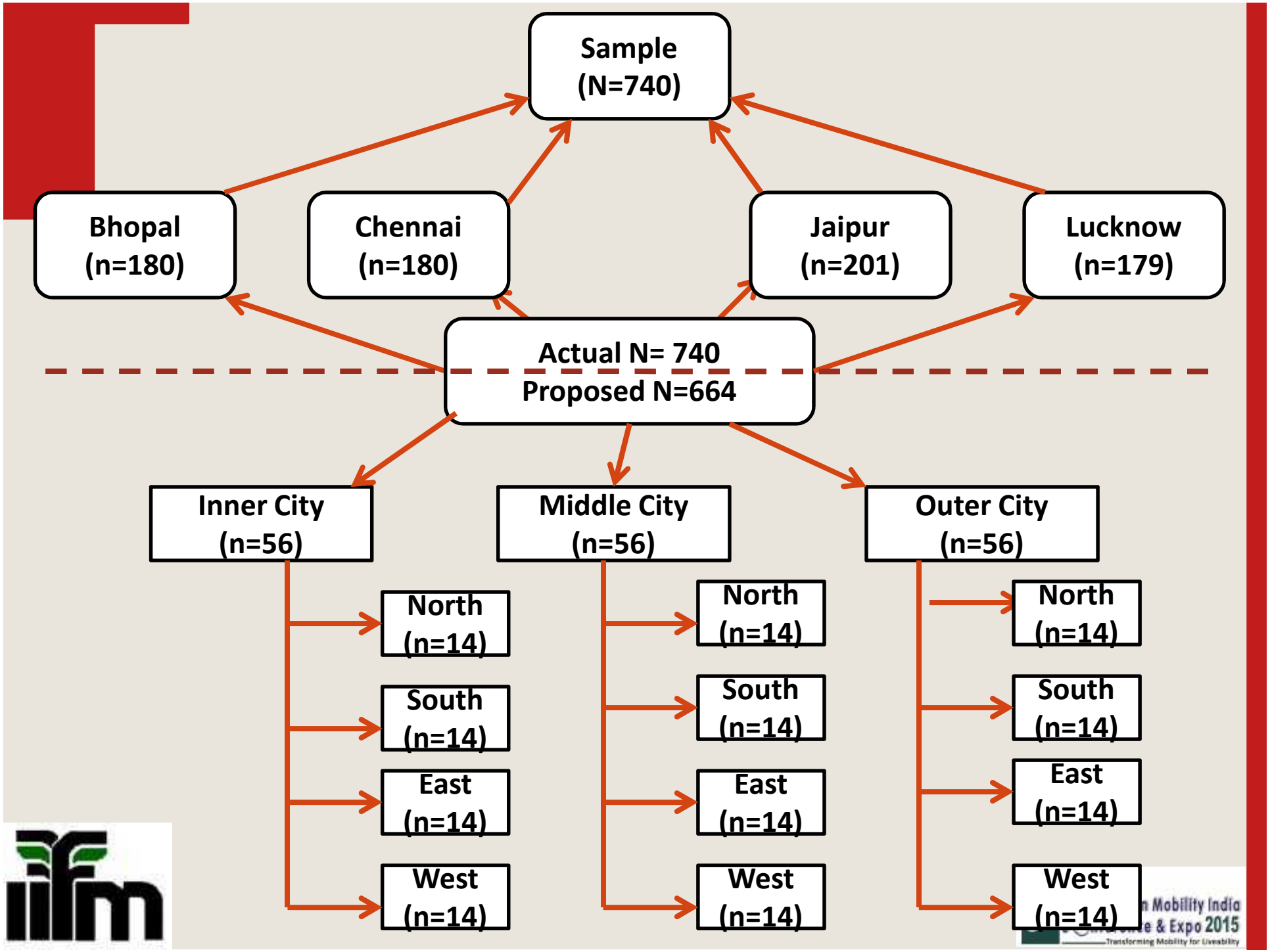
Heath & Gifford, 2002)

Literature Review: Gender Differences

- Men: Independent & Private Modes
- Women: Slower modes (Pooley & Turnbull, 1999, 2000)
- Men: More Usage of Cars (Steg, 2005)
- Women: Pedestrian mode (Hanson, 1990)
- Degree of usage of personal vehicle higher among men (Korver, Klooster, Jensen, 1993; Kingham, Dickinson, & Copsey, 2001)

Sample

- **Study Sites:** Bhopal, Chennai, Lucknow, Jaipur
- **Sampling Frame:** Road Transport Year Book 2011-12
- **Sample Size:** 740 (with 10% margin of error, 99% confidence interval and 50% response distribution)
- **ME= z √ ṕ (1- ṕ)/n**
- Where ME= margin of error
- Z=z-score
- ṕ= prior judgment of correct value
- Thus, total sample size for all the four cities was reached that is 664 (**166*4=664).**
- **Sampling:** Stratified Random Sampling


Sample
(N=740)
Bhopal
(n=180)
Chennai
(n=180)
Jaipur
(n=201)
Lucknow
(n=179)
Actual N= 740
Proposed N=664
Inner City
(n=56)
Middle City
(n=56)
Outer City
(n=56)
North
(n=14)
South
(n=14)
East
(n=14)
West
(n=14)
North
(n=14)
South
(n=14)
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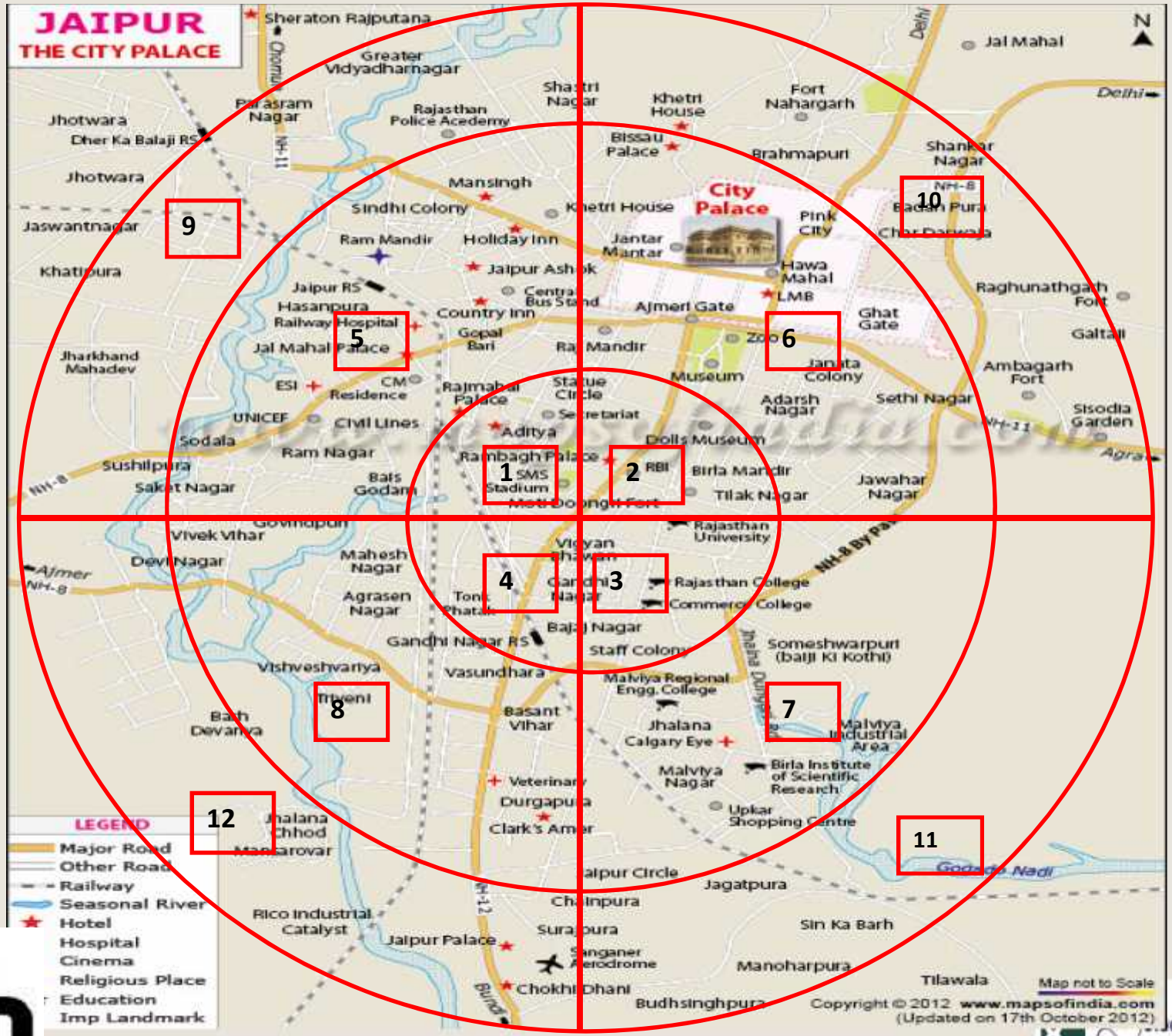
West
(n=14)



Instrument of Data Collection: Purposive Active Commuting behavior among Regular Commuters (PACBReC)

S.No.	Index
1	**Attitudinal Function Index**
2	**Commuting Mode Choice**
3	Willingness to Actively Commute
4	Attribution
5	Perception towards Active and Non-active modes of commuting

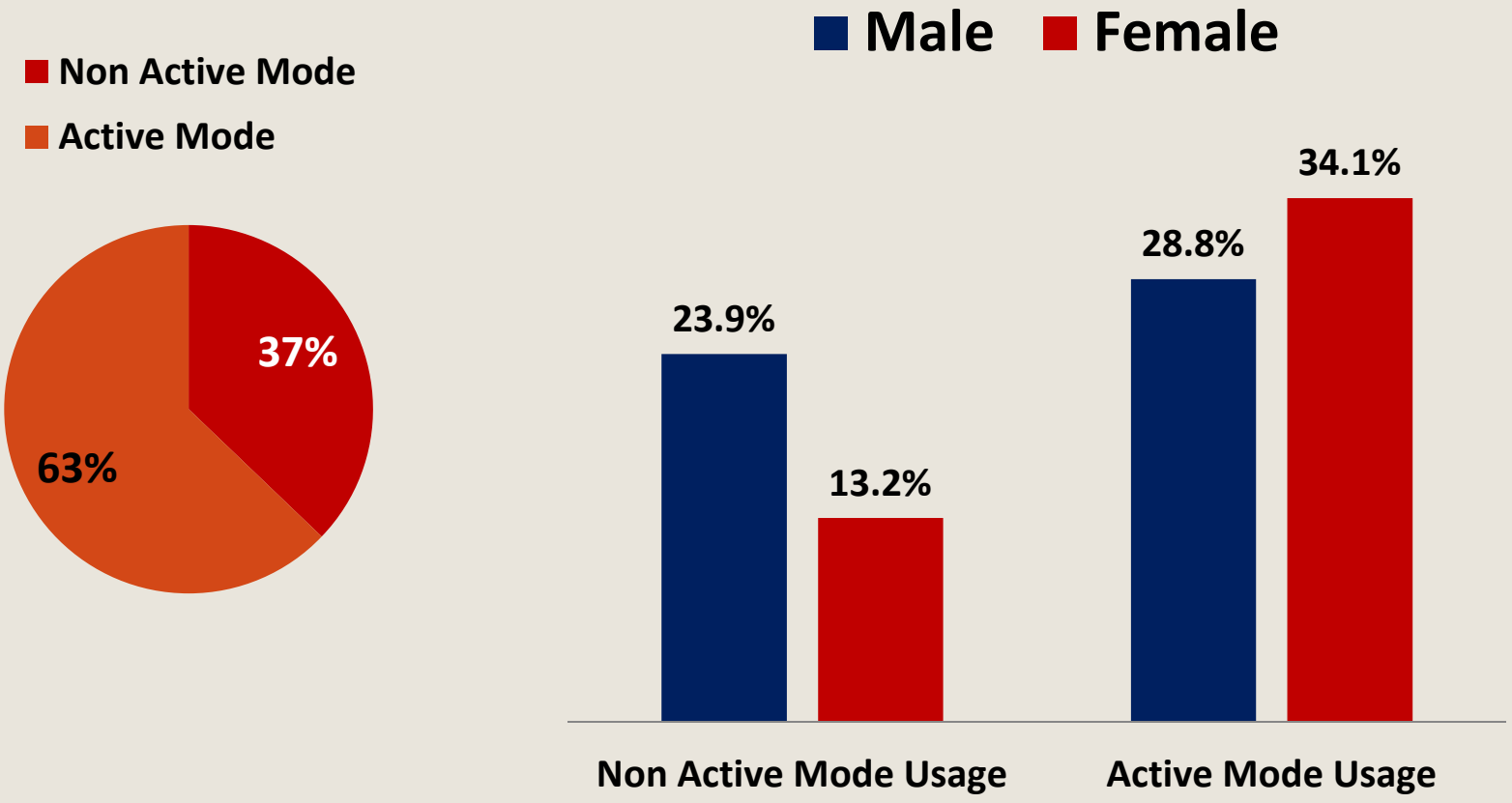
Findings of Study

Gender & Commuting Mode Choice

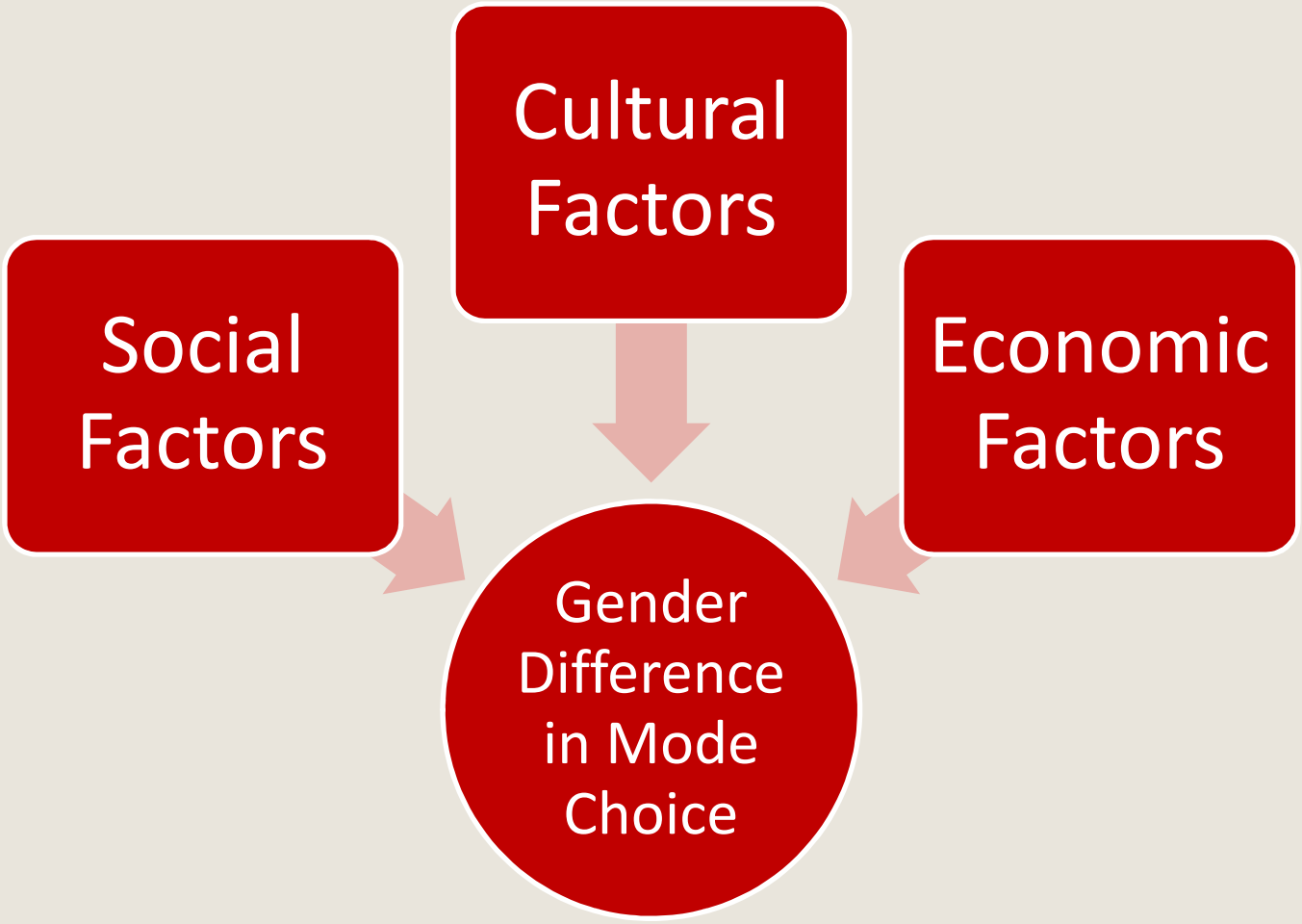
Independent Variable	Direction of relation	Dependent Variable	Estimate	S.E.	Beta Estimate	C.R.	P
		Commuting Mode Choice					
Gender	==>		-0.245	0.028	-0.259	-8.653	0.001*

** Significant at 0.01 level*

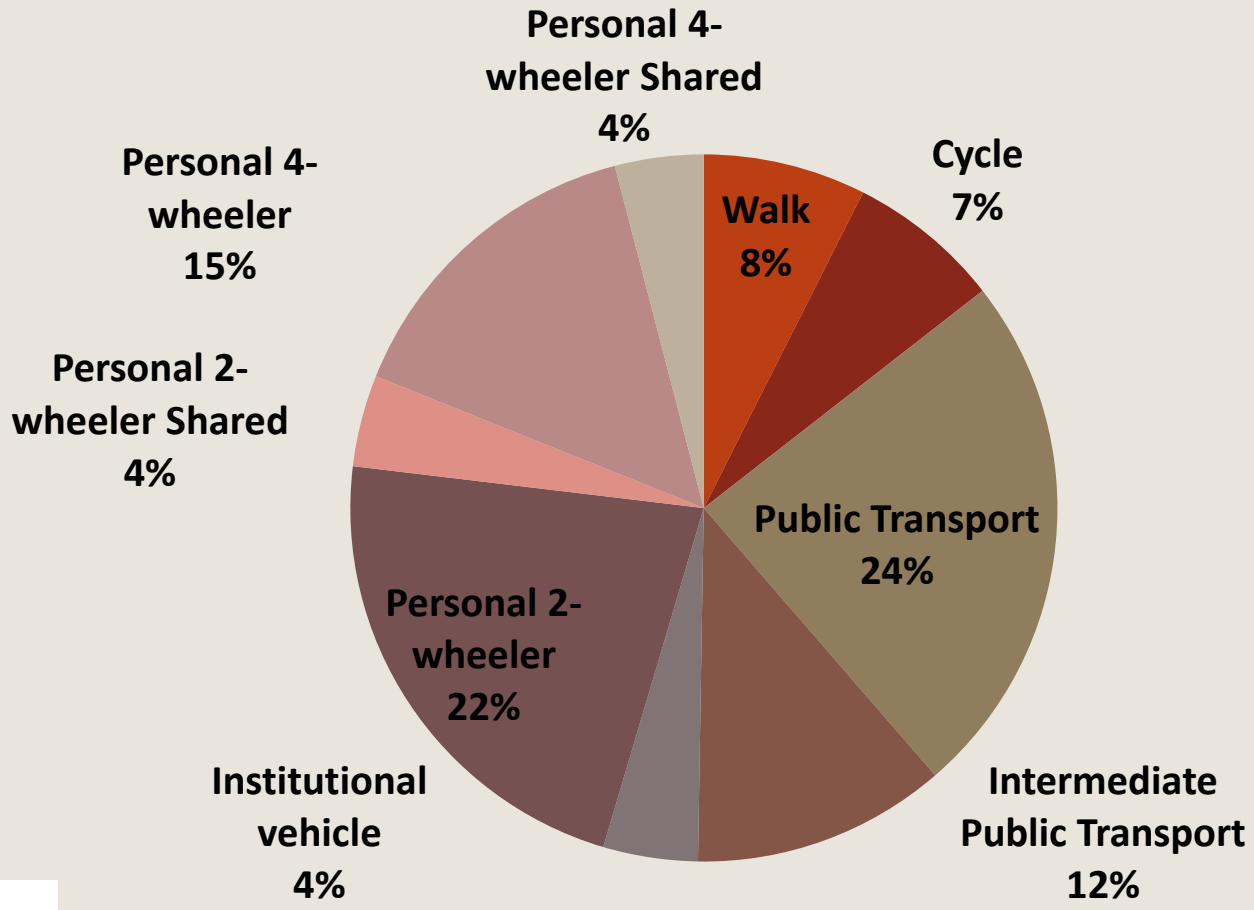
Mode Choice for Commuting to Workplace



Causes of Gender Difference



Commuting Mode Choice Overall

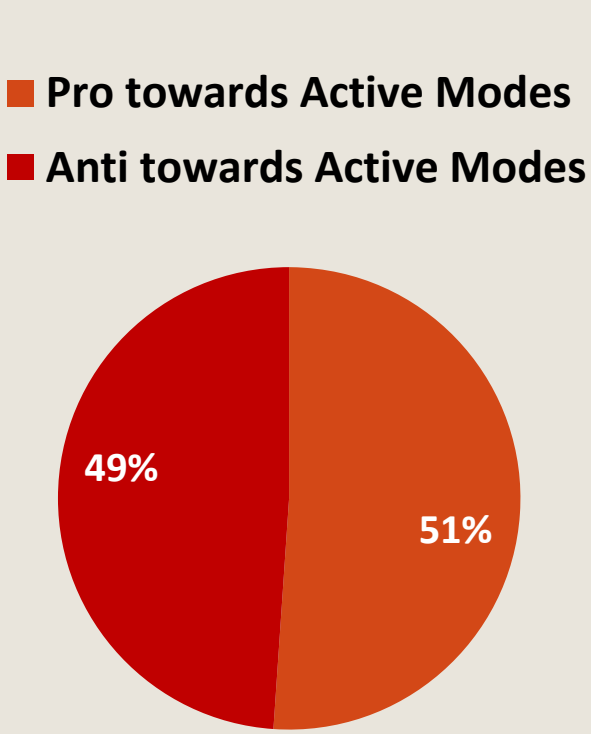


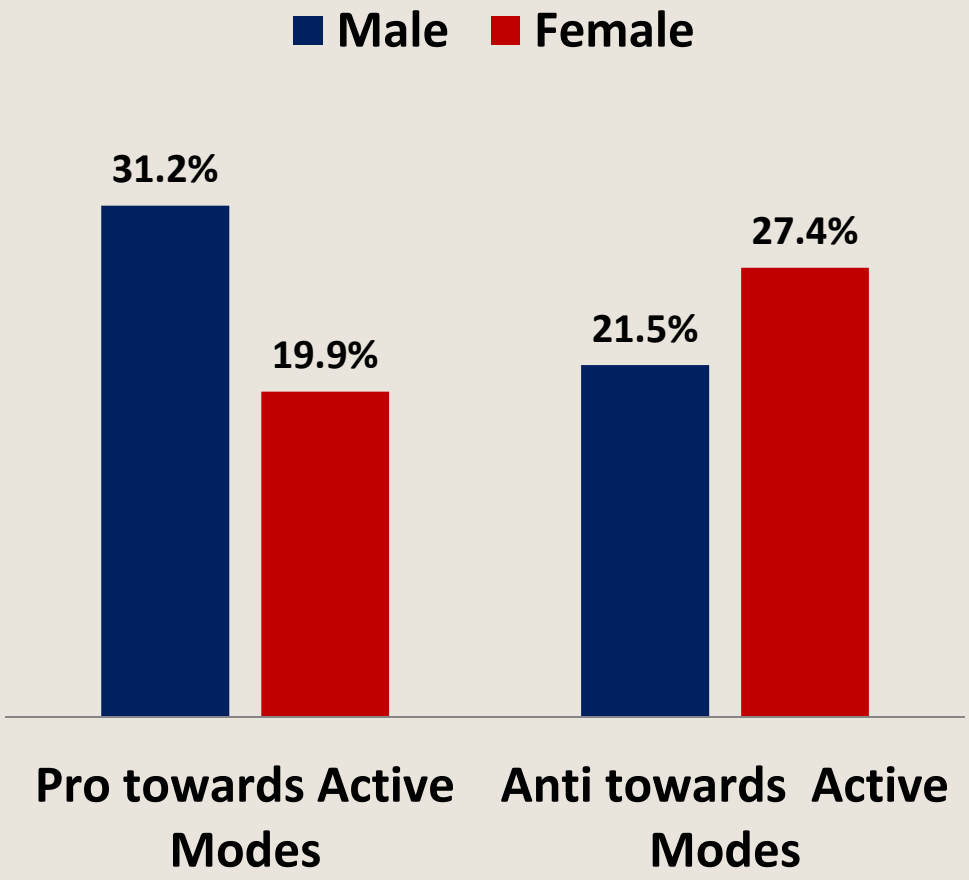
Attitudinal Function & Commuting Mode Choice

Independent Variable	Direction of relation	Dependent Variable	Estimate	S.E.	Estimate	C.R.	P
Attitudinal Function	==>	**Commuting Mode Choice**	0.426	0.029	0.451	14.541	0.01**

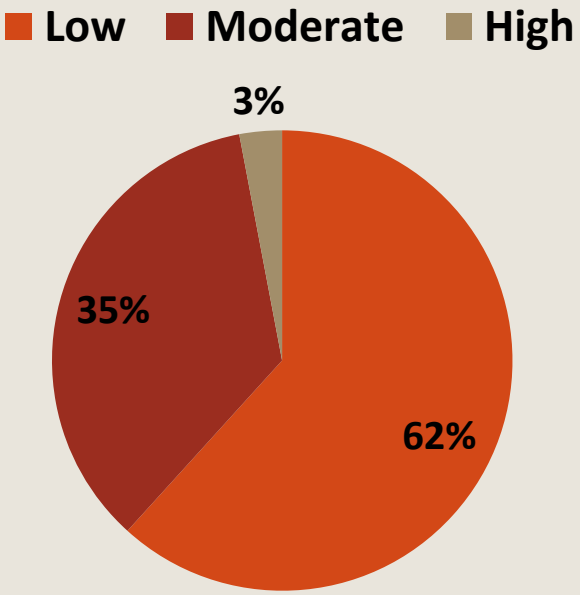
*** Significant at 0.01 level*

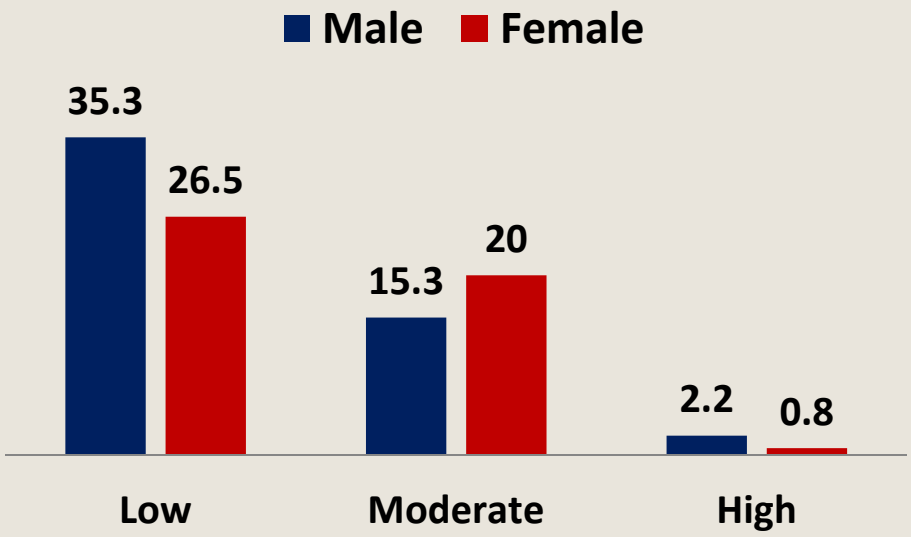
Attitudinal Function and Gender difference



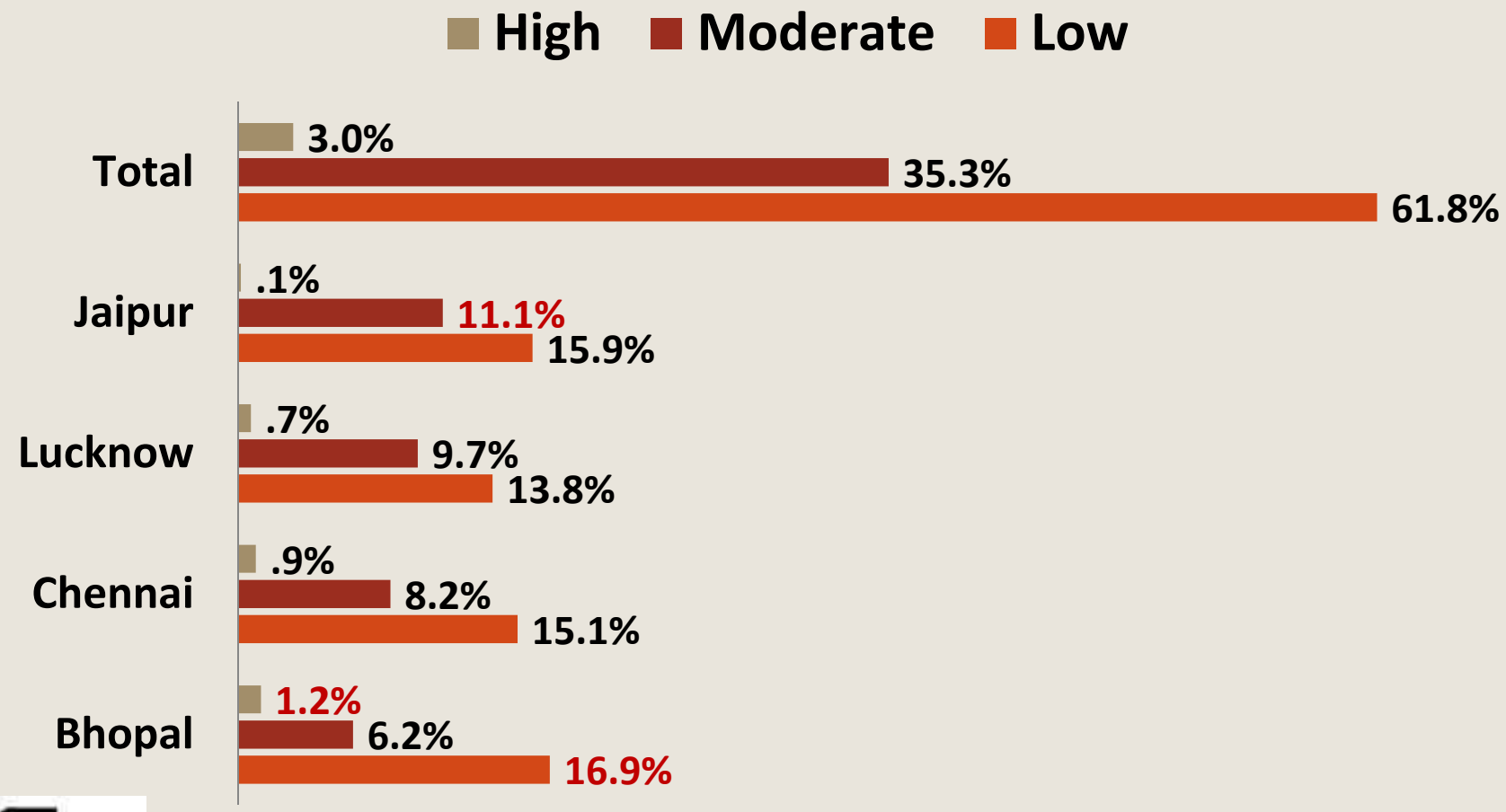


Control Attitudinal Function and Gender-difference

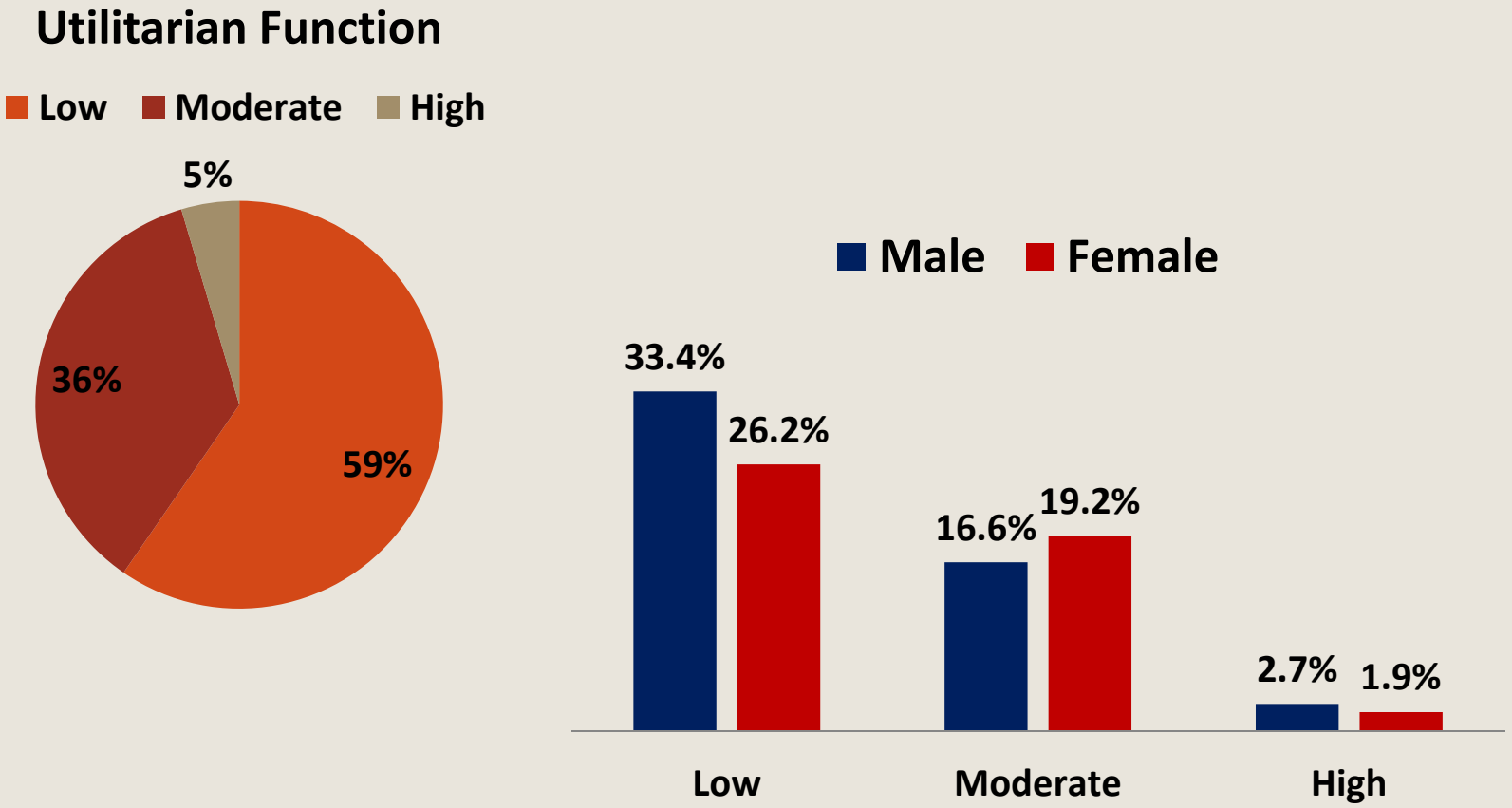




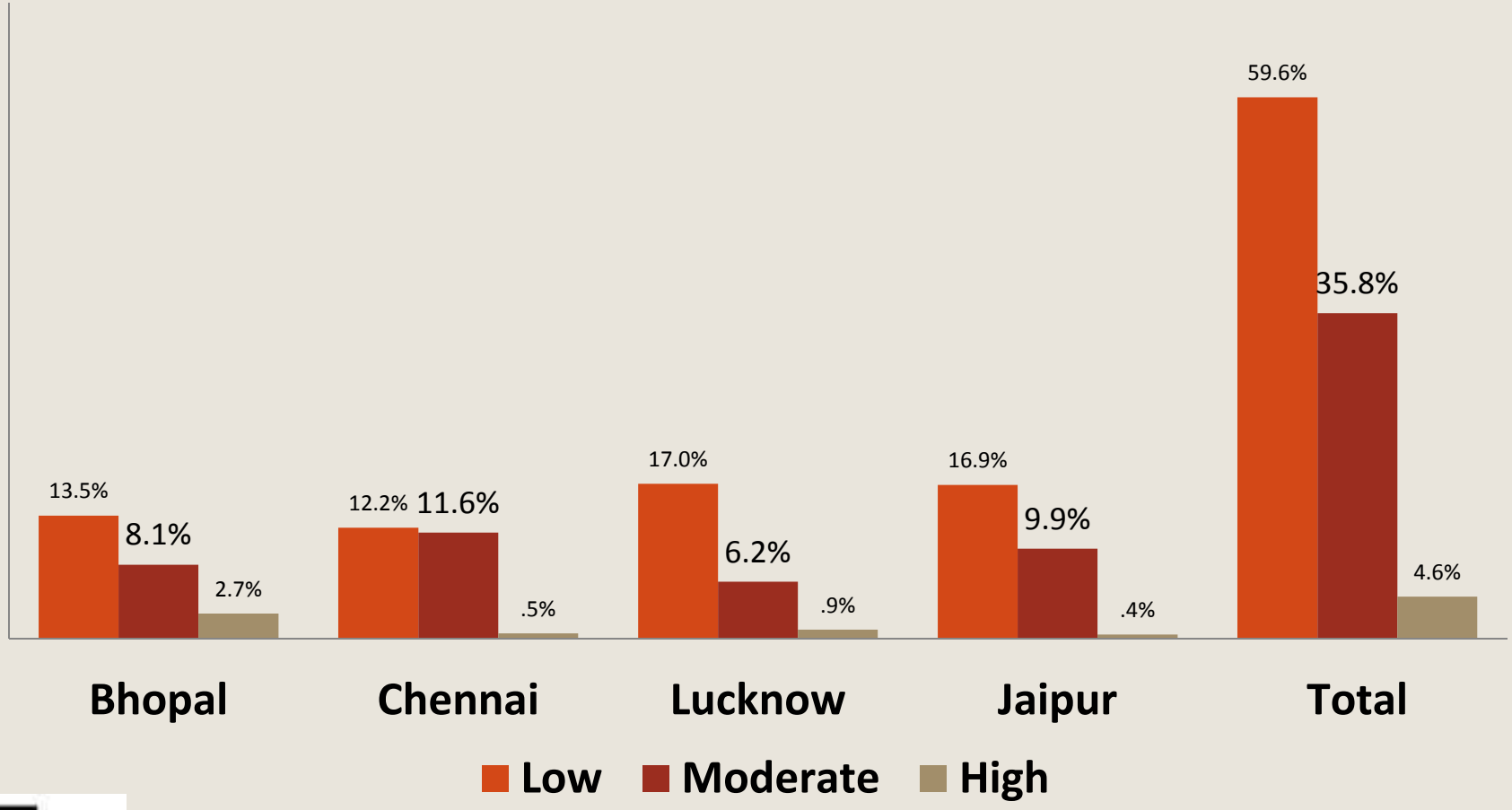
Control Attitudinal Function



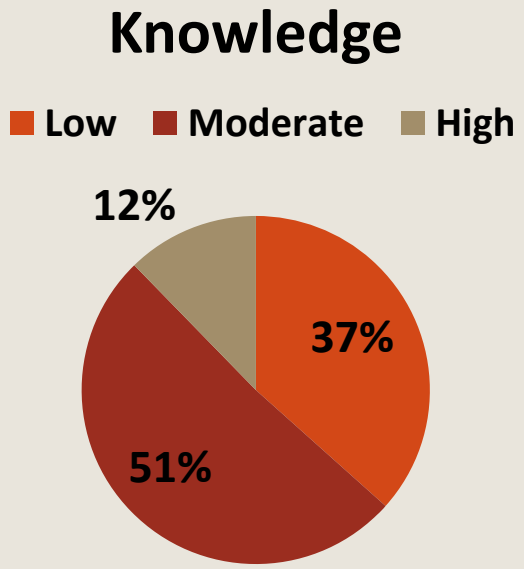
Utilitarian Attitudinal Function and Gender-difference

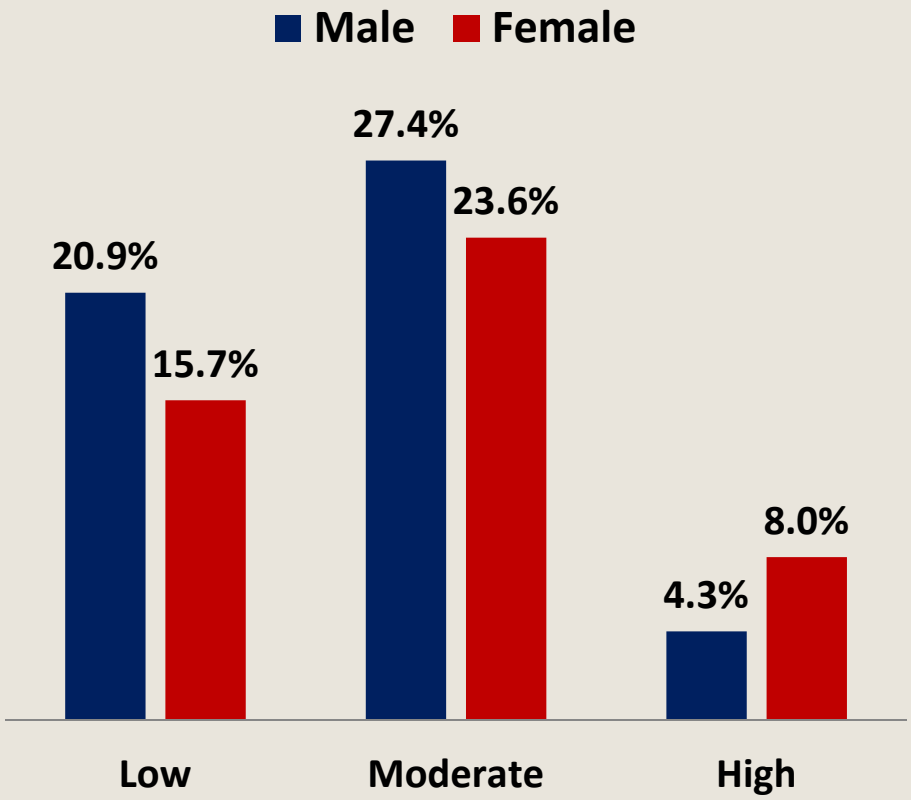


Utilitarian Attitudinal Function

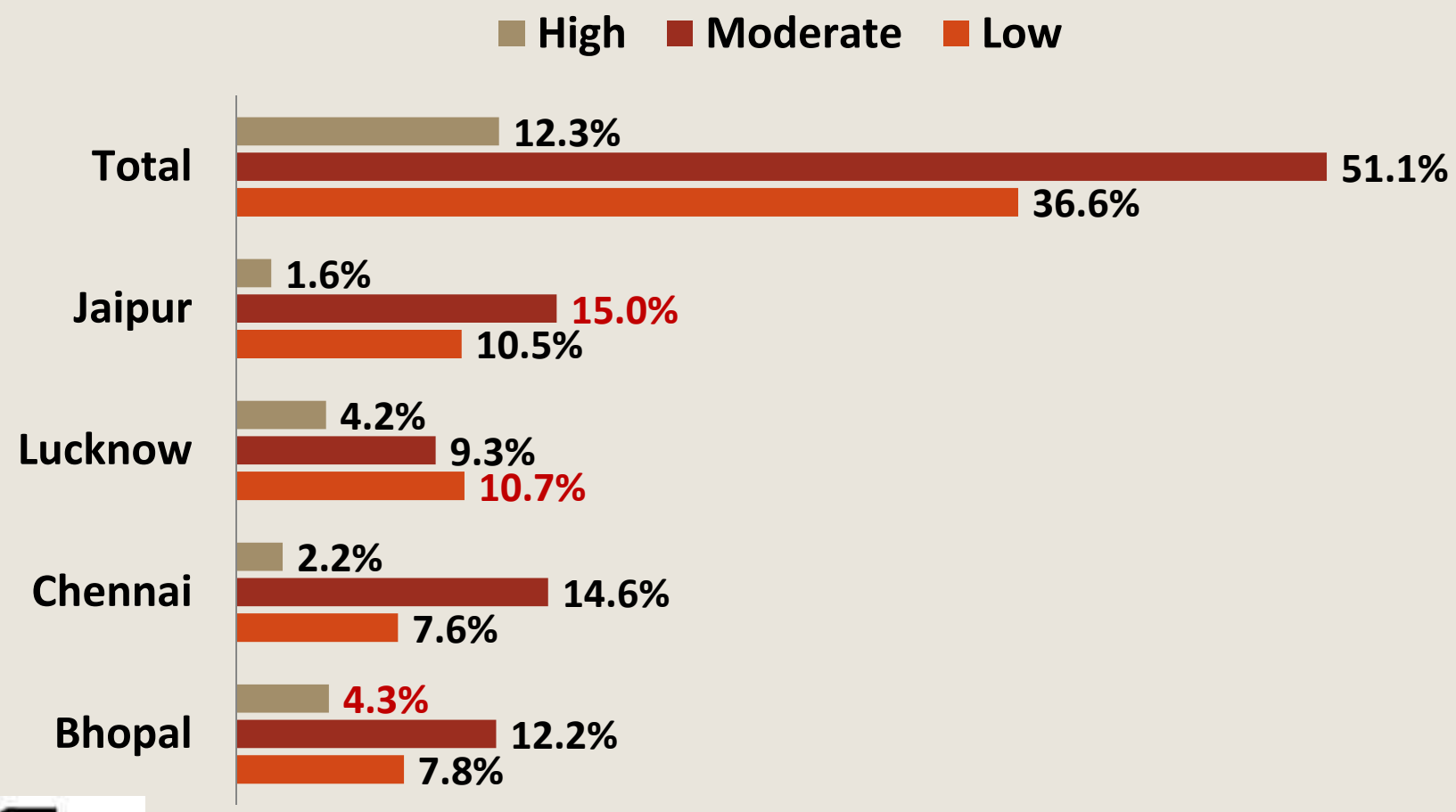


Knowledge Attitudinal Function and Gender-difference

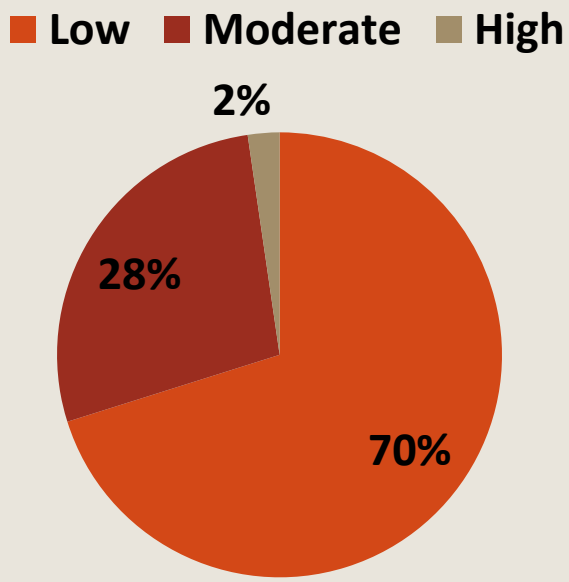


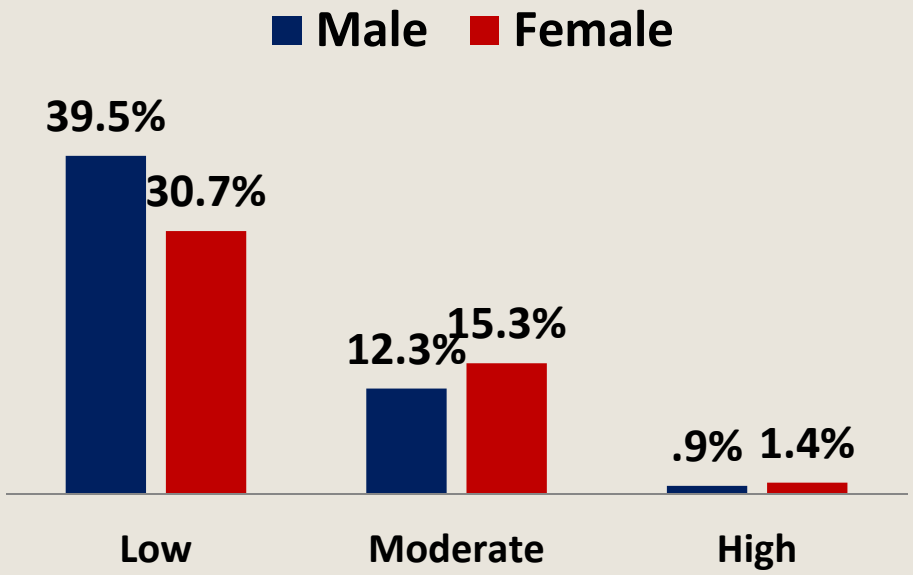


Knowledge Attitudinal Function

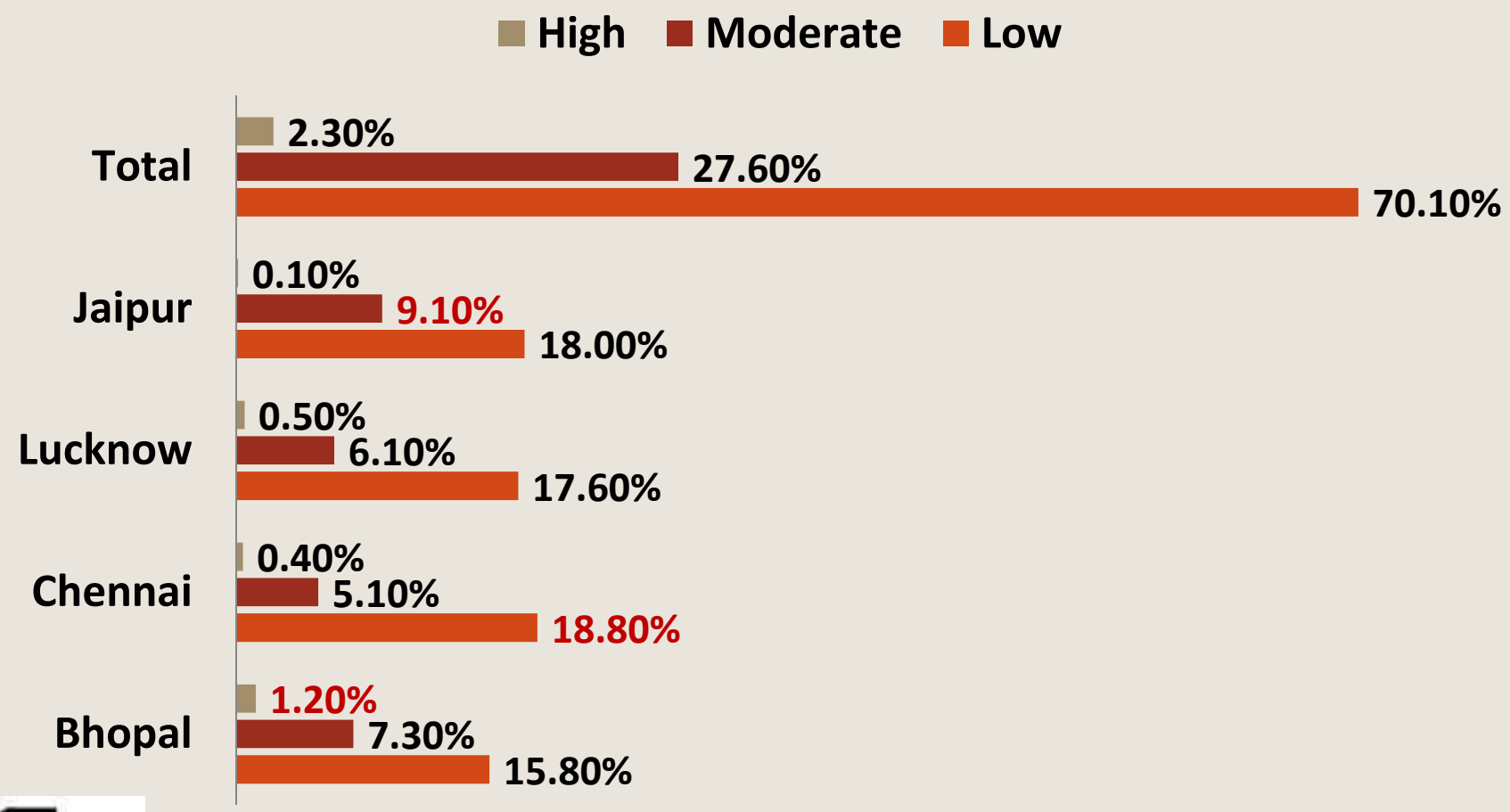


Affective Attitudinal Function and Gender-difference

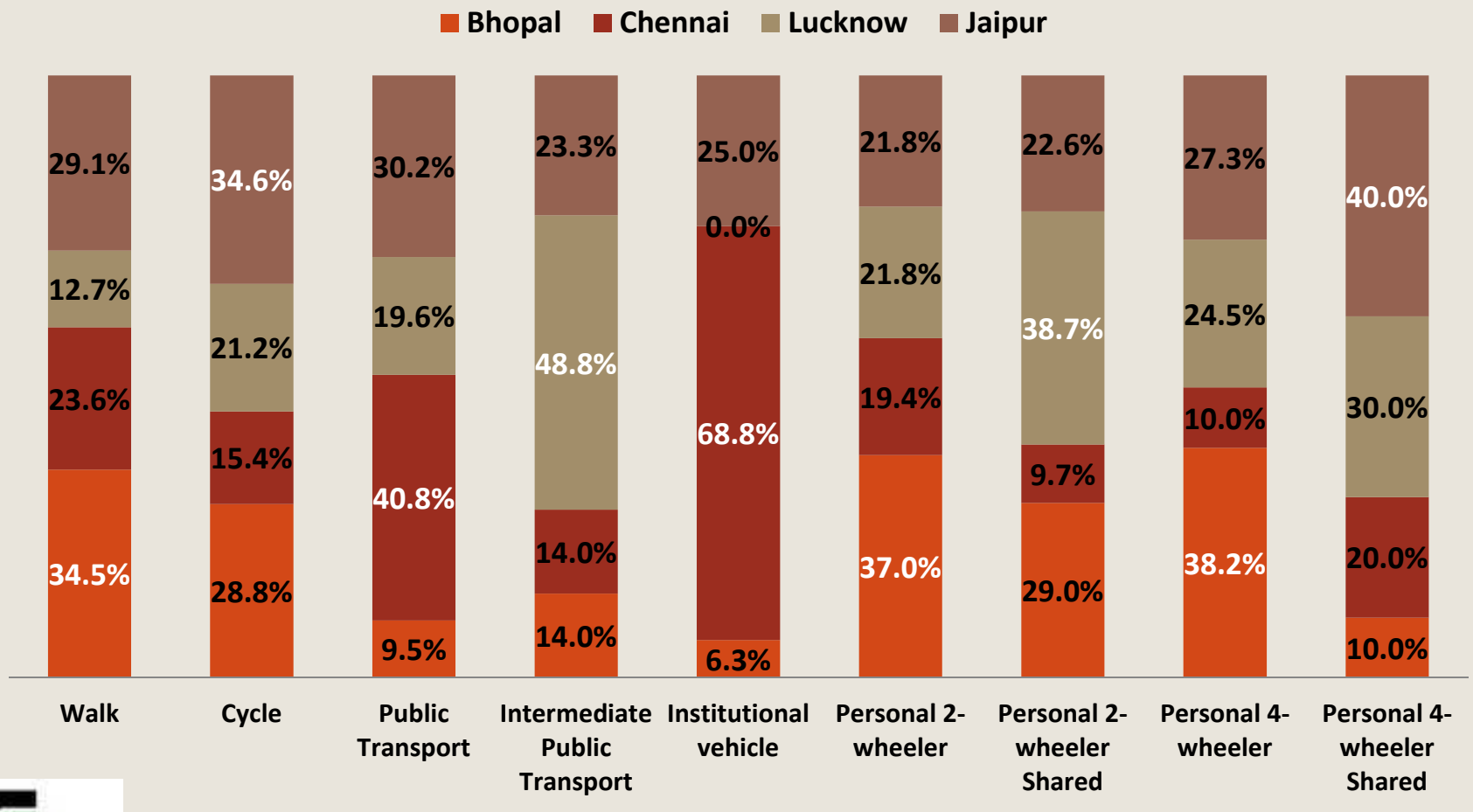




Affective Attitudinal Function



Commuting Mode Choice: City wise Distribution



Attitudinal Function and Commuting Mode Choice

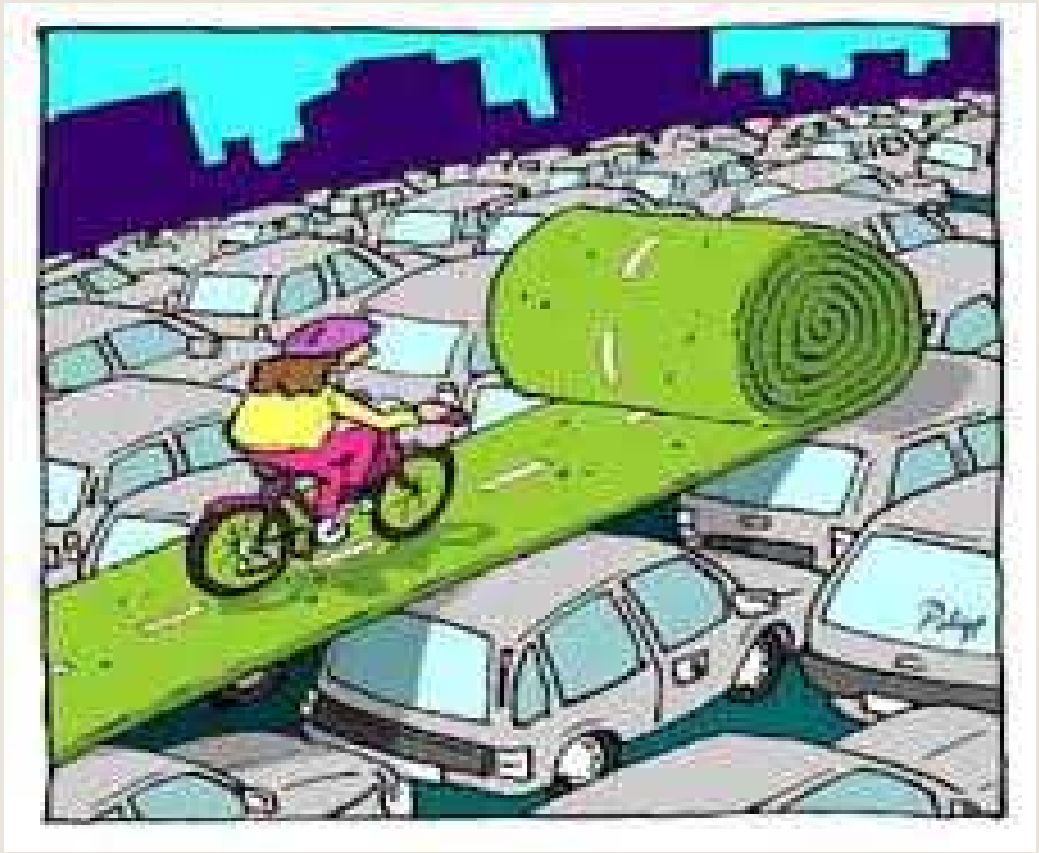
Theory of Reasoned Action

Theory of Planned Behavior

Cognitive Dissonance

Implications

- Features contributing to positive attitudinal function for Non Active Modes should be promoted in Active Commuting modes.
- Gender Sensitive Policy/ Programs and Plans



Thank You !