Travel Behaviour of Workers in Dhaka and their Attitudes Towards Road Pricing

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Background

- Dhaka, Bangladesh faces chronic traffic congestion
- Funding for major infrastructure proves challenging
- This research is investigating feasibility of adopting:
  - Road Pricing
  - with significant Bus Rapid Transit (BRT) project

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Why Road Pricing?

- Reported to moderate private vehicle travel demand via price signal to motorists
- Revenue raised can be hypothecated towards:
  - public transport infrastructure / service improvements
  - lower public transport fares to make it a more affordable option
  - to attract motorists to this mode

Why Bus Rapid Transit?

- Bangla Govt planning to develop three BRT corridors providing coverage across Dhaka
- Has proven successful in other large cities in developing countries (e.g. Curitiba) in:
  - Shifting mode share from other less effective modes
  - Improving travel times esp. commuters'
  - Promoting urban regeneration & economic development

Study Objective

- To investigate feasibility of Road Pricing in Dhaka as a means of:
  - Changing commuters' travel behaviour
  - Supporting development of Bus Rapid Transit

Study Method

- User focused surveys conducted in Dhaka to understand commuters':
  - Aggregate demographics
  - Existing commute travel behaviour
    - Revealed Preference (RP) for actual market choice data
  - Attitudes toward Road Pricing
    - Stated Choice (SC) for hypothetical choice data

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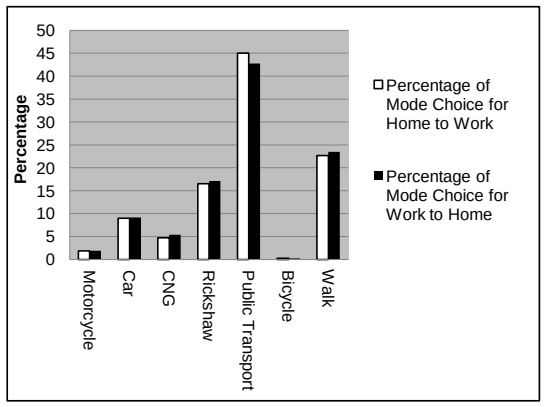
Sampling

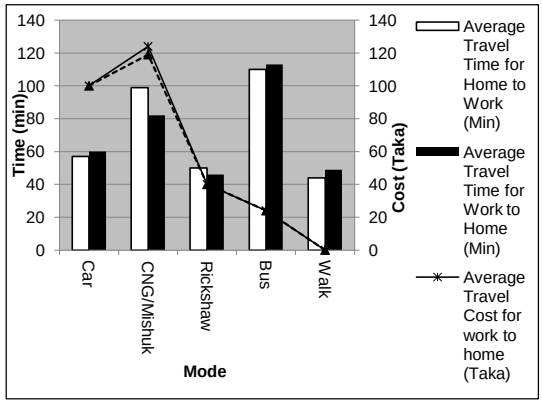
- 38% female consistent with World Bank data
- Income ranges consistent with Strategic Transport Plan (STP) for Dhaka 2004
- Organisations selected at random from BBD
- Participants dispersed across Dhaka
- 426 surveyed for RP
- Of those, 380 surveyed for SP

RP Survey Analysis: Commuters' Mode Choice



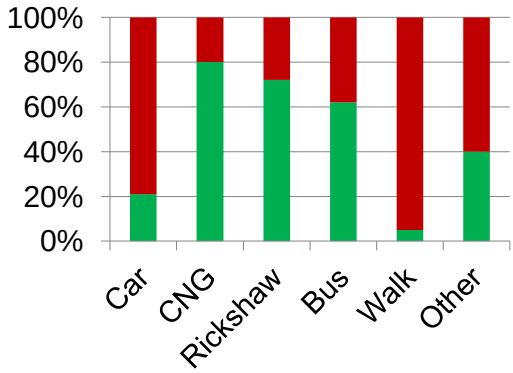
- Combined personal motorised mode share c. 15%
- Dominant modes Bus (incl. access modes), Walk, then Rickshaw
- Subtle differences between JTW and JTH
  - Congestion influences

RP Survey Analysis: Travel Time and Cost



- Travel times:
  - Bus slowest due to congestion, chaotic system, access
  - Motorised modes quite slow
  - Walking and rickshaws for shorter trips and/or can "get through congestion"
- Out of pocket cost:
  - Personal motorised modes expensive
  - Bus more affordable than rickshaw, tends to be for longer trips
  - Walking free

RP Survey: Initial Attitudes Towards Road Pricing



- **Car**: mostly do not wish to be priced
- **CNG and Rickshaw**: favourable perceiving improved transport system
- **Bus**: favourable perceiving improved, less expensive bus service
- **Walk**: low income earners predominate
- **Other**: small representation in sample
- **Overall**: evenly split over Road Pricing

RP Survey Analysis: Commuters' Concerns

- excessive travel time caused by congestion
- bus overcrowding
- poor road condition
- absence of fare control
- high fare of personalised public transport
  - esp CNG

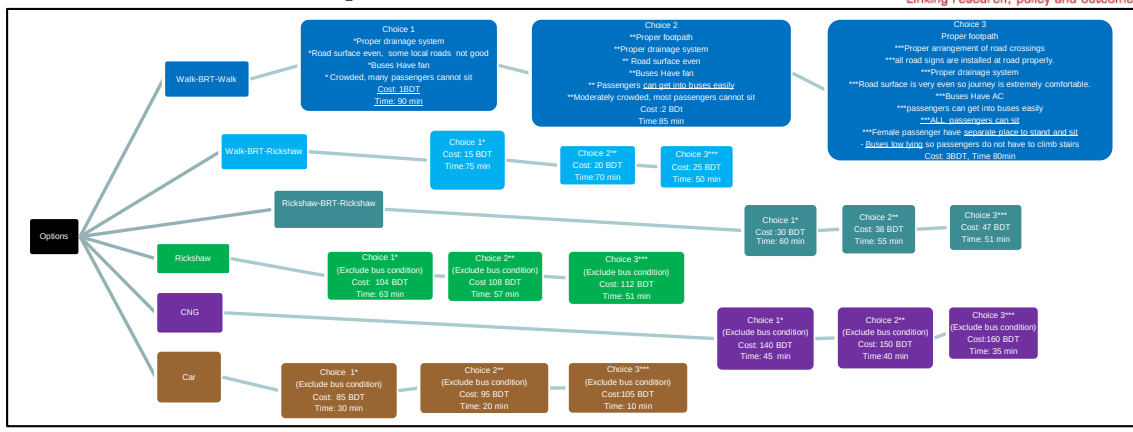
SC Survey

- followed up RP survey
- on same commuter sample
  - 380 of the 426 participants continued
- to infer their acceptance towards Road Pricing
- through response to hypothetical situation

SC Survey: Hypothetical Situation Given to Respondents

- Live 5km from workplace
- 100 Taka (AU$1.20) one-way JTW spend
- Six hypothetical modal options
  - Each has a quality, cost, time vector
- BRT coverage via three centralised corridors
- Road Pricing throughout Dhaka

SC Survey: Hypothetical Options Given to Respondents



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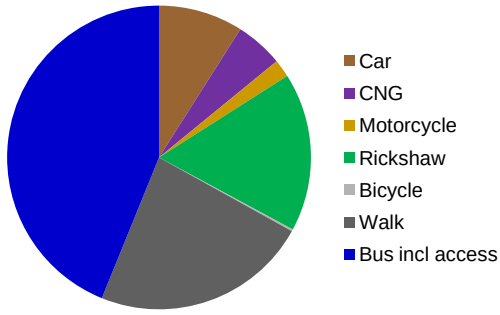
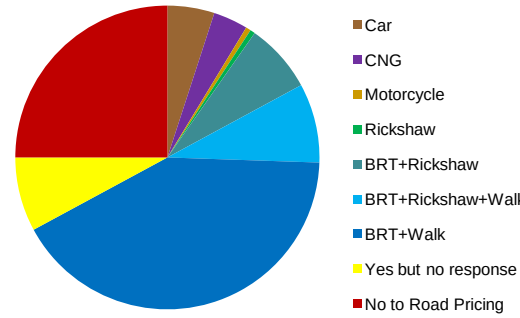
Implied Before (RP) to After (SC) Mode Shift

RP Existing



SC: BRT & Road Pricing



Implied Before (RP) to After (SC) Mode Shift

- Notable contraction of mode shares for car, CNG, motorcycle
- Significant contraction of mode shares for rickshaw, bicycle, walk
- Notable increase in bus mode share under BRT including access mode options
  - from 45% bus+ to 57% BRT+

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Implied Before (RP) to After (SC) Mode Shift

- **However** "No to Road Pricing" and "Yes but no response" are together significant
  - Difficult to imply what, if any, mode shifts could occur for this 1/3 of existing commuter market sampled
- **Therefore** most we can glean that BRT is about 25% more attractive than existing bus

Implications for Road Pricing Viability

- RP->SC shows notable increase in bus mode share under BRT and Road Pricing scenario
  - Funding needed to pay for BRT infrastructure, extra services, compensate for reduced fares
- However SC survey indicates up to 75% of commuters would not be Road Priced
  - 42% "Walk-BRT-Walk"
  - 25% "No to Road Pricing"
  - 8% "Yes but no response"

Implications for Road Pricing Viability

- Would revenue earned from remaining 25% of commuters be sufficient to subsidise BRT system?

Concluding Remarks

- Conundrum from RP->SC analysis shows survey results cannot be taken at face value
- Ideally conduct fresh SC survey including revised (quality, time, cost) vector for each modal option
  - economic and transport modelling required to fine tune
- However need to be careful not to over-survey sample group

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With Thanks

- Participating businesses of the city of Dhaka for facilitating contact with their staff for surveys