Session 2: Assessing and valuing accessibility impacts

Dimensions of Accessibility Benefits

Prof. Andrés Monzón, Dr. Elena Lopez

TRANSyT-Transport Research Center
Universidad Politecnica de Madrid

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Initial Questions and Thoughts

Revisiting Accessibility

Accessibility and Well Being

Capturing Accessibility Benefits

Conclusions
✓ What do “user benefit” measures include, and how do they relate to the mobility, connectivity and accessibility concepts?

✓ What factors are unaccounted for in our current definition of accessibility? How significant are these for well-being?

✓ What means might be used for account for these other factors in assessments?

✓ Should the value of accessibility benefits be quantified as part of transport project appraisal? If so, how?
Initial Thoughts

1st - **Saving travel time & costs** DO NOT consider:
   → interrelated effects associated to well-being:
   - energy
   - health vs. pollution
   - social exclusion….
Initial Thoughts

2007: CBA - M30
Madrid Ring Road

- Travel Time Savings: 72%
- Operation Costs: 5%
- Emissions Reduction: 14%
- Noise reduction: 4%
- Accidents reduction: 3%
- Severance: 2%
Initial Thoughts

1st - Saving travel time & costs
DO NOT consider:
→ interrelated effects associated to well-being:
  ▪ energy
  ▪ health vs. pollution
  ▪ social exclusion….

2nd - Accessibility for All
→ access to basic services vs. equity

3rd – Accessibility and well-being
→ looking at individuals’ well being
  social networks, active modes,…

Accessibility analysis to be integrated in a more holistic, cross-sectoral approach
4 dimensions of access:

1. Economic/Financial
   i. cost-related barriers
   ii. low income, teenagers, unemployed, developing countries…
   iii. Trade-off between travel time and fares
       → *possibly higher impact than other policies*
       → *NO accessibility indicators to include fares,…*
Protestas, saqueos y estados de excepción se extienden a regiones: Ola de violencia no cede ante el toque queda ni la suspensión de alza de tarifas

La salida de militares a las calles no impidió que Santiago viviera las 36 horas más violentas desde el retorno a la democracia, con múltiples daños a la propiedad pública y privada.

Los protagonistas de las protestas son principalmente estudiantes de secundaria y universitarios, aunque otras personas se han sumado al llamado a evadir el pago del pasaje, que vale 830 pesos (unos 1,2 dólares) en hora punta.
1. Economic/Financial

Cascajo et al. (2018)

Impacts of Spanish Economic Crisis 2007-2013

Transport sector affected richer adapted poorer cannot

HH budget distribution in Spain

Transport expenditure by HH income level
4 dimensions of access:

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2. Physical
   i. Physical barriers: disable, elderly
   ii. Hedonic transfer and waiting (vehicles and interchanges)
   iii. Also impacts on total travel time
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3. Organisational
   i. Frequency, reliability, punctuality
   ii. Waiting and interchange locations
   iii. Other activities while seated (reading, music, smartphone)
Revisiting Accessibility

Garcia-Martinez et al. (2018)

Analysis of Transfer Impacts in Madrid City

Equivalent in vehicle minutes

1 transfer

- Pure transfer penalty: 1
- Intermodal trip
- Time on board 1st vehicle
- Time on board last vehicle
- Access walking time
- Waiting time
- Crowding

2 transfers

- Pure transfer penalty: 2
- Intermodal trip
- Time on board 1st vehicle
- Time on board 2nd vehicle
- Time on board last vehicle
- Access walking time
- Waiting time T1
- Waiting time T2
- Crowding
- Interruption of reading

Garcia-Martinez et al. (2018)
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4. Temporal
   i. Trip duration, frequency
   ii. Real-time information: other activities when access/wait
   iii. Integration with land-uses
Accessibility and well-being

New transport project/service → territorial accessibility ↔ land use & transport system

- economic
- physical
- organisational
- temporal

Individual accessibility → travel behaviour

Utility dimensions:
- access to destinations
- activities while traveling
- intrinsic to travel
- motility

Personal characteristics:
- subjective well-being
- socially connected
- health status
- employment status

Cross-sectoral IMPACTS:
- Economy
- Society
- Environment

Well-being
Travel Utilities Categories

- Access to destinations
- Activities while travelling
- Intrinsic to travel
- Motility

Well-being Dimensions

- Employment status
  accessibility to job opportunities
- Health status
  Active travel, reduction of externalities
- Socially connected: take part on socially relevant networks
- Subjective WB of travelling
  Travel as instrumental factor

- wider social, economic and environmental impacts
Accessibility and well-being

new transport project/service

territorial accessibility ↔ land use & transport system
- economic
- physical
- organisational
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individual accessibility

travel behaviour

Utility dimensions
- access to destinations
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Personal characteristics

Utility dimensions

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well-being

Cross-sectoral IMPACTS:
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Capturing Accessibility Benefits

3 issues to enhance project appraisal methodologies

1. Subjective Accessibility
   Satisfactory life when transport system facilitate reaching activities of choice

2. Active Accessibility
   Ability to reach key destinations by active trips
   → car restrictions, pedestrian, bike paths, land-use mix

3. Provider of connectedness
   Accessibility as a right (ALL) → nothing prevent to take part on economic, social (social exclusion, low-income)

but there is a need to deploy empirical evidence and to develop *ad hoc* accessibility indicators
Conclusions

There is no comprehensive and consistent classification of accessibility benefits

No agreed procedure to integrate them in the appraisal methodologies

Challenge: empirical test of linking accessibility and well-being

A conceptual model to link the multidimensional SWB construct to transport projects

To develop indicators related to travel satisfaction, other SWB effects → appraisal methodologies

Challenge that requires holistic and multidisciplinary research → to ultimate enhance people’s well-being