Measuring Accessibility....and initial steps towards using accessibility indicators to drive policy and investment decisions

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When travel times are just not enough

• Walking and urban design
  o Walkability – accessibility of destinations
  o Achieving transit-oriented development
• Is the investment plan appropriately addressing the city’s transport needs?
• Competitiveness of public transport
  o Relative performance of different modes
• The land-use integration agenda
• Distributional concerns
  o What is the impact on the poor?
Accessibility of urban design decisions

Jobs Accessed on Foot in 20 minutes from a major CBD metro station

Source: World Bank Analysis
This Minute 这分钟：
12,000
Cumulative 累计：
127,300

COMMERCIAL SPACE
商业空间 （平方米）
(square meters)

This Minute 这分钟：
29,600
Cumulative 累计：
409,000
Coventry Street
伦敦考文垂街

JOBS 工作
This Minute 这分钟：
13,100
Cumulative 累计：
146,200

COMMERCIAL SPACE
商业空间 （平方米）
(square meters)
This Minute 这分钟：
364,300
Cumulative 累计：
4,075,000
Travel times across modes...

Accessibility across modes

Car
1998 travel time contours to Wuhan city centres in Hankou, Wuchang and Hanyang

Bus & walk
Travel times across modes and time...

Accessibility between modes and across time

Car
2020 travel time contours to Wuhan city centres in Hankou, Wuchang and Hanyang

Bus & walk
What is the impact of the investment?

Accessibility impact of interventions...

Without Line 5

With Line 5
How well is the city doing - meeting everybody’s transport needs?

Number of jobs accessed in 60 minutes

1998
Are we doing better over time?

Number of jobs accessed in 60 minutes

2020
Public transport competiveness...are we designing a city that is public transport friendly?

Jobs accessed in 60 minutes: ratio of public transport to cars

Date: to modify choose 'Insert' then 'Heater and footer'

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How many need better transport?

Access to Jobs overlaid with Population

1998
Invest in transport? Or in housing?

Access to Jobs overlaid with Population

Population 2020

Date: to modifty choose 'Insert' then 'Heater and footer'

2020
Land use-transport integration agenda

- Integrated modeling- is it an important tool?
- Modeling location choice, including the land and transport components of the location price

Diagram:

- Total Cost
- Location Cost (rent, etc.)
- Transport Costs (travel time, fares, transfer penalty, etc.)
- Distance to destination
São Paulo Metropolitan Region by population and income quintiles

Existing Metro and suburban rail (CPTM) network + Line 4
Transport and balance of jobs/residences
Average property values before Metro Line 4 Project
Example of accessibility impact of Line 4

Projected % Increase of Jobs Accessible within 45 minutes after the Implementation of São Paulo Metro Line 4 (yellow line)
A tool to estimate accessibility and “location premium” effects

• Equilibrium model under development in São Paulo to relate transport interventions and land value impacts

• Ultimate goal is to optimize multi-sector plans and policies through combined scenarios including:
  o Transport network investments
  o Transport fare structure
  o Housing investment, including social-interest
  o Zoning for housing and commercial
  o Location-specific financial incentives
    ▪ Low-income housing
    ▪ businesses to generate jobs
Accessibility measures can be important complements to basic economic analysis

Can support planning dialog and policy dialog

- Visually compelling depictions of transport impacts
- Illustrate abstract concepts – transit-oriented development
- Illustrate value of difficult actions – integrated land-use – transport
- Create metrics to measure alternatives

Not a substitute for planning and analytic process