Public Transport Affordability and Subsidy Policies: A case study of Santiago, Chile

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Overview

• Public transport in Santiago

• Affordability measures and their impact

• General comments regarding transport affordability measures
1. Public transport system in Santiago

<table>
<thead>
<tr>
<th>Mode used</th>
<th>Trips (thousands)</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automobile</td>
<td>3,860.0</td>
<td>38.6%</td>
</tr>
<tr>
<td>Metro</td>
<td>674.6</td>
<td>6.7%</td>
</tr>
<tr>
<td>Bus</td>
<td>4,220.9</td>
<td>42.2%</td>
</tr>
<tr>
<td>Other</td>
<td>1,246.2</td>
<td>12.5%</td>
</tr>
<tr>
<td>Total</td>
<td>10,001.7</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

Source: EOD, 2001; motorized trips in a normal working day
Transantiago

• Big Bang: February 10, 2007

• Important changes in public transport system that will affect:
  – Modal split
  – Expenditure on public transport
Expenditure on Public Transport

- Percentage of minimum income required to purchase 50 bus tickets per month:
  - 1988: 28% (ECLAC, 1992)
  - 2007: 14%

- Family expenditure survey (1996-97):
  - Public transport: 3.55% on average, 6.4% first quintile

- Carruthers, Dick and Saurkar (2005):
  - 7.2% of income on average
  - 44.8% first quintile
2. Affordability measures

1) Student preferential fare

2) Metro infrastructure expansion

3) Fuel prices:
   • Specific fuel taxes
   • Fuel Price Stabilization Fund (FEPP)

4) Direct compensatory monetary transfers
Student preferential fares

• Benefits students from 5º grade upwards in non private schools and also many university students

• Pay approximately 1/3 of fare in buses and metro

• Funded through cross-subsidy
Metro expansion

• More than US$2,000 million to expand network between 2000 and 2009

• Metro covers operating costs and some capital costs:
  – Tariff should increase by 200% to cover full economic cost
Fuel prices

• Specific tax on gasoline and diesel:
  – More than double for gasoline compared to diesel

• Fuel price stabilization fund (FEPP)
  – Price band
  – In practice it has operated like a subsidy
Direct monetary transfers

- Implemented in 2004, 2005 and 2006
- Direct payment to households and individuals to compensate for increasing fuel and transport costs
  - Better for households than a transfer in kind
- Funded entirely from national budget
- Since 2005 it has benefited 40% of households:
  - Minimum and subsidized government backed pensioners
  - “Chile Solidario” program recipients
  - Family subsidy recipients
  - Workers who receive family allowance payments and earn less than $180,000 a month
Evaluation of 5 measures

- Student preferential fare in bus and metro
- Metro infrastructure subsidy
- Reduction in the price of gasoline (FEPP or tax)
- Reduction in bus fares
- Direct compensatory transfers
Distributive incidence of general tax system

• Engel, Galetovic and Raddatz (1999)
  – Neutral distributive impact

• Consequence: we only have to analyze the funding side of the student preferential fare policy that is funded through a cross subsidy
Student preferential fare: results

Preferential Student Pass in Buses
Relative Distribution Curve

Gini coefficient:
Benefits: -0.16
Funding: -0.11
Student preferential fare: results

Metro

Gini Coefficient:
Benefits: 0.13
Funding: 0.28
Metro infrastructure: results

Metro Infrastructure Subsidy
Relative Distribution Curve

Gini coefficients:
benefits: 0.27
Funding: 0.0
Gasoline subsidy: results

Auto Kilometers Travelled
Relative Distribution Curve

Gini coefficients:
benefits: 0.36
Funding: 0.0

Household rank in income per capita distribution

45º degree line  Cumulative proportion of total auto kms
Bus fare subsidy: results

• Same distributive impact as the funding of the student preferential fare for buses:

• Gini: - 0.11
Direct transfers: results

Gini coefficients:
- benefits: -0.34
- Funding: 0.0
Santiago case study: conclusions

• Except for the transfers, other subsidies are either neutral or regressive
  – Use of general welfare system much better than sectoral subsidy

• Some minor adjustments would improve the distributive impact of existing affordability policies:
  – Fund student preferential pass from national budget instead of cross subsidy
3. General comments and conclusions

• Transport affordability is an important issue: but current policies are not pro-poor.
• Sectoral subsidies are hard to target well:
  – Public utilities:
    • Wodon, et. al (2005): water and electricity
    • Gómez-Lobo and Contreras (2003): water
  – Transport:
    • Santiago, all other case studies
    • Vale Transporte Brazil, Buenos Aires (Foster, 2005)
Can they be improved?

• Perhaps, but:
  – Access problem: many of the poor walk
  – Expenditure on transport does not fall fast enough with income
## Walking and the poor

<table>
<thead>
<tr>
<th>Source</th>
<th>Poor</th>
<th>Non-Poor</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mumbai, India(^a)</td>
<td>63%</td>
<td>45%</td>
<td>Cropper (2007)</td>
</tr>
<tr>
<td>Nairobi, Kenya(^b)</td>
<td>57%</td>
<td>24%</td>
<td>Howe and Bryceson (2000)</td>
</tr>
<tr>
<td>Conakry, Guinea</td>
<td>78%</td>
<td>61%</td>
<td>SITRASS (2004a)</td>
</tr>
<tr>
<td>Douala, Cameroon</td>
<td>77%</td>
<td>52%</td>
<td>SITRASS (2004b)</td>
</tr>
</tbody>
</table>
## Expenditure on public transport

<table>
<thead>
<tr>
<th>Income per month</th>
<th>Public transport share in total expenditure</th>
<th>Quintile</th>
<th>Dakar</th>
<th>Transport expenditure over total expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;4000</td>
<td>1.8%</td>
<td>1</td>
<td>5.3%</td>
<td></td>
</tr>
<tr>
<td>4000-8000</td>
<td>2.2%</td>
<td>2</td>
<td>4.5%</td>
<td></td>
</tr>
<tr>
<td>8000-12000</td>
<td>2.6%</td>
<td>3</td>
<td>4.5%</td>
<td></td>
</tr>
<tr>
<td>12000-16000</td>
<td>3.0%</td>
<td>4</td>
<td>5.7%</td>
<td></td>
</tr>
<tr>
<td>16000-20000</td>
<td>3.2%</td>
<td>5</td>
<td>10.7%</td>
<td></td>
</tr>
<tr>
<td>&gt; 20000</td>
<td>2.6%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Sources: NEA and ECORYS (2004) and Godard and Diaz Olivera (2000).*
What to do?

Affordability: \[ \frac{\text{Public Transport Expenditure}}{\text{Income}} \]

- Need to work more on the denominator rather than the numerator of this expression:
  - More consideration should be given to other welfare programs outside the transport sector
  - More cooperation between transport specialist and welfare specialist is called for
  - Data based policy decisions are required