Data problem when working with cycle CBA-What did we do under this situation?

Molugeta Yilma, Swedish Transport administration
Major benefits considered in Cycle CBA (GC-kalk)

- Value of Travel Time
- Trafik Accidente (safety)
- Health benefits
- Sickness absence
- External cost of road transport
  - Noise
  - Emmissions to air
  - Road wear
  - Accidents between cars
  - CO2 - volume
The basis for calculating benefits for the 1- Current (existing) and 2 – new/induced cycle Journeys (Future)

Existing and new cycle journeys
1. Number of cycle journeys (cycle ÅDT= average daily flow)
2. Distance traveled (distance traveled)
3. Number of days per period

Number of cycle journeys times the length of journey = total distance cycled (cycle TA)

Is cycle ADT available?
Number of journeys? (jobb- hem – jobb)
Number of cycle journeys (cycle ADT) usually lacking. What did we do when the cycle ADT missing?

- Current (Existing) cycle journeys

  - Cycle count for longer period, first best alt
  - Alternatively (second-best) make cycle counting for one month
  - Then calculate according the percentage share to get average daily journeys (ADT cycle).

  - The percentage share
  - Schabloner
## Percentage Monthly Share

<table>
<thead>
<tr>
<th>Month</th>
<th>Share</th>
<th>Weekdays</th>
<th>Weekends</th>
</tr>
</thead>
<tbody>
<tr>
<td>jan</td>
<td>3,30%</td>
<td>3,40%</td>
<td>2,50%</td>
</tr>
<tr>
<td>feb</td>
<td>3,30%</td>
<td>3,40%</td>
<td>2,60%</td>
</tr>
<tr>
<td>mar</td>
<td>5,30%</td>
<td>5,50%</td>
<td>4,80%</td>
</tr>
<tr>
<td>apr</td>
<td>8,90%</td>
<td>8,80%</td>
<td>9,70%</td>
</tr>
<tr>
<td>maj</td>
<td>13,50%</td>
<td>13,30%</td>
<td>14,10%</td>
</tr>
<tr>
<td>jun</td>
<td>12,90%</td>
<td>13,30%</td>
<td>12,60%</td>
</tr>
<tr>
<td>jul</td>
<td>9,80%</td>
<td>9,10%</td>
<td>13,00%</td>
</tr>
<tr>
<td>aug</td>
<td>12,70%</td>
<td>12,30%</td>
<td>13,50%</td>
</tr>
<tr>
<td>sep</td>
<td>11,40%</td>
<td>11,60%</td>
<td>10,60%</td>
</tr>
<tr>
<td>okt</td>
<td>9,00%</td>
<td>9,00%</td>
<td>8,30%</td>
</tr>
<tr>
<td>nov</td>
<td>6,80%</td>
<td>7,00%</td>
<td>5,80%</td>
</tr>
<tr>
<td>dec</td>
<td>3,20%</td>
<td>3,50%</td>
<td>2,70%</td>
</tr>
</tbody>
</table>
Computing cykel ADT (average daily flow)

• Percentage share
  – June : 12.9 %
    – June : count = 1000 (average daily cycle journeys for the month of june)
    – ÅDT (average daily cycle journeys for the whole year = 1000/(12.9%/100)/12 = 646
Numbers/schablonst

- New Numbers/ schablonst for cycle journeys (ADT) - polygon schablonst - are based on population size and distance from the center.

<table>
<thead>
<tr>
<th>Population size</th>
<th>QC Distance center</th>
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</thead>
<tbody>
<tr>
<td>0-2 km</td>
<td>2-4 km</td>
</tr>
<tr>
<td>10000-30000</td>
<td>250</td>
</tr>
<tr>
<td>30000-60000</td>
<td>500</td>
</tr>
<tr>
<td>60000-90000</td>
<td>800</td>
</tr>
<tr>
<td>90000-120000</td>
<td>1000</td>
</tr>
</tbody>
</table>
New cycle journeys generated as a result of intervention- Forecasting (future journeys)

The types of intervention considered in our tool (GC-kalk):

- Mixed traffic
  *Separate the cyclists from motor vehicle*
- Cycle path not in connection with the road
- Cycle path next to the road
- Cycle lane on the road way

The question is how many- new cycle journeys - generated due to the intervention?
How many new cycle journeys generated due to infrastructure investments or other cycle promotion?? - Forecast / Prediction

• Historical data (the best way)

- Forecast / prediction of the total cycle journeys in Sweden
- The best is time-series-cross section (panel data), but difficult and the next best is cross-sectional data covering large geographical areas.
- Forecast on a specific cycle route with advanced Model - (but lacking eg, bicycle paths with properties, bicycle ADT, inventory of cycle ways, modeling of route choice, mode choice, etc.)
New cycle journeys - Forecast (what did we do?)

- Vti – 2013: (7.6%, 15%, 16.4% och 20%)
- Wardman Transportation Research -2007: (19%, 21%, 33%, 46%, 50% och 55%)
- Elvik 1998: (26%)
- Saelinesminde, 2002 och 2004: (20%)

Recommendation = 20%. When statistics or specific knowledge is missing.
- PASTA ??
Annual growth of cycle Traffic

Another area of interest in CBA of cycle is-Annual growth of Cycle Traffic (=Journeys*distance). This one is not crucial like number of journeys (ADT) and distance travelled. However there is uncertainty when applying annual growth in cycle CBA (we apply it in GC-kalk).

- Population growth - indicator of annual growth of cycle traffic?
Historical development of Cycle Journeys and population growth

NTS (Cycle journeys + population growth)

• Historically the number of cycle journeys has declined between 1995-2014
• It decline from 2.8 million (1995) to 1.9 million Journeys per day (2014)= declined by 34 %.
• This reduction occurred despite population (6-84 years) has increased by 6% from 1996 to 2012 last December.

The growth of cycle journeys can not be derived from population growth.
Number of thousand partial journeys per day where cycle has been used as a means of travel (NTS)-
Historical development of cycle journeys and Economic Growth (GDP)

• Since the 1970 GDP has increased slightly over 2% per year

• GDP growth and the number of cycle journeys have gone in opposite directions.

• Cycle journeys decreased while car journeys increased. - Inferior good / negative income elasticity

• To derive the number of journeys from GDP growth will be negative-falling demand for cycle journeys.
Cycle Traffic growth according to the 2011- 2014 NTS

• The average trip length by bicycle has increased by 31 per cent in the most recent surveys (2011-2014)
• Total distance traveled by cycle therefore increased = Number of Journeys * Distance traveled
• Reason for increment – We don’t know
Total distance traveled by cycle (1,000 kilometers) per day, in different cities and municipalities – according to population size (NTS)
Total length of journey on foot and by bicycle for different years - NTS (RVU)
## FIKVERKET

### NULÄGE (JA)

<table>
<thead>
<tr>
<th>Typ av väg</th>
<th>Vägens hastighet (Km/h)</th>
<th>Antal cykelresor JA</th>
<th>Antal motorfordon</th>
<th>Reslängd JA (Km)</th>
<th>Cylistens Hastighet</th>
</tr>
</thead>
<tbody>
<tr>
<td>LÄNK</td>
<td>50</td>
<td>250</td>
<td>700</td>
<td>5,00</td>
<td>15</td>
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<tr>
<td>KORSNING</td>
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<td>250</td>
<td>700</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KORSNING</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### Beräkning antal CS/FS och MF

**Antal cyklister / gångtrafikanter**
- Ådt1= 100
- Ådt2= 100
- Ådt3= 150
- Ådt4= 150

**Antal motorfordon**
- Ådt1= 300
- Ådt2= 300
- Ådt3= 400
- Ådt4= 400