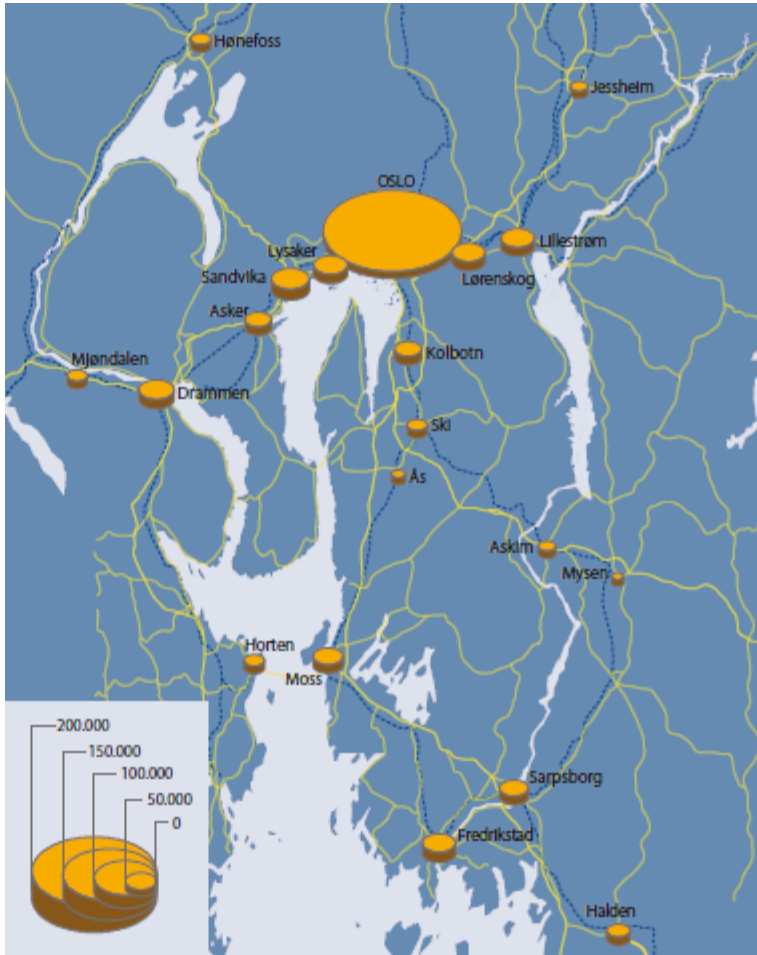


Cities and hinterlands: Benefits and threats from faster transport connections within metropolitan regions



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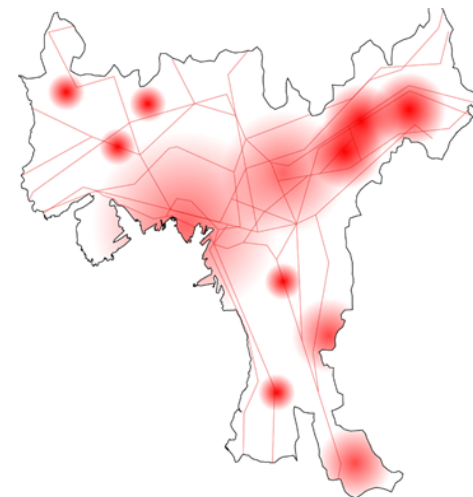
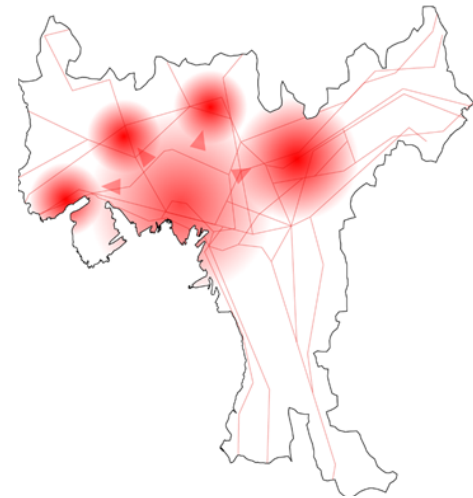
Accessibility can be increased through:

- **Mobility**

- **Proximity**

The underlying good to be reached through region enlargement: **accessibility**

- Ensure for the **inhabitants** good accessibility to jobs, schools, service facilities and leisure activity opportunities, and ensure for the **enterprises** good accessibility for a large number of potential employees
- Instead of large-scale transport infrastructure investments to shorten intra-regional travel distances, accessibility can be obtained by more **compact, distance-reducing urban development**
- This will also improve the passenger base for public transport and make transit investments more profitable, especially in the absence of road capacity increases



Norwegian governmental policy objectives: Reduce the need for transport, and zero-growth in car travel in the large urban regions

- Central government policy guidelines for Coordinated Land Use and Transport Planning (1993; updated 2014) state that land use and transport systems should promote the development of compact cities and settlements, **reduce the need for transport** and facilitate climate- and environmentally friendly forms of transport.
- According to a Climate Agreement in 2012 between six of the by then seven parties represented in the Norwegian parliament, **all growth** in the amount of traveling in the larger Norwegian urban regions is to take place **as public and non-motorized transport**
- This goal is included in the 2015 National Transport Plan as well as in the Central government policy guidelines for Coordinated Land Use and Transport Planning



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Statlige planretningslinjer for samordnet bolig-, areal- og transportplanlegging

Fastsatt ved kgl. res. av 26.09 2014, jf. plan- og bygning av 27. juni 2008, § 6-2.

Increasing accessibility by means of **increased mobility** can be pursued by:

- Reducing travel times for **drivers** (higher road capacity and standard, higher speed limits, etc.)
- Reducing travel times by **public transport** (faster public transport vehicles, shorter waiting times, more fine-mashed line networks allowing for shorter walking distances to stops, etc.)
- (And for local transport also by making better **bike** connections enabling faster travel by bike, e.g. 'bike motorways')

Region enlargement

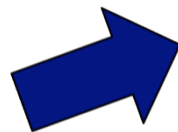
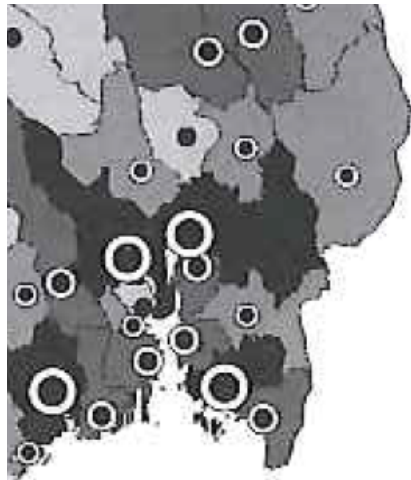
- an important purpose of the Intercity Train Project of southeastern Norway

InterCity

Gjør Østlandet til ett arbeidsmarked



Minimizing the friction of distance – environmentally friendly as long as it is pursued by improving public transport services?



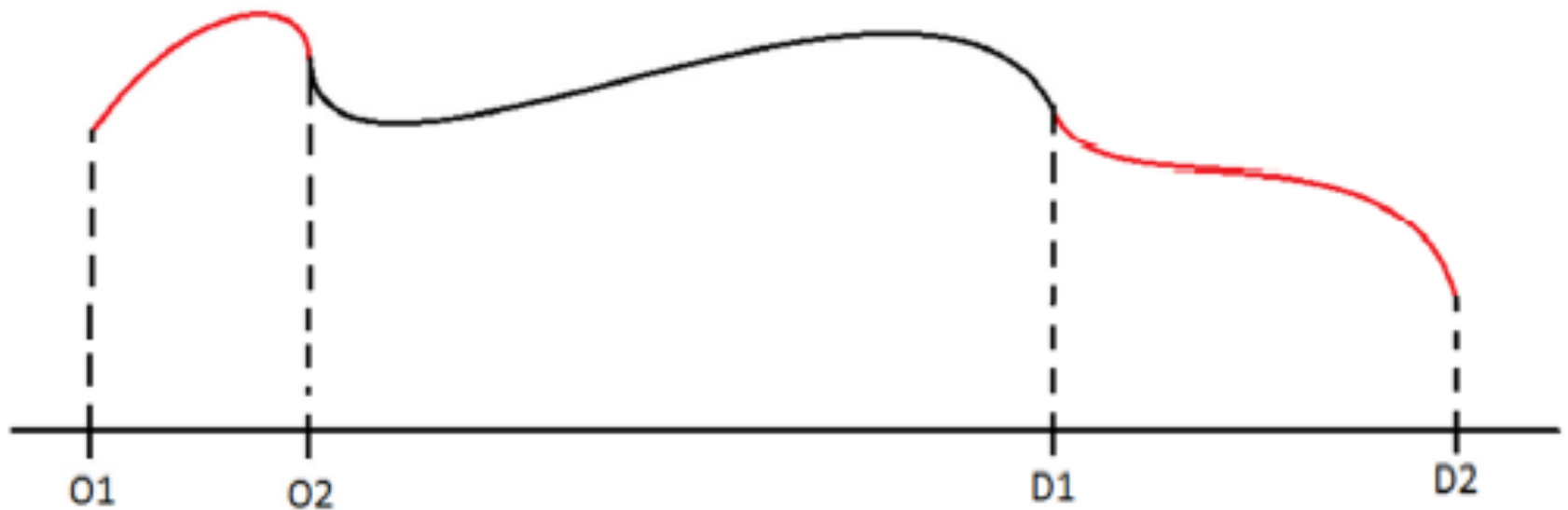
Induced and generated traffic

Transport infrastructure development facilitating higher travel speeds will result in generated and induced traffic by influencing

- route choice
- the proportion who prefer to travel in the peak period
- the amount of travel
- the modal split
- land use (in a longer term)
- the quality of the public transport services (in a longer term)



Principle map showing traffic increase as improved infrastructure induces people to choose place of residence, workplace and other travel destinations located with greater spatial separation



Existing traffic —

Induced traffic —

O1: New origin

O2: Old origin

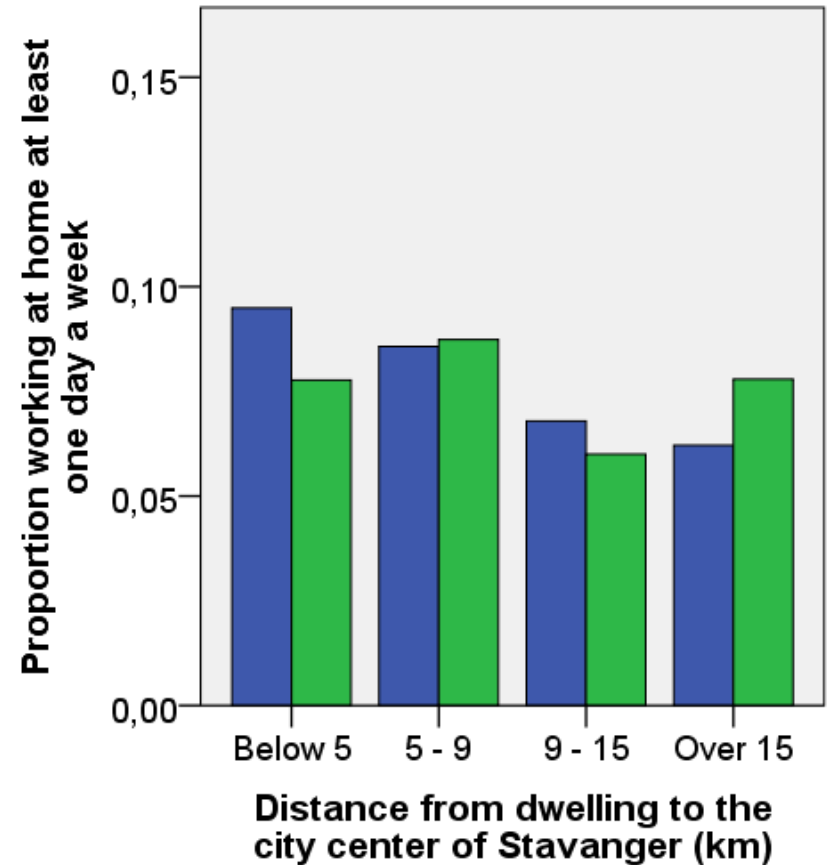
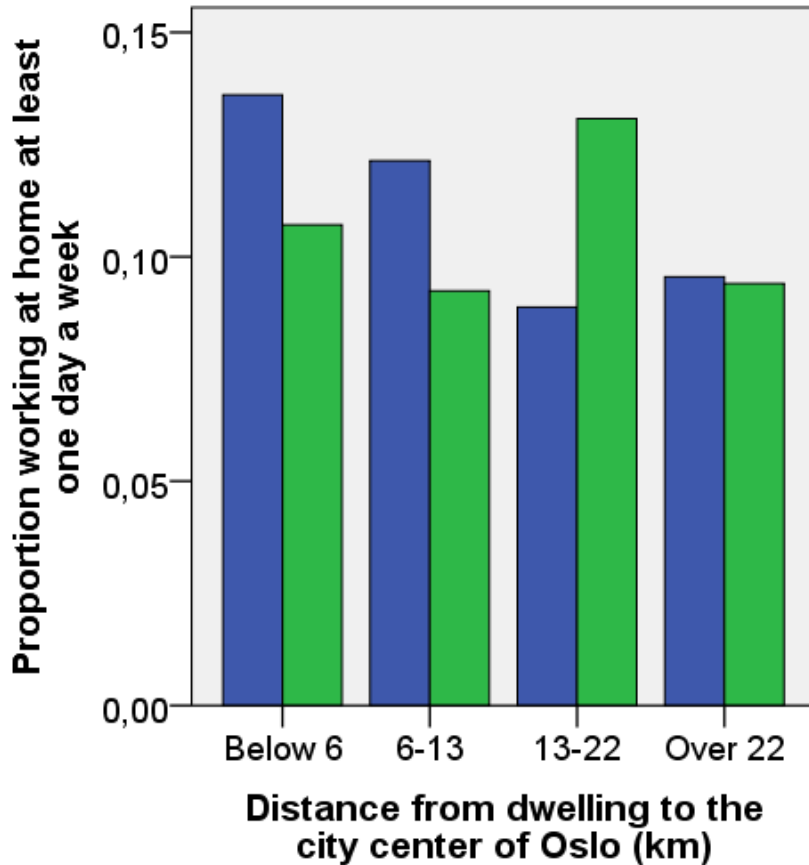
D1: Old destination

D2: New destination

Initial travel time savings from faster transport are reduced due to 'region enlargement' and urban sprawl

- Induced traffic also implies longer traveling distances (cf. region enlargement)
- People tend to expand their radius of action rather than using travel time savings from higher travel speed for non-travel purposes, i.e. there will not be any travel time savings, or at least they will be much smaller than claimed. (Cf. David Metz (2008): "The myth of travel time savings".)
- In Great Britain, average traveling speed increased by 44% from 1972/73 to 2009, yet the time spent traveling also increased by 5% (DfT, 2010, in Banister, 2011)

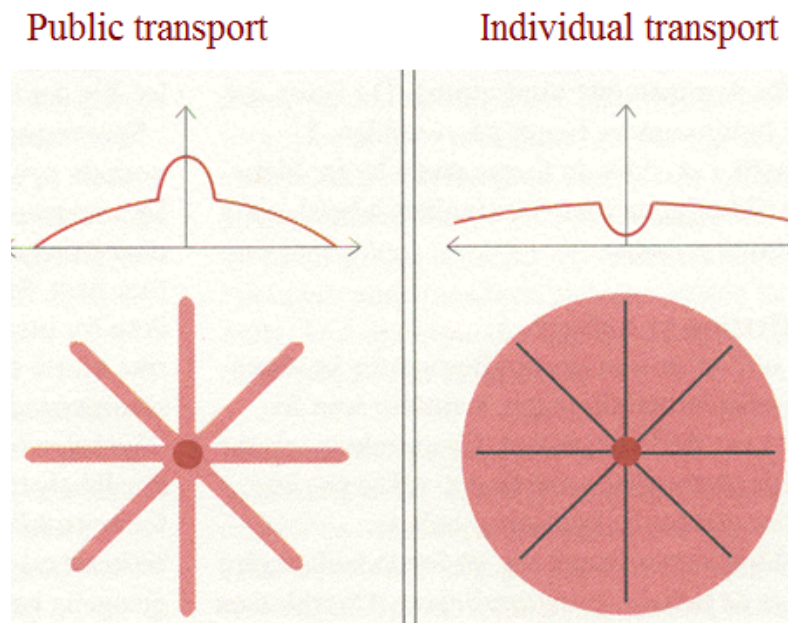
Little evidence of long commutes being compensated by teleworking



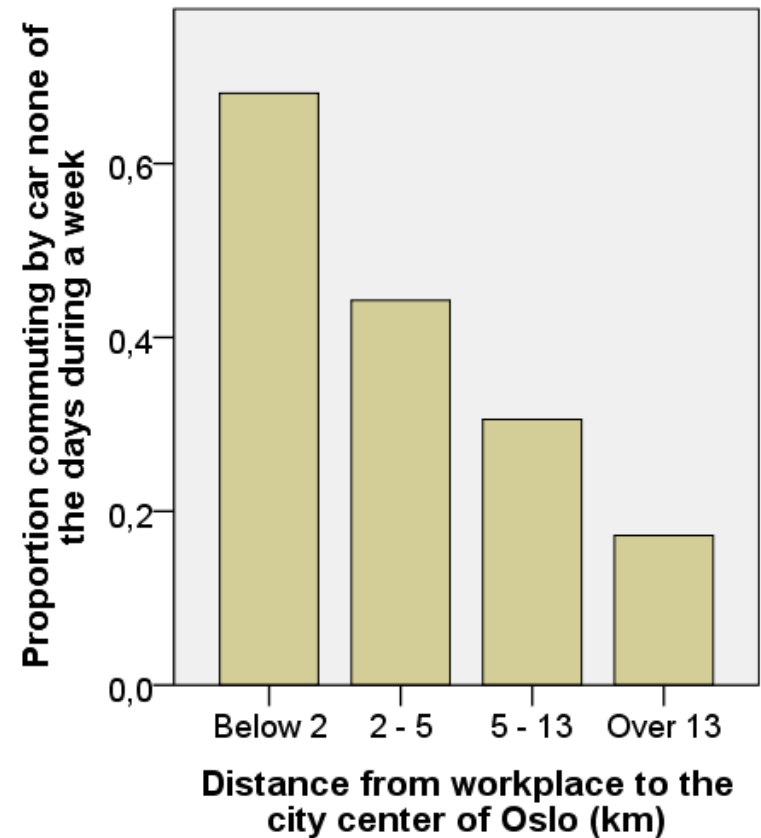
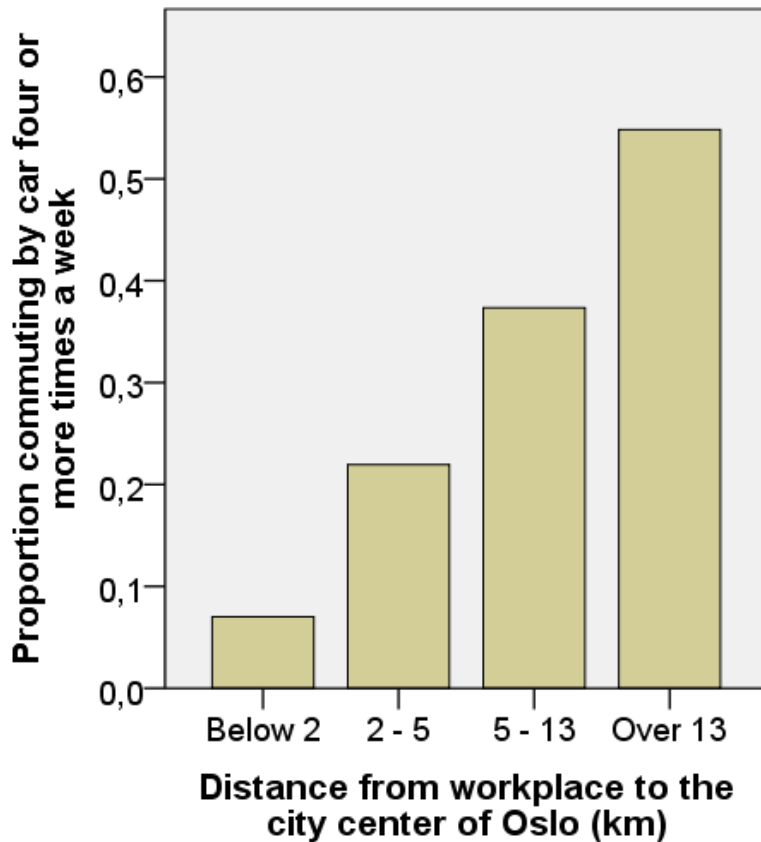
In Oslo metropolitan area, a weak positive correlation is found between home-working and commuting distance ($p = 0.046$) when controlling for education level, but in Stavanger metropolitan area no such relationship is found ($p = 0.687$)

Workplace decentralization at an urban or urban-regional scale increases the proportion of car commuting

- In several Nordic cities, lower proportions of employees have been found to commute by car and higher shares to travel by public transit, bicycle or by foot to workplaces located in the inner-city than to suburban jobsites
- Typically, 80-90% commute by car to workplaces at the urban fringe, compared to 20% in the downtown areas of big cities (1 mill or more) and 35-60% in the central parts of medium-sized cities (0.1-0.3 mill.)



Employees at workplaces in the outer parts of Oslo metropolitan area commute by car more frequently than employees at inner-city workplaces do



... and inhabitants of small cities have higher shares of car travel and lower shares of non-motorized and public transport than inhabitants of bigger cities

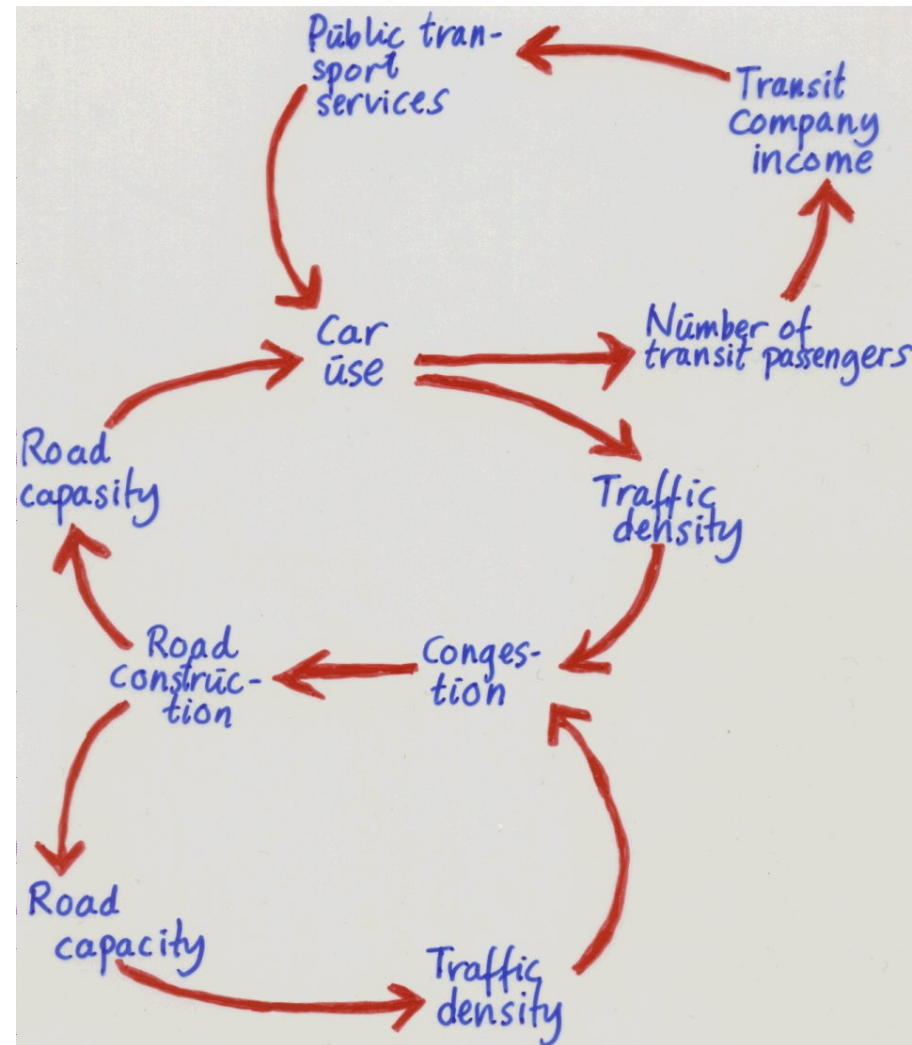
	On foot	Bike	Car driver	Car passenger	Transit	MC/other
Oslo	32	5	31	6	26	0
Stavanger	24	8	49	8	10	1
Bergen	26	3	44	10	16	1
Trondheim	28	9	42	8	12	1
Omegn til Oslo	18	4	56	9	12	1
Omegn til Brg/Trd/Stv	15	4	63	10	7	1
Resterende seks største byer	19	5	58	9	8	1
Smaller cities	21	5	59	9	5	1
Resten av landet	19	3	63	9	4	2

Increase in traffic accidents and emissions due to traffic increase

- **Induced travel** implies that **more people will be exposed** to the risks of traffic accidents, noise and air pollution
- And since trips do not start and end on the slip roads of a motorway, but from origins to destinations all over the city and the region, the increasing traffic caused by a new motorway will expose a people to noise, air pollution and risk of accidents along local roads, not only along the new infrastructure
- This is **often ignored in CBA's**, where new road schemes are assumed to reduce traffic accidents due to fewer crossings and dual carriageways and reduce emissions due to less congested driving conditions (and often ignoring the higher emissions per vehicle km at speeds above 80-90 km/h)

Reduced accessibility for those without access to a car

- Transport investments making car driving easier will induce people to shift from public transport to car
- This erodes the income base for public transport providers
- Unless compensated through increased public funding, this will lead to reduced public transit services
- Reduced accessibility for non-drivers is a likely result



Reduced accessibility for people living in, or traveling to places between, the stops of new high-speed rail

- Since high speed rail tends to replace rather than complement existing connections, the relative distance in travel time terms from locations **in between the stops** to the focal points may also increase while the distance between the stops increases
- Local destinations become less accessible and in this sense more distant
- The local effect of acceleration is then a social exclusion of those living in between stops, and may cause resistance against being disconnected

Mobility as **freedom** turning into mobility as a **necessity**

- In a short term, transport investment allowing faster travel may give accessibility benefits (but also negative environmental and safety impacts due to increased traffic volumes)
- In the longer term, the increased access to distant jobs that local residents may experience is counterweighed by **higher competition for locally available jobs** from non-local residents
- In small cities and settlements, local jobs, shops and other services will be more exposed to competition from external enterprises, and the **local communities risk losing such facilities** to the region center
- Increased travel speeds thus tend to make it not only possible, but also **necessary** for people to transport themselves longer distances to reach daily and weekly activities

Lock-in and path dependency effects on the overall land use and transport system

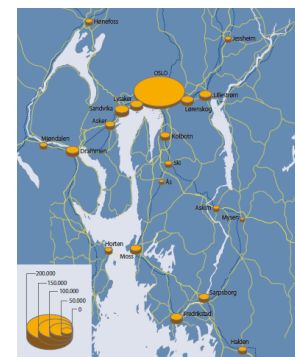
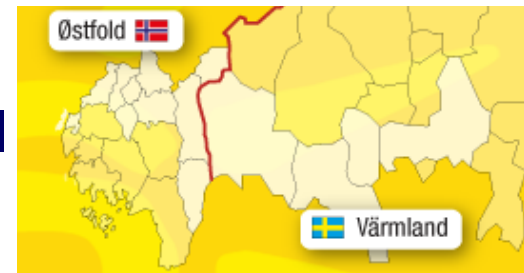
- Mobility-increasing transport investments tend to increase the spatial separation between activities and create **more mobility-demanding built environments** and location patterns
- The very physical entities of sprawling built environments and high-capacity road infrastructure represent large 'sunk costs' that might have to be written off within a sustainable mobility paradigm
- Such spatial structures also contribute to shape **lifestyles, contracts and mobility cultures** incompatible with sustainable mobility
- This makes it **politically more difficult** to implement policies aiming to promote a transition toward a **sustainable mobility** paradigm
- This applies to schemes such as road pricing as well as policies to concentrate the population growth in an urban region to public transport nodes (Isaksson and Richardson)

Region enlargement increases the environmental load

- In order for a decentralized pattern of residence with several larger and smaller cities within an urban region to become environment- and climate friendly, each city must to a greater extent function as a **self-contained** jobs and housing market
- Otherwise, such a regional urban structure will imply a lot of **crisscross transport**, not only by train but largely also by car
- However, polynuclear urban-regional development where each city becomes a more independent unit is contrary to the idea of region enlargement
- Decentralized development in an urban region can be environmentally favorable, but only if the **friction of distance** is increased and we accept that the outer areas **cannot have as high accessibility and availability of options** as the central parts
- If this is considered unrealistic/undesirable, **densification in the central part of the region** will be the environmentally and socially most sustainable spatial strategy

Can the sustainability Achilles heel of the small cities and villages in the outer parts of large urban regions be healed?

- New high-speed rail connections should be combined with **road pricing** and no road capacity increase
- Establish separate lanes for **trucks** on the main highways
- **What kind of workplaces** should be established in the cities at the metropolitan fringe – specialized or non-specialized?
- Are local authorities willing to stop all residential and commercial development in **non-central** parts of their communities?
- Can attractive **feeder buses** connecting settlements with the high-speed rail lines be established?
- **How large share** of the total construction of dwellings and commercial buildings should take place in the outer parts of the urban region?



DE VIKTIGSTE KEMNER OG KNUSTPUNKT I EN FLERKARNET OLORESON. DIAMETRI I SKRIFLIG KLITTE-
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