

The road pricing regime analyzed within “The Nordic Model”-framework.

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Some essential conclusions.

- We have seen the following essential effects in Stockholm when the road authorities introduced congestion pricing on January 3 2006;
 - *it was political feasible*
 - *everyone benefited by the regime*
 - *it curbed congestion*
 - *the traffic speed increased include public transport services*
 - *the road use improved and became very effective*
 - *even in the peak periods empty street could be used.*
- The classic textbook congestion or peak load pricing analysis by H. Mohring is still useful and highly relevant to use (Mohring 1976).
- The regime has been introduced (and copied) in Norway in major urban areas.
- We will explain why this could happen in the Nordic countries.

The historical background.

- *Stockholm was not the first* to introduce congestion pricing.
- Stockholm was the first the left the decision to the road user after the test period.
- The referendum less than two months after the test period ended *a majority* of the people voted in favour of *a permanent congestion pricing system*.
- The study of the effects published in a working paper presented by Jonas Eliasson sums up the outcome during the test and the permanent period (Eliasson 2014).
- We link this study to a study by Duranton & Turner of traffic changes over a three decade period in major North American urban areas (Duranton & Turner, 2010).
- Their conclusion we use to support the introduction of *congestion pricing*.

The historical background.

- A *Nordic Model* is dated to Sept 5 1899 when an agreement between industry business owners and unions was signed in Denmark.
- The agreement *regulated aspects of working place organisation between workers and owners* with a public support and guarantee of the agreement.
- It ended a very turbulent period with labour lockouts and started a strict regulations of strikes and lockouts.
- After the 1920'ies social democrats were the ruling party both in Denmark, Sweden and later in Norway hence the Nordic model.

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Some important findings.

- Road users paying the congestion fee commuted freely since the congestion disappeared “over night”.
- By paying for a maximum three crossing an amount of 100 euros the (experienced) daily users could drive congestion free all day all year.
- Commuters did not spend time in a slow moving congestion in the peak period, they went go straight to work.
- Road use became (very) efficient in the peak period.
- The 22 % excluded in the rush hour could drive free off-peak with free capacity used more frequently and more effective.
- The major winner was probably the society since people did not spend time in slow moving traffic, but were working instead.

Some important findings.

- Some of the society gains are:
 - *less waste of time for people going to work*
 - *benefit for the users when they could drive at free speed*
 - *available free existing road capacity in the rush hours*
 - *available public transport existing capacity more efficiently used*
 - *a low willingness to pay signal for (minimal or no) extra road*
 - *minimal need for extra funding of public transport services*
 - *a signal to stop large or major road transport investments*
 - *a low technology signal that informed the road users and now immediate need for advanced information technologies.*
- The findings reported by Duranton & Turner underlines little need for extra public transport services similar to Eliasson's findings.
- And **congestion pricing** is an effective mean to curb congestion

Some final conclusions.

- Use the free available capacity to do as;
in Copenhagen, Denmark as exclusive bicycle lanes
in Trondheim, Norway as exclusive public transport service lanes
in Barcelona, Spain as private car free housing/living areas.
- Introduce extra public transport services and let the use be for free for cyclist like in Copenhagen.
- Reduce private car park areas like in Oslo, Norway.
- Reorganize public transport services by introducing *express* and *hub services* to speed up and free public transport capacity.
- Reduce passenger number on stop-to-stop services by sending those users straight to their destination.
- Improve the efficiency potential generated by *congestion pricing*.

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Some final conclusions.

- In Norway a leftist government introduced a grant back system in 1909 that was confirmed by The High Court of Justice in 1918.
- A majority voted in a common ownership of natural resources.
- In 1963, a social democratic government added exploitation of petroleum resources and handed out concessions in 1965.
- The company accepted a 50 % grant back after 9 years to give the government control over the exploitation.
- In 1975, the government changed The Petroleum Law and added a 50 % area rent taxation.
- This gave the government extra money and after 2000 we saw a build up of our Petroleum Fund allowing the government to spend 3 % of the return every year.

Some final conclusions.

- in 2015, major urban areas signed a urban growth pact where the urban area get a 50 % state funding of new infrastructure like roads and bicycle lanes.
- It also funds public transport services and Oslo has added property taxes to further fund such projects.
- The need for extra funding is low since the congestion price is low (2 euros) so the users are not willing to pay much for extra capacity,
- Most of the capacity is already available both for roads and public transport services.
- Since one major goal is to stabilize the traffic at today's level, the traffic growth will not be private car use.
- The existing public transport cost is more or less already paid.

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Some final conclusions.

- Having such a fund offer future generations money to extra public services so spending money on large road investments hurt them.
- Future generations risk to pay double, firstly, they pay for a road they are not here to use and pay for the removal of unused roads.
- Dropping such investment will be sustainable sine less will buy and use private car, a trend we see in major urban areas in Norway.
- Probably, young people settle in housing areas near the centre and drop a private car and walk or cycle to most activities near by.
- Maybe the public sector should subsidize el-bikes, not el-cars.
- Combining bicycle and train/metro commuting can reduce time up to 50 % spending about 22 minutes to park the bike at the job.
- The politicians can get literally “green politics” this way?

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A final conclusions.

- *In the Nordic model where road use is a (little bit more) regulated there is no need for major investments in extra road capacity or large increasing funding of public transport services.*
- *The capacity is already there and available for use.*
- *The alternative are many it is time to start now?*