



**Contested approaches to uncertain  
futures in Swedish national transport  
policy and planning**

Knowledge perspectives and practices matter

Jacob Witzell, 27 april 2021

[jacob.witzell@vti.se](mailto:jacob.witzell@vti.se)

**vti**

# Contested approaches to uncertainty

- Current debate in Swedish transport planning over the possibility to affect future travel demand
- Different planning tools and knowledge perspectives provide different understandings
- Illustrated by two recent Swedish examples:
  - The national investment plan 2018-2029
  - An inter-agency strategic plan for achieving a fossil-free transport system
- Based on two articles in my dissertation (2021)



# Research approach

How knowledge perspectives and methods of analysis affect exploration of uncertainty and future pathways in Swedish national transport policy and planning

- A social constructivist approach: knowledge – and tools which construct knowledge – are specific for a certain time and place
- Planning is characterized by conflicts over what is considered 'relevant', 'true' and 'realistic' knowledge
- Content analysis of planning documents and government instructions
- Interviews with involved planners

# National infrastructure planning

12-year national transport infrastructure investment plan

- A multi-modal perspective
- Prepared by the Swedish Transport Administration, following government instructions

Travel demand forecasting and cost-benefit analysis are central tools

- Emerged in the 20th century as tools to accommodate expected increases in road travel, and prioritize among alternative investments ('predict-and-provide')
  - More and faster travel considered central societal benefits.
  - Mobility in focus, rather than (broader understandings of) accessibility
- Current environmental and social challenges have led to introduction of *complementary* planning practices, but the dominance of forecasting and CBA has not been challenged

# The national "base forecast"

Normally, only one single forecast of future national travel demand is prepared.

- It is based on (1) historic cause-effect relationships affecting travel demand, and (2) assumptions of how certain variables will develop in years ahead.
- The forecast should only consider already decided policy – thereby it is predictive, conservative.
- Handling of uncertainty is limited to sensitivity analyses of certain variables in the model.
- The possibility of *different* futures (with different consequences) is not explored

The "base forecast" carry wide influence over:

- The overarching understanding of the future development of the transport system
- Planning, dimensioning, and prioritization of investments – and the associated benefits to society
- Regional and local urban and transport planning, as local targets and plans should accommodate the forecast

# 'Transport efficient society'

- Swedish objective: 70 % reduction in greenhouse gas emissions by 2030 (compared to 2010), no net emissions in 2045
- Climate mitigation policy in transport - three categories of measures:
  - Energy-efficient vehicles
  - Fossil-free fuels
  - Increased transport efficiency } *mirrors opportunities of planning and proactively affect travel demand, but reflects complex social phenomena that are less straightforward to model*
- No unitary definition, but regards a broad set of policy measures, transport and land-use planning, localization of developments, etc.
  - Similar to "avoid, shift, improve"
- The need for increased 'transport efficiency' is currently debated

# **The national investment plan 2018-2029**

**An example of avoiding exploration of plausible futures and  
the influence of dominant forecasting practice**

## The planning process is focused on *one* forecast, grounded in rigid modelling

- In addition to the 'base prognosis', the government requested a 'climate prognosis' which should consider *"measures to mitigate climate emissions in a cost-efficient way"*
  - The forecasting model was deemed too rigid – could not provide answer in time (lack of time and detailed 'data', models not apt to handle larger system changes)
  - A collaborative back-casting scenario focusing on affecting travel demand and achieving modal shift was developed – only to be excluded from the plan
    - Argument: lack of 'validated' cause-effect statistics needed for conventional demand models, and no explicit political target to decrease future road travel
  - STA concluded that a climate scenario based on economic policy measures + extensive introduction of biofuels *could* be consistent with the conventional "base prognosis"
    - (1) unchanged driving cost > (2) unchanged travel demand → unchanged plan priorities
- *Uncertain assumptions deviating from the base forecast were rejected, while uncertainties aligning with the "base forecast" were accepted*

On the influence and inflexibility of forecasting:

”For the forecast [...] a very formalistic structure has been established. [...] It has gained quite large influence over *what kind of knowledge* that can be presented, *and when.*” (Respondent B)

”When the [political] directives arrive, we have normally carried out most of the analyses.” (Respondent C)

On forecasting as defining 'valid' knowledge:

”It was a burning issue to question those types of [transport efficiency] measures – both how likely it was that they would be implemented, if they could be so far-reaching [as described], and their effects. [...] That work had been carried out rather isolated from the forecasting work. [...] The thoughts had never been verified in any form of model.” (Respondent B)

”It is much wishful thinking” (Respondent C)

## Climate impact of infrastructure portrayed as irrelevant

### Recurring statements that additional infrastructure has insignificant climate impact

- Aggregating emission of individual investments into total sum hides and evens out (negative/positive) impacts
- *Plan total: -1%, 'Bypass Stockholm': +1%, Urban sustainability measures: -0,7%*

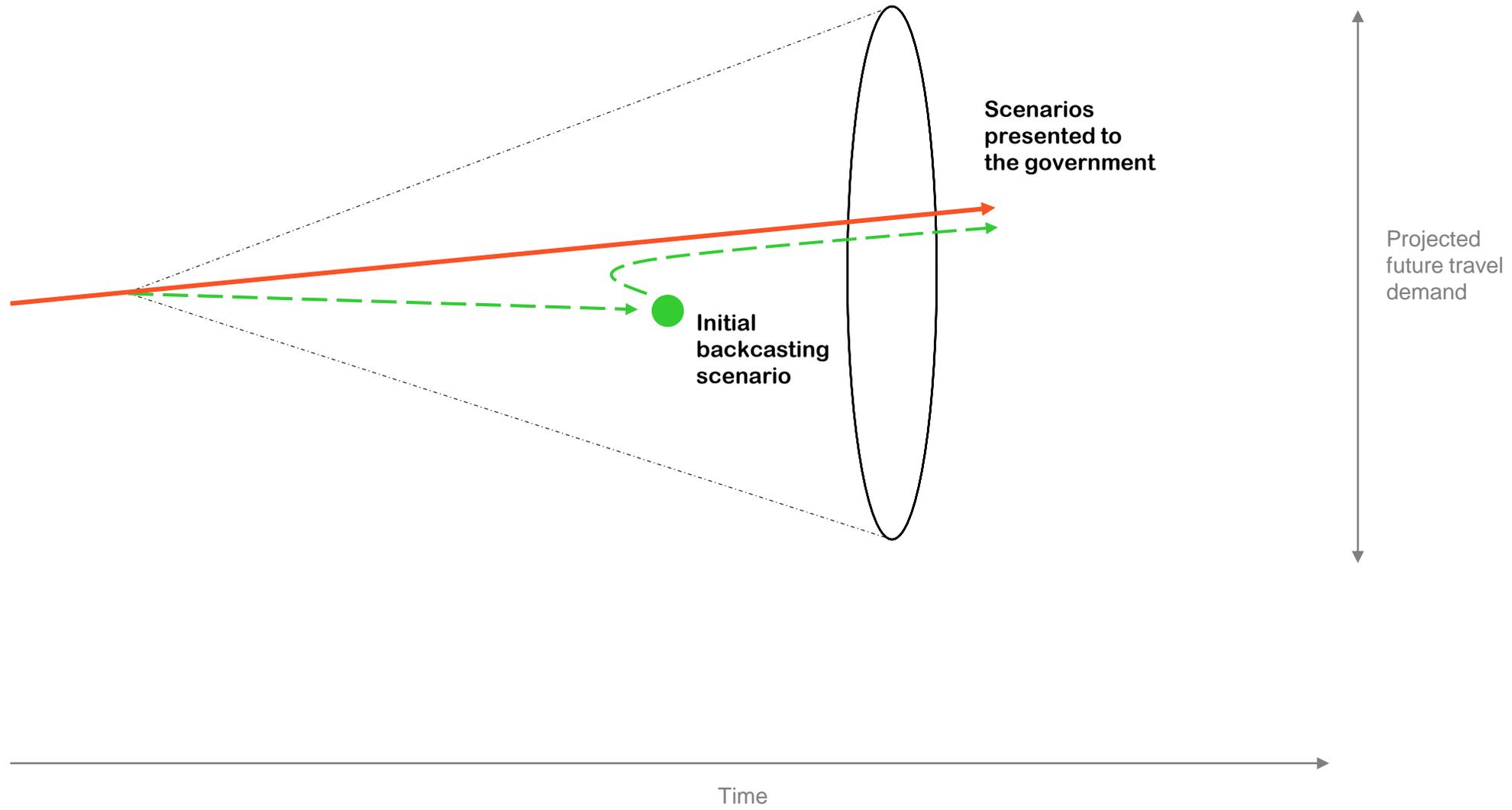
### Delimitations in time and space portrays alternative measures as irrelevant

- Measures for 'transport efficiency' are deemed efficient on local and regional level, but "insignificant" at aggregate national level
- Potentials are acknowledged in a longer time perspective, but not during the 12-year plan perspective

→ *Alternative measures are dismissed by reference to the modelled understanding of the transport system: aggregation, macro-focus, limited time perspective*

Example of how forecasting practices shape understandings and arguments:

*”Our macro projections have shown that [new infrastructure] has very little to do with climate mitigation and traffic flows [...] It is like scratching the surface of the gigantic transport apparatus. One cannot invest to achieve changes regarding climate”* (Respondent C)



# Reflections

- Established forecasting practices contributed to sustaining "status quo" of expecting continued strong increases in road traffic by:
  - 1) Lacking capacity/relevance to explore deviating pathways  
(Not developed to handle trend-breaking futures)
  - 2) Motivating dismissal of alternative knowledge perspectives and methods of analysis  
(Setting a standard of 'valid', relevant knowledge)
  - 3) Legitimizing this lack of alternative future pathways and measures  
(Portraying infrastructure investments as insignificant)
- A 'catch 22': measures are dismissed > not carried out > knowledge is not developed
  - The specific model understanding of the transport system becomes self-confirming
- Though: within the Swedish Transport Administration there are other perspectives, but those are weakly mirrored in strategic, long-term planning

# **A strategic plan to achieve a fossile-free transport system**

**An example of how the scope of planning is broadened when  
uncertainty is acknowledged as a basic condition of planning**

# An inter-agency commission (2016-2020)

- Task: to suggest legislation and policy measures to support climate mitigation
- Independent from the established national transport planning
- The Swedish Energy Agency hosting the commission
- Strived for co-ownership of process and outcomes with five other national agencies working with transport, energy, environment and planning
  - Six general directors deliberated on formulations and signed central documents
- Participants: a process characterized by joint dialogue and learning
- Mutual dependency between
  - How the work was organized
  - Which practices and knowledge perspectives that were acknowledged, and...
  - How potentials of 'transport efficiency' measures were understood

# Development of a joint approach to uncertain futures

- Limited time to achieve transformation and deep uncertainty → need to spread risks
  - Consider broad categories of measures targeted at vehicles + fuels + 'transport efficiency'
- Deep uncertainty and unknowability associated with future developments was acknowledged as a foundational premise
- An approach to assessment was developed which reflected the conditions at hand:
  - Uncertainty and unknowability motivates continuous assessments
  - Preliminary assessments based on professional judgment were accepted...
  - ...in combination with continuous monitoring, evaluation, and adjustment as more information becomes available

On uncertainty as foundational condition, and how it demands flexibility:

”We discussed that precisely *due* to the uncertain surrounding world, it is important to work with all three ’legs’ [of vehicles, fuels and ’transport efficiency’]; we need to work on several frontiers. ...

changes in the surrounding world may make certain measures obsolete. Consequently, we included a continuous external analysis [as part of the commission], to be able to adjust the direction.” (Respondent 6)

On the need for successive evaluation and reassessment:

”There are very large knowledge gaps. ... We therefore expressed that this should be [evaluated] continuously, as it is not possible to fully answer questions like this beforehand.”

(Respondent 4)

# **A brief comparion and conclusion**

# Different approaches to future uncertainty

## The national investment plan

Knowledge perspectives beyond transport modelling and economics marginalized

Uncertainty and unknowability was avoided

Knowledge on effects required to be available beforehand – 'catch 22'

The future is (generally) portrayed as a continuation of historic developments

Weak perception of planning's potential influence (beyond economic policy)

## Collaboration among national agencies

Broader professional knowledge perspectives and experiences were provided room

Uncertainty acknowledged as basic condition of planning

Acceptance of preliminary expert assessments, *combined with* successive evaluation and reassessment

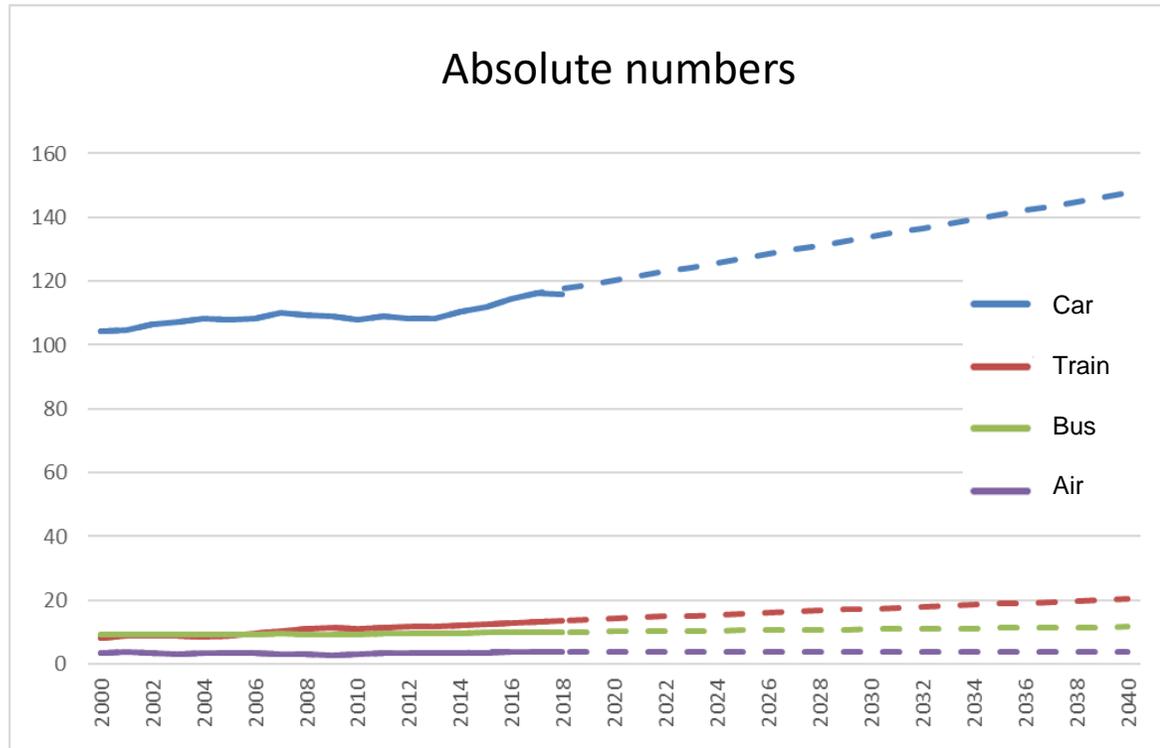
The future is portrayed as an uncertain, changing process with a great span of potential pathways

Stronger perception of planning's potential influence

# The political importance of planning practices

- Dominant practices carry power by defining which future pathways are considered
  - The current forecasting practice in Sweden has conserving, self-confirming characteristics
  - Political choices are concealed as uncertainty is not explored and alternatives marginalized
- No practice which makes claims to describe the future is value neutral
- Previous research: changes in policy requires a related change in planning tools
- In the light of today's societal challenges, and the unavoidable degree of uncertainty and unknowability in the transport system, there might be time ask:
  - Which knowledge helps society to grasp and critically debate what a 'desirable' future development of the transport system would look like?
  - How can broader knowledges and yet 'unproven' measures be provided room?
  - Does a re-politicized democratic discussion over 'desirable' futures require several future scenarios, and several plan proposals that are evaluated against the scenarios...
  - ...to highlight goal conflicts, distribution of effects, and allow informed choices to be made?

# Epilogue: The 'base prognosis' 2020



- Car travel increase 27 % in the period 2017 - 2040.
- Climate mitigation assumed to be achieved by electrification + bio fuels (and, if needed, strong increases in fuel price; all measures easy to model...)
- Potentials of affecting travel behaviors or achieving modal shift (more than marginally) explicitly dismissed