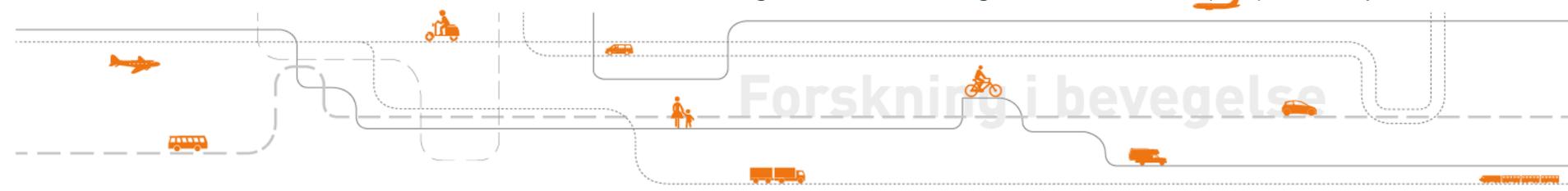


# Replacing air travel with rail travel?

*A simplistic mode choice analysis  
of a comprehensive scenario*

PATHWAYS – WP2 *Estimating behavioural changes* – Knut Veisten (TØI) – 18 September 2023



# PATHWAYS WP2 – Estimating behavioural change

## Rail availability scenario – domestic and cross-border

- a railway station in all cities (approx. 100)
  - *implying more new railway lines than the planned Northern Norway Line*
  - *more cross-border lines were also described*
- increasing average long-distance travel speed (from ca. 70 to 120 km/h)
- bring rail travel service levels closer to those for air travel
  - *reservation to final destination, check-in of luggage to final destination, travel class selection, same frequency as for air, not more rail transfers than stopovers / flight-changes, stations more like airports*



## Willingness to pay higher carbon tax when flying abroad

- comparative study of estimates from 2022 and from 2017



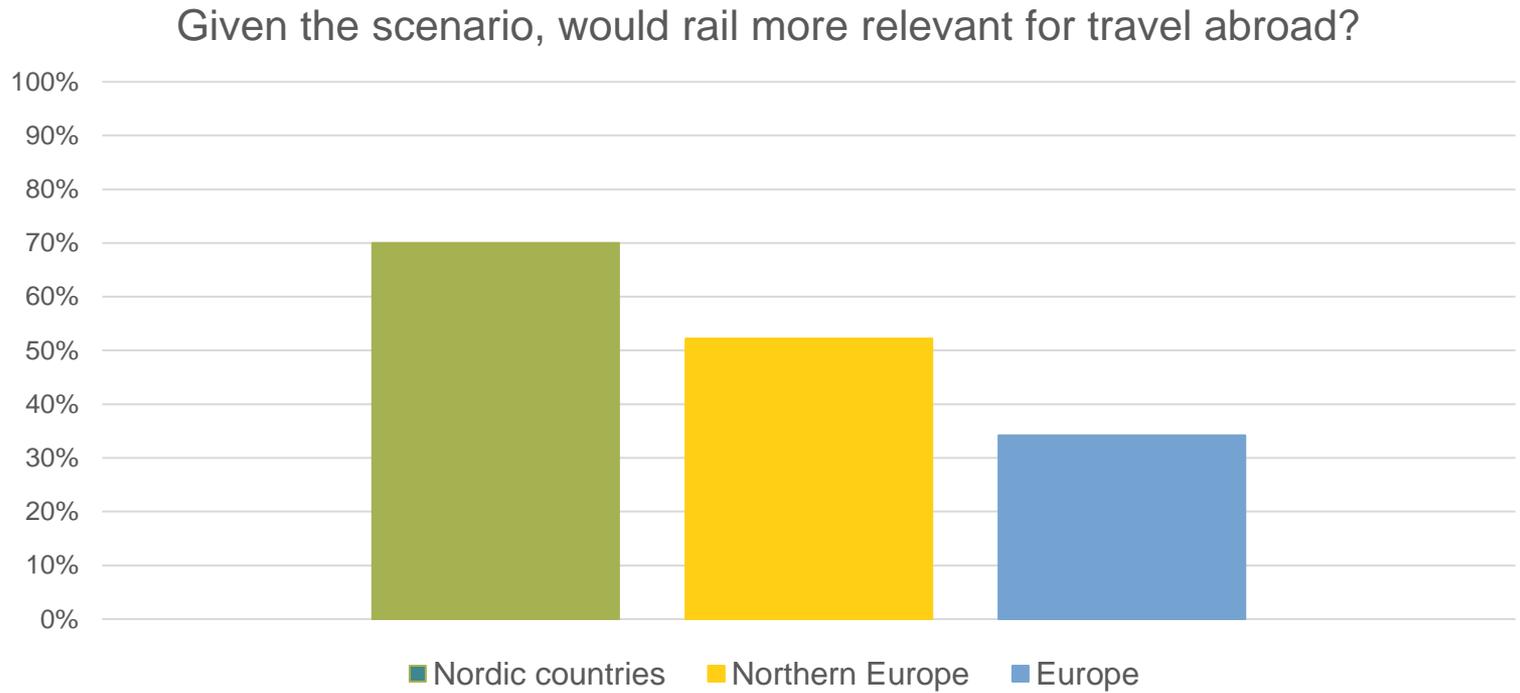
## Public-transport availability scenario – domestic holiday/leisure travel

- door-to-door public transport alternative generally available
- increased service and inter-modality
- etc.



# Replacing air travel with rail travel?

Scenario of rail availability, domestic/cross-border; higher speed, etc.



n=1070

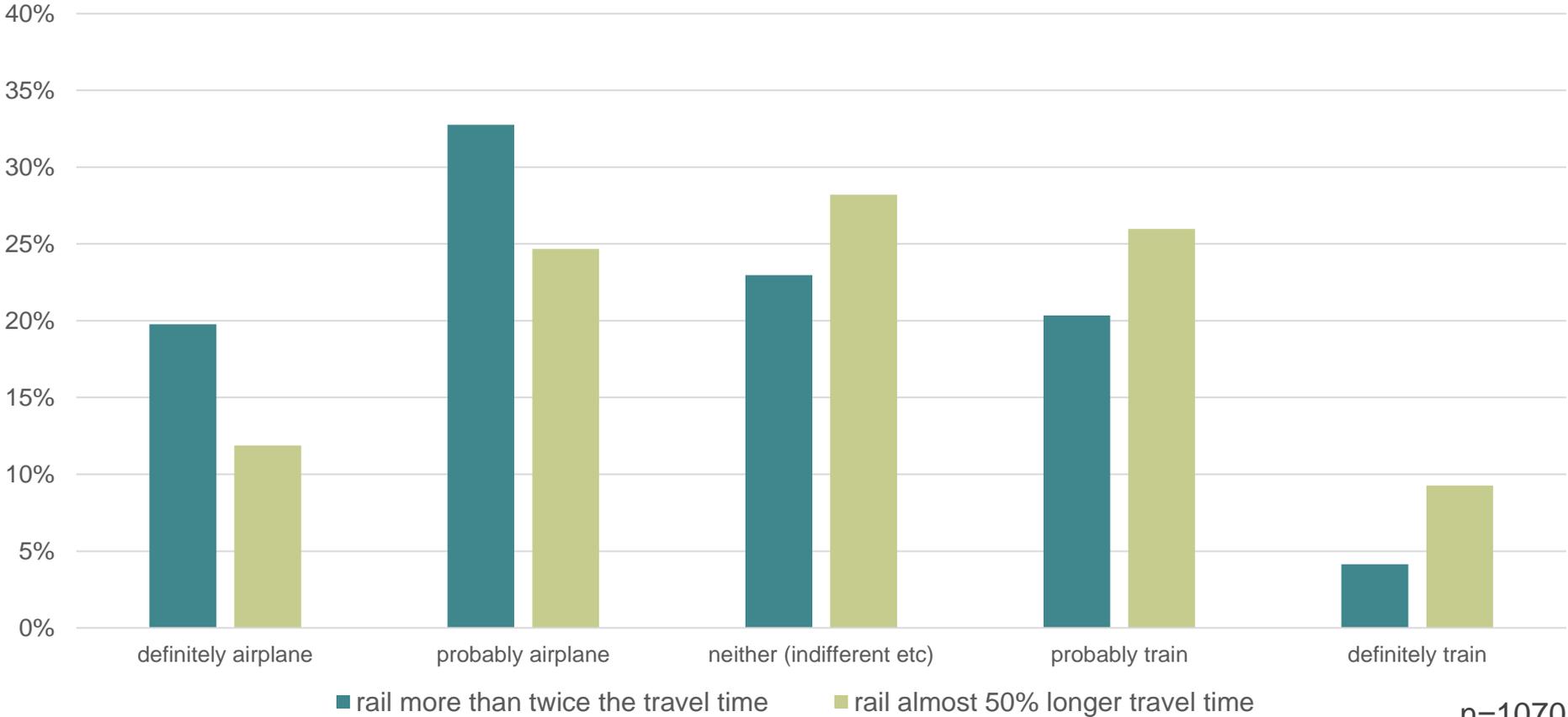
# Replacing air travel with rail travel?

Choice between train and airplane to Northern European destination

- travel distance about 1000 km (holiday/leisure trip purpose)
- equal/comparable standards for rail and air travel
- but longer travel time, door-to-door, by train
  - *1/2 of the respondents were informed about “more than 100% longer” travel time*
  - *the other 1/2 informed about “almost 50% longer” travel time*
  
- ❖ In the 1<sup>st</sup> choice, total travel cost was equal for rail travel and air travel
- ❖ In the 2<sup>nd</sup> choice, total travel cost was lower for rail travel
  - *1/2 of the respondents were informed about “20% lower” travel cost*
  - *the other 1/2 informed about “50% lower” travel cost*

# Choice between train and airplane to Northern European destination

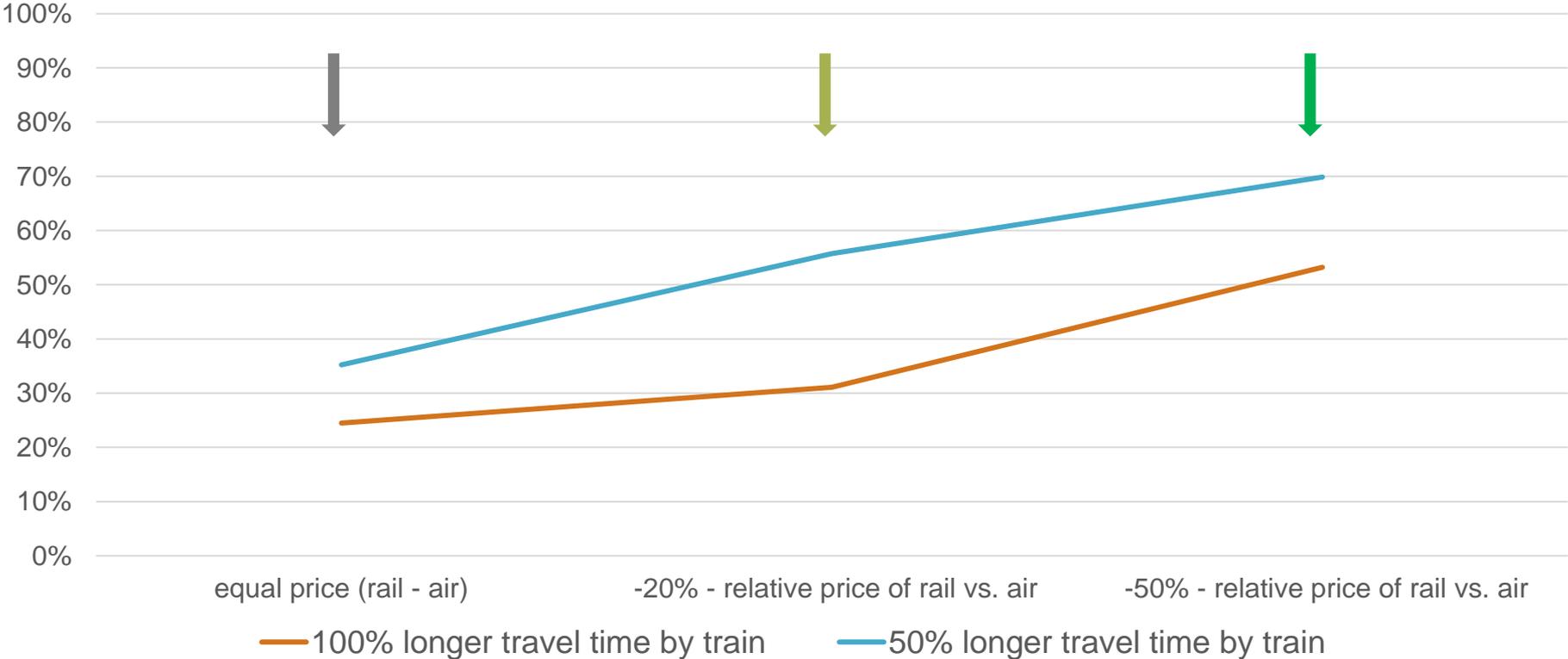
**1<sup>st</sup> choice:** train or airplane to North European holiday/leisure destination (~1000 km) – same travel cost (and service levels); longer travel time by train



n=1070

# Choice between train and airplane to Northern European destination

**1<sup>st</sup> & 2<sup>nd</sup> choices:** shares choosing train vs. airplane and opt-out  
- longer travel time by train, door-to-door (100% or 50%)  
- varying relative price for rail travel vs. air travel (equal, -20%, or -50%)



# Replacing air travel with rail travel?

## Summary

- “Permission to dream” ... the rail development scenario was obviously “ambitious”
  - *the scenario might be brought closer to reality in areas where railways exist or are planned / in construction*
  - *it is not a scenario that implies high-speed rail*
  - *still, increase of travel speed, improved service levels (e.g., reservation / check-in to final destination abroad), and improved inter-modality, first/last mile, etc., remain challenging*
- Stated choices indicates a considerable potential demand
  - ✓ *if relative prices are tilted by combined use of taxes (“sticks”) and subsidies (“carrots”), rail might take a much larger share to Northern European destinations market*
  - ✓ *we derive 56% from the lowest additional travel time combined with the best relative discount (although with a lower bound of 16%, based on definite rail choices)*
- Better rail travel alternative might have particular importance for some segments
  - ✓ *analysis (MNL) shows that the elderly and the share (1/3) with lowest income attached relatively more value to the rail travel alternative*
  - ✓ *... rail does also have other societal functions*