

## *The potential for medium-term growth at Schiphol Airport -* **An assessment of alternative policy measures**



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- **Study background**
- **Objectives**
- **Approach: simulations using the ACCM model**
- **Input scenarios 2020**
- **Policy measures investigated**
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## ***Objectives: Study for Dutch Ministry of Transport:***

- **What growth could be expected for Schiphol Airport until 2020 if there would be no capacity restrictions?**
- **Would the expected future demand fit within the current restrictions** (both runway capacity and noise limitations)?
- **If not,**
  - What would be the welfare implications?
  - What would be the policy options?
  - How effective would these be?

# *Background:*

## *Why new medium term forecasts?*

- **Incidental factors**

- 11 September 2001
- War Iraq
- SARS



- **Structural developments**

- Air France-KLM
- Low Cost Carriers

- **New medium/long term macro-economic scenarios**

# *Approach: Use of ACCM Model*

Base Year (2003)

Macro-economic data  
Passenger counts  
Level-of-service

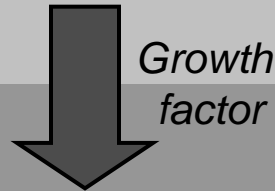
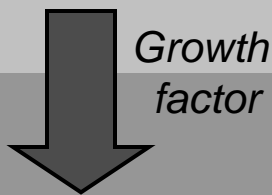
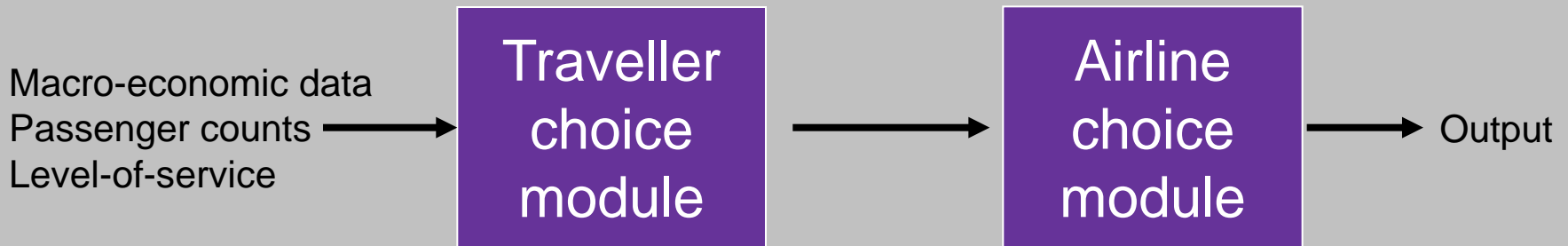
Traveller  
choice  
module

Airline  
choice  
module

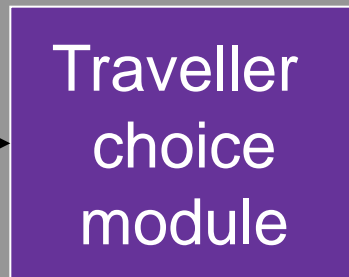
Output

# Approach: Use of ACCM Model

Base Year (2003)

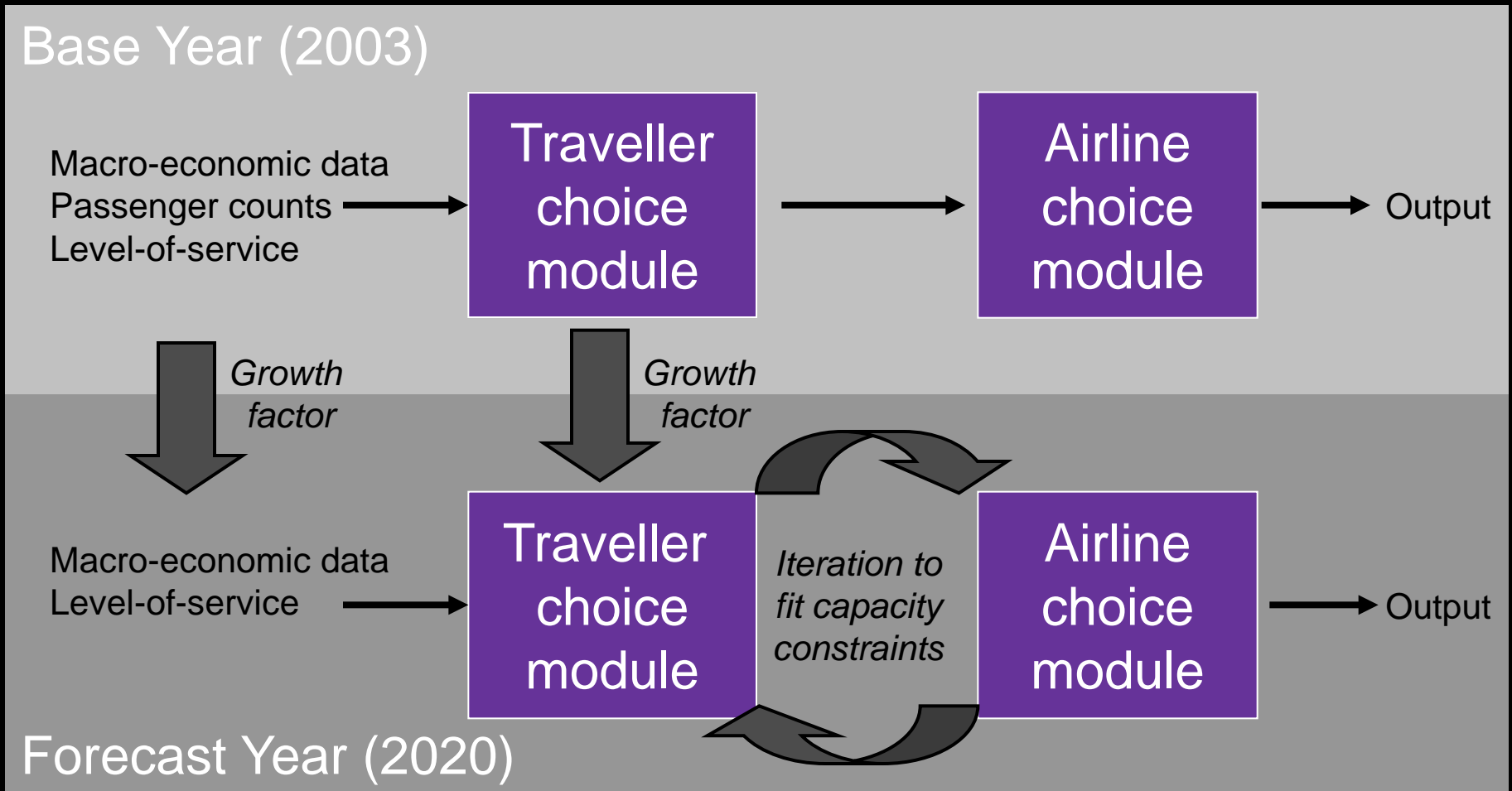


Macro-economic data  
Level-of-service



Forecast Year (2020)

# Approach: Use of ACCM Model



# Traveller choice module

- **Observed base year demand pattern**

- **Market growth:**

- GDP development
- Trade development
- Price development
- Network development



- **Competition:**

- Airports
- Airlines/routes
- Car, high-speed train



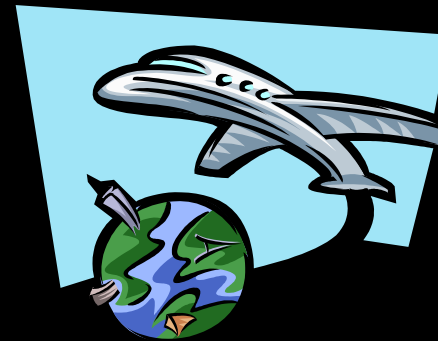


# *Airline choice module*

- **Observed base year supply pattern**

- **Aircraft size**

- Cost per seat
- Market size
- Degree of competition



- **Technology**

- Fleet renewal
- Fleet expansion

- **Time of day**

- Passenger preferences



# 4

## Mainport Schiphol Vier vergezichten op Schiphol

Scenario Policy Assessment

VRM

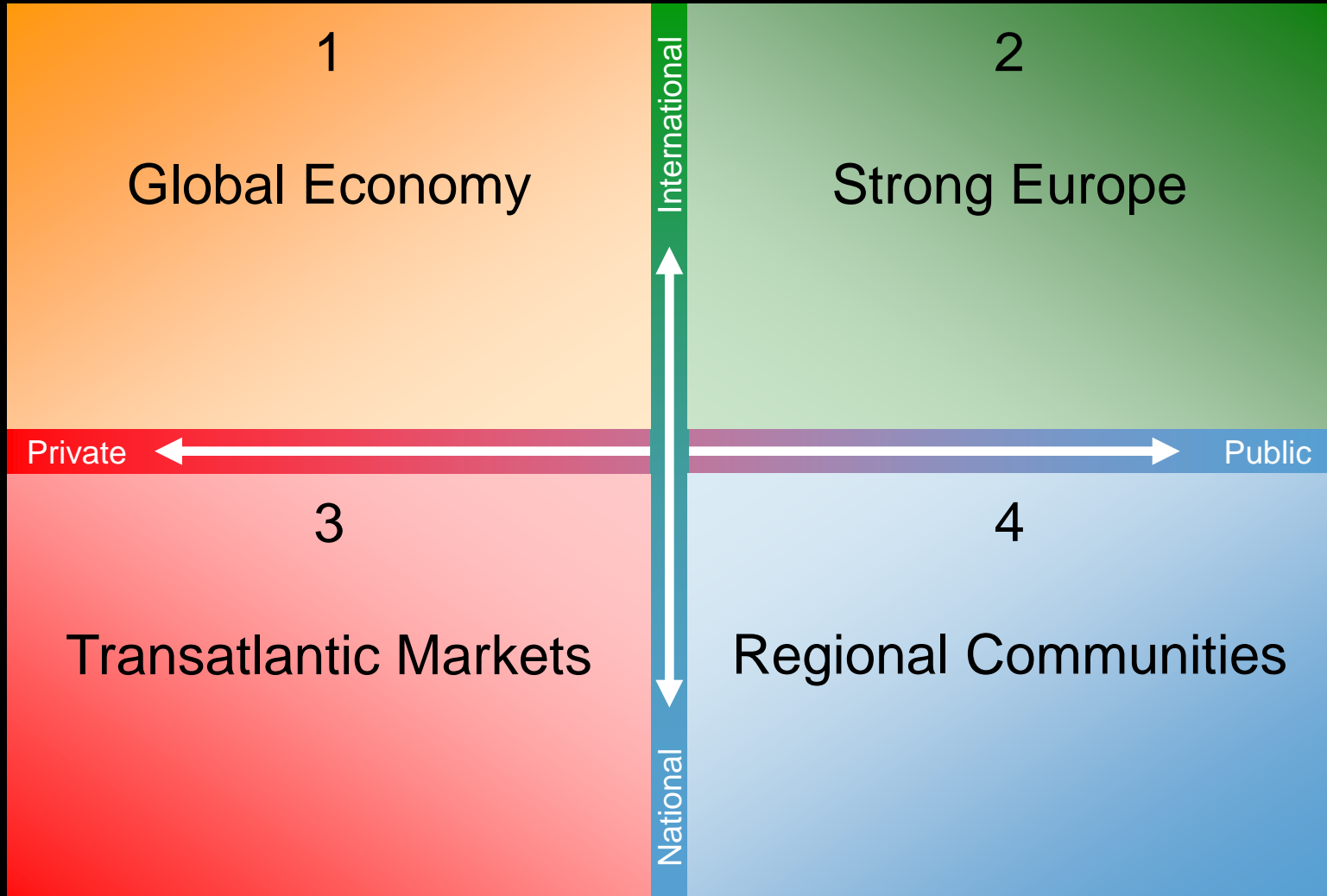


Ministerie van Economische Zaken

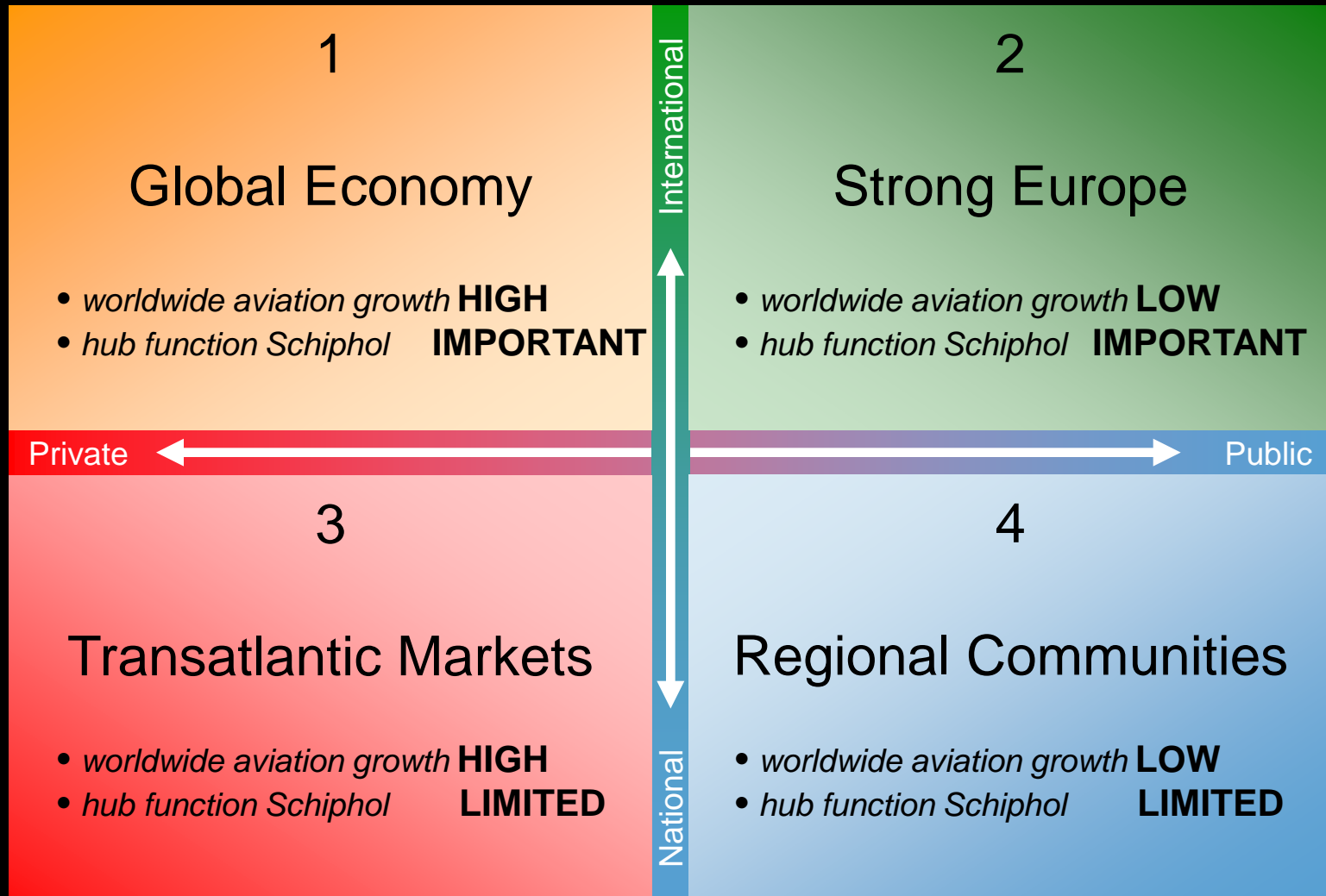


Ministerie van Verkeer en Waterstaat

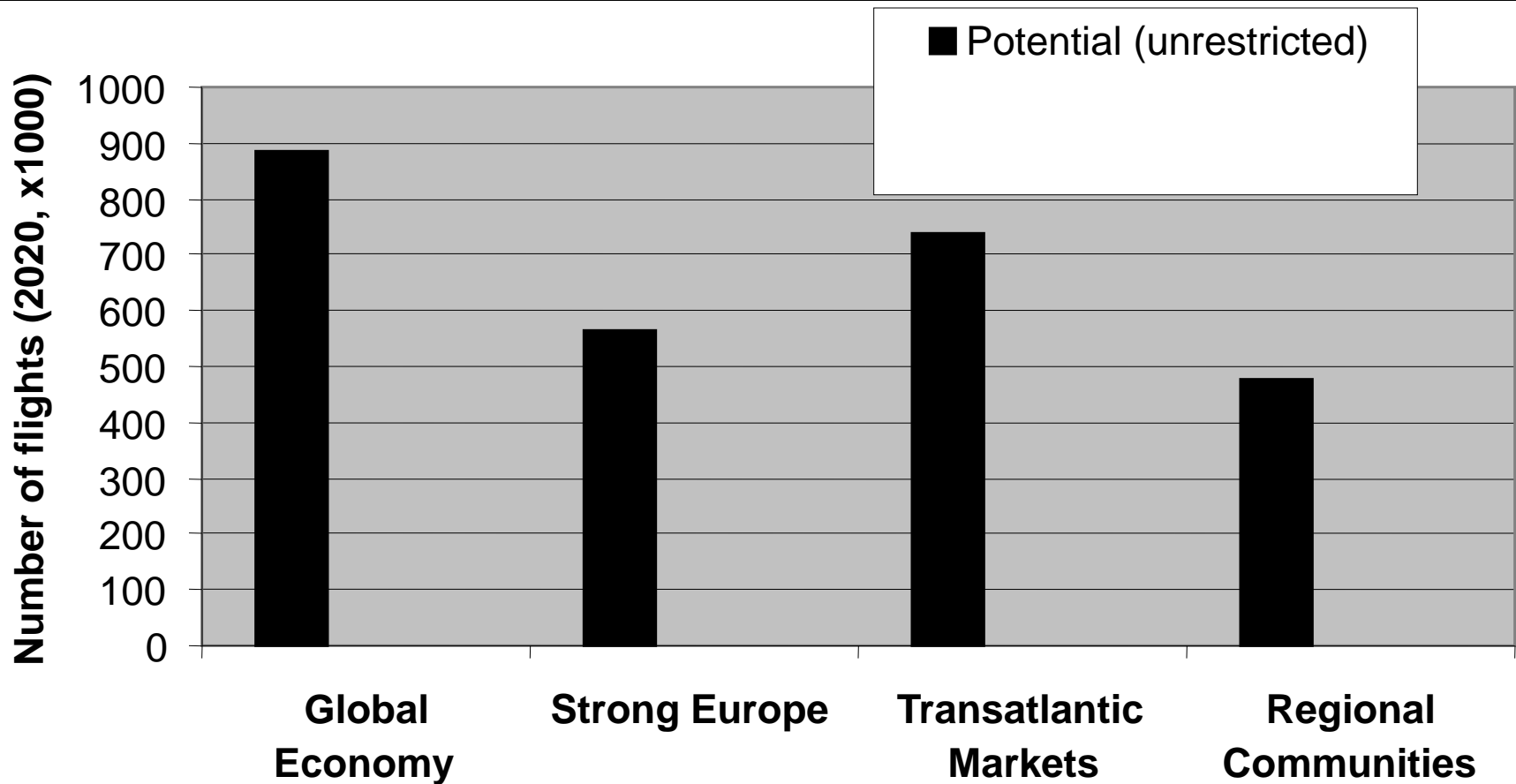
# Scenarios: Four futures for Europe



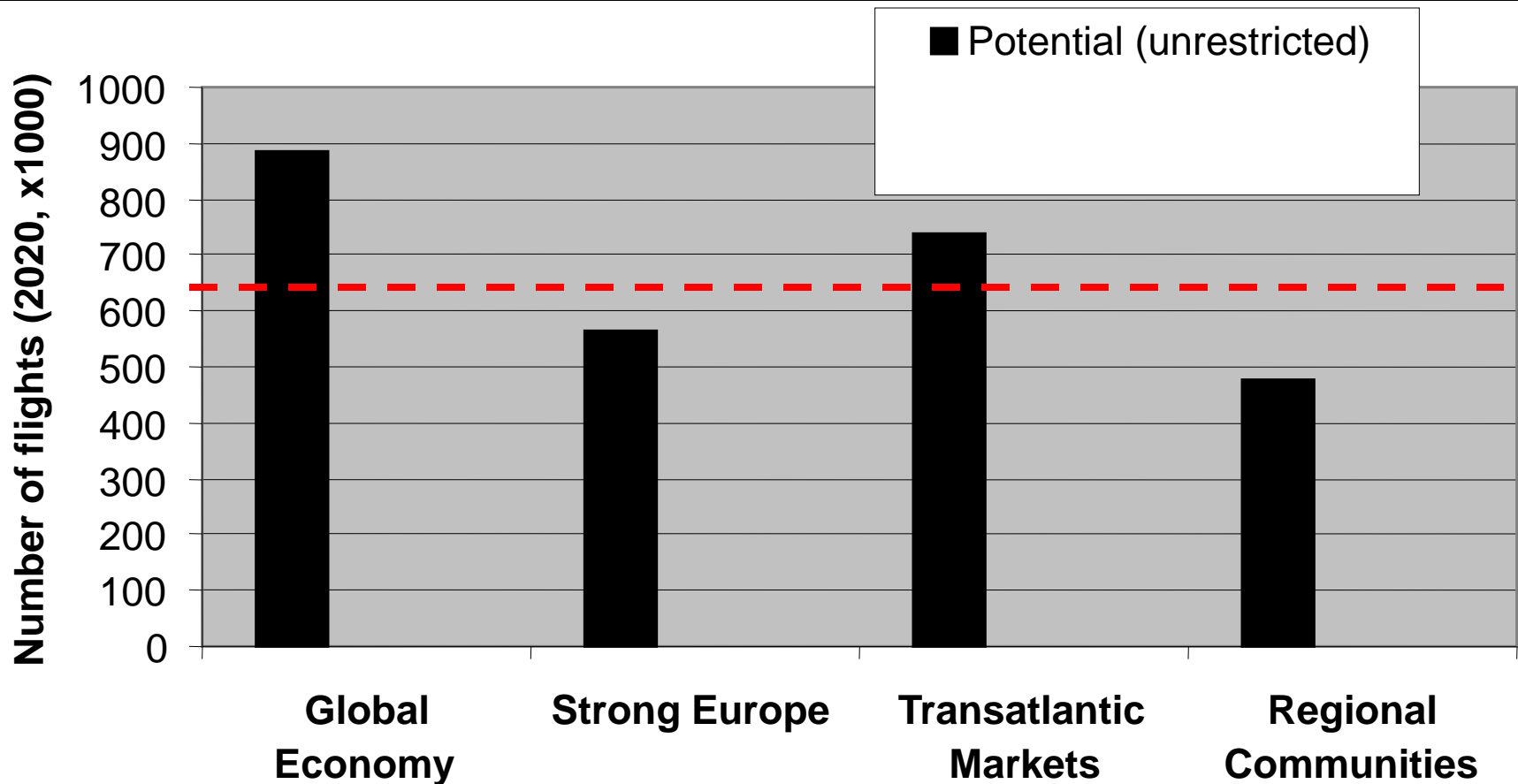
# Four futures for Mainport Schiphol



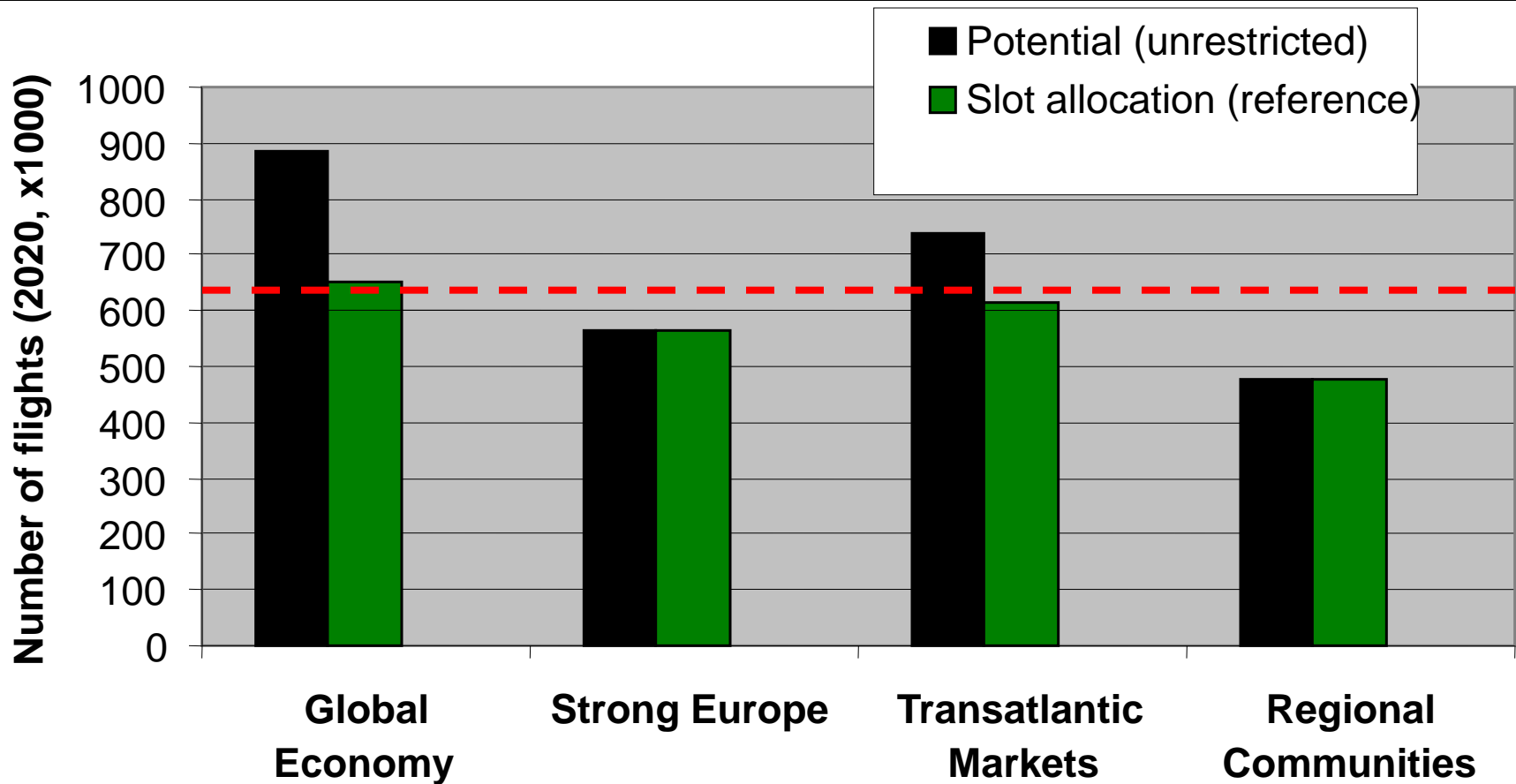
# *Expected growth of Schiphol is strongly dependent on scenario assumptions*



# *Expected growth of Schiphol is strongly dependent on scenario assumptions*



# *In two scenarios potential demand cannot be met given current capacity constraints*



# *Capacity Schiphol Airport*

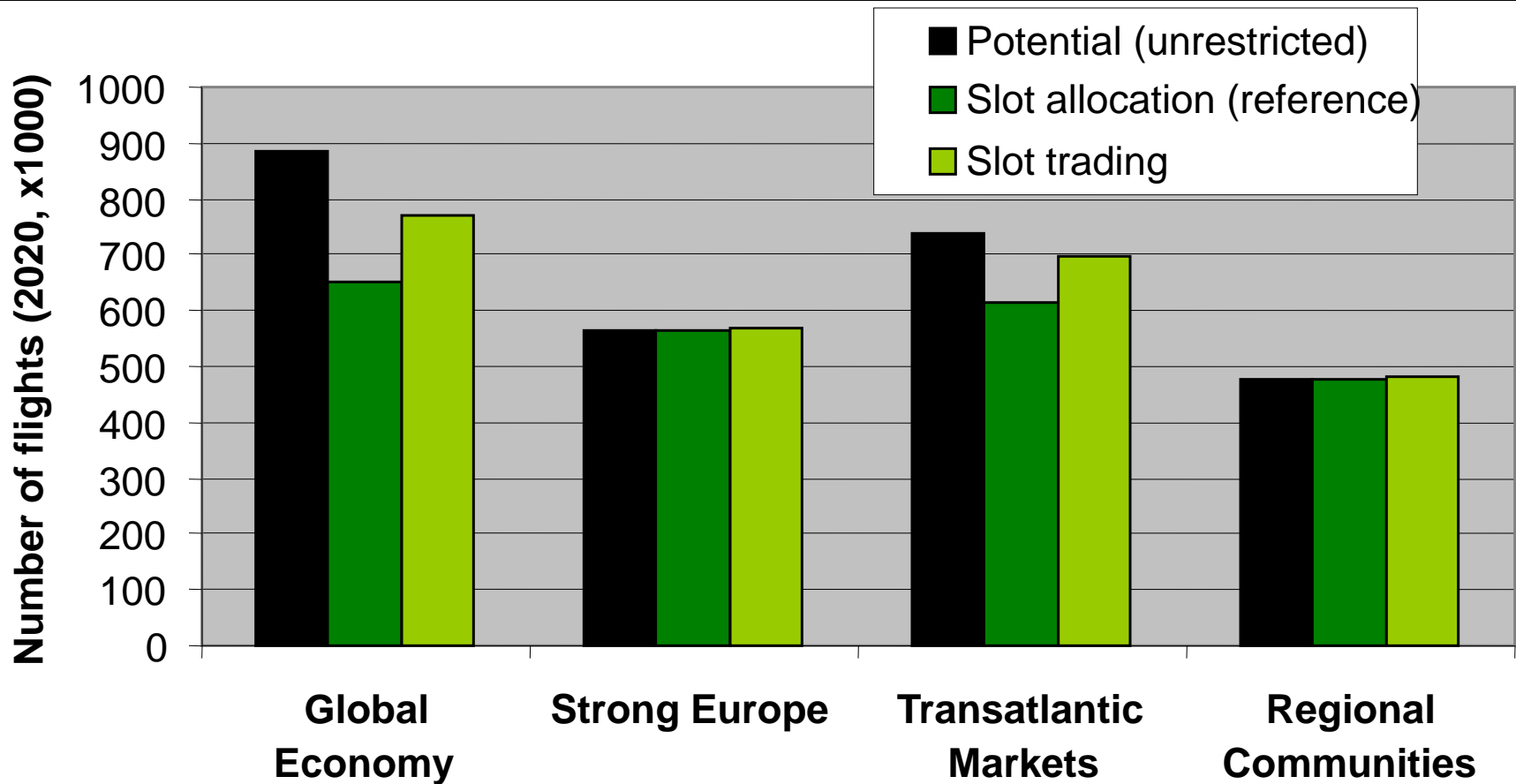
- **In high growth scenarios demand exceeds supply**
- **Physical capacity: 625,000 movements**
- **Noise capacity:**
  - Currently: about 480,000 movements
  - Increasing to 550,00 – 600,000 movements in 2020
  - Increase in noise capacity depends on policy measures



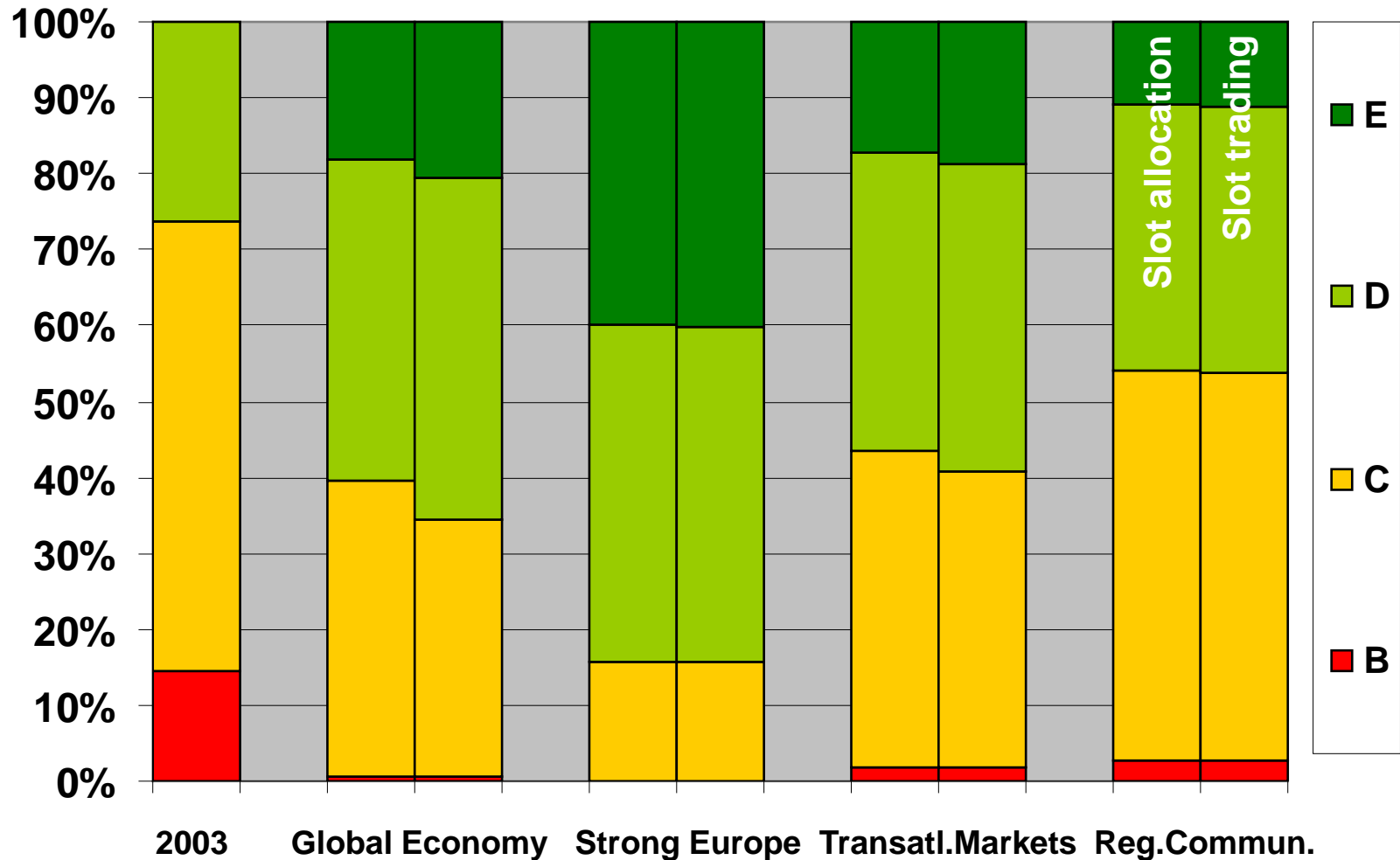
# *Policy options*

- **Slot trading**
  - Instead of existing slot allocation
- **General charges**
  - Ticket tax
  - VAT
  - Fuel tax
- **Specific charges**
  - Take-off/landing charges depending on time-of-day
  - Take-off/landing charges depending on technology class airplane

# *System of slot-trading instead of slot-allocation would allow for more flights*

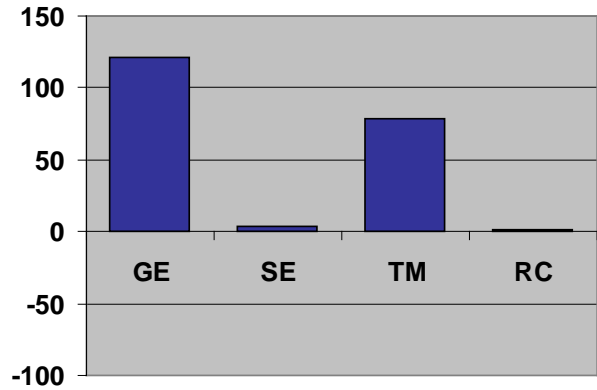


# Slot trading stimulates the use of newer type aircraft

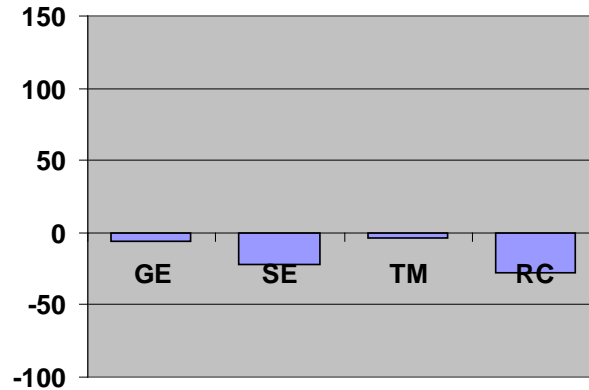


# Relative impacts of policy options on Aircraft Movements Schiphol 2020

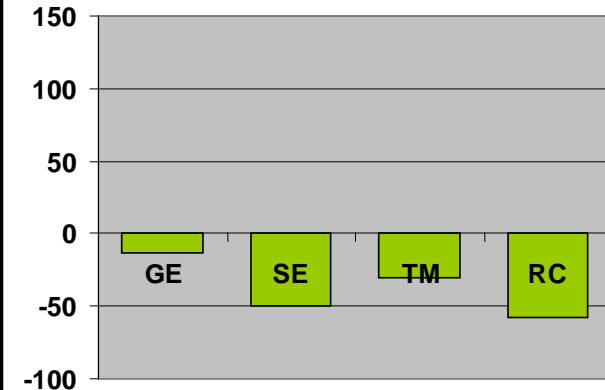
## Slot trading



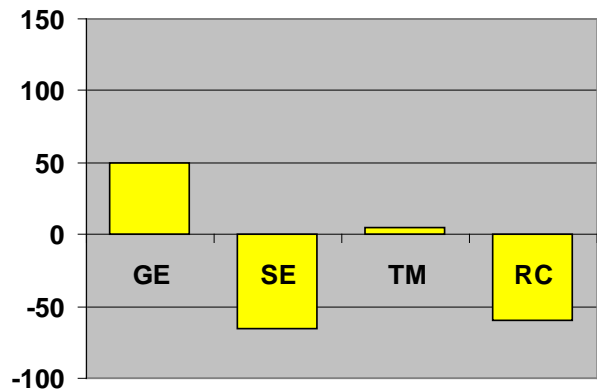
## Ticket tax



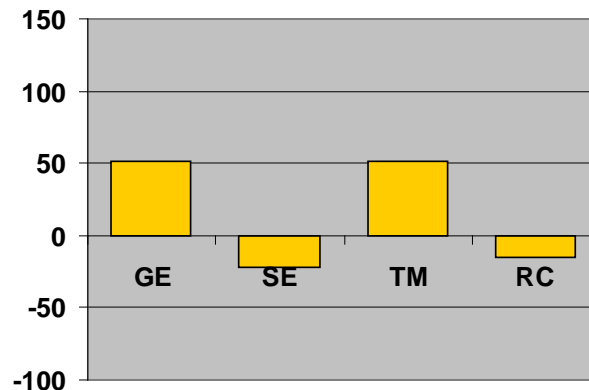
## VAT



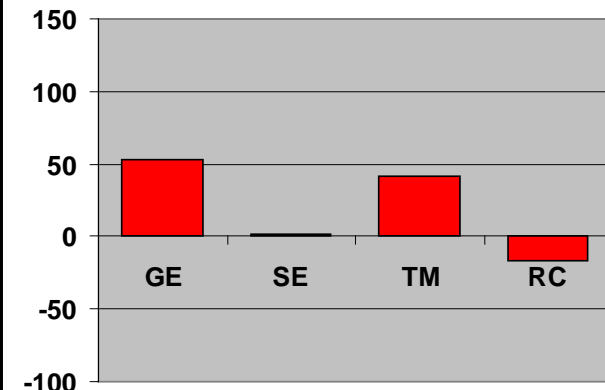
## Fuel tax



## Evening/night charge

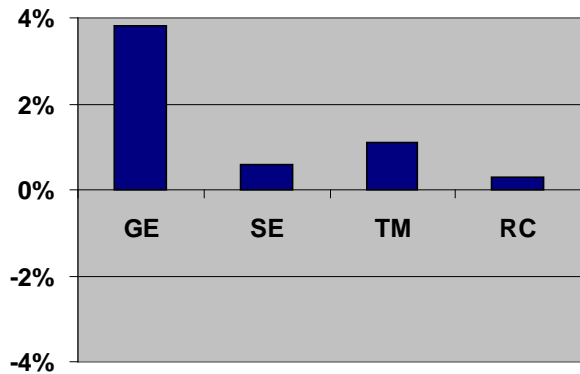


## Old technology charge

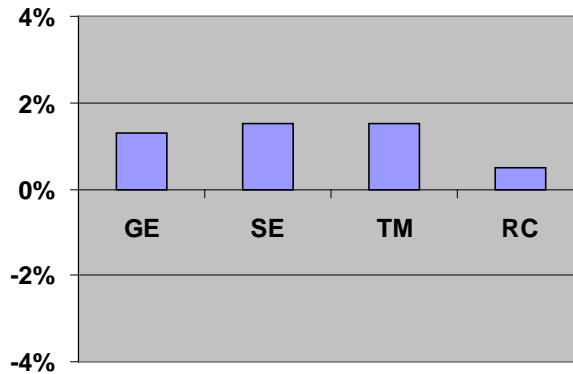


# Relative impacts on Market Share SkyTeam

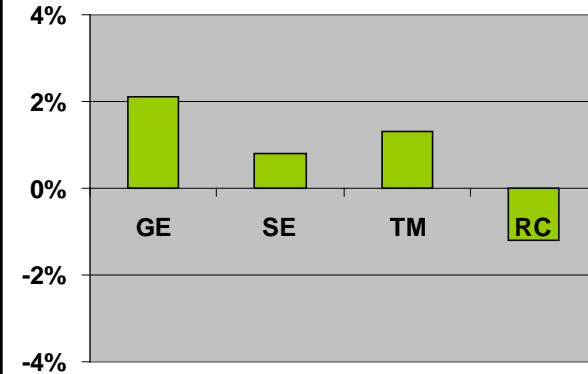
## Slot trading



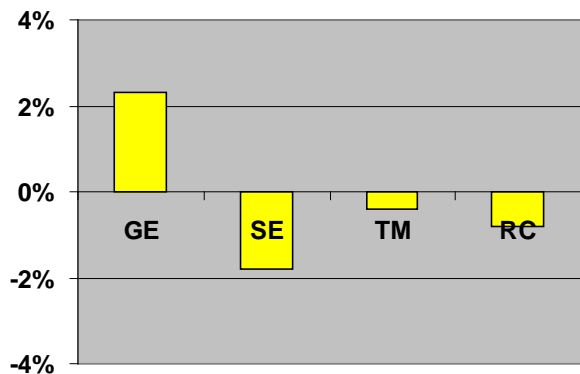
## Ticket tax



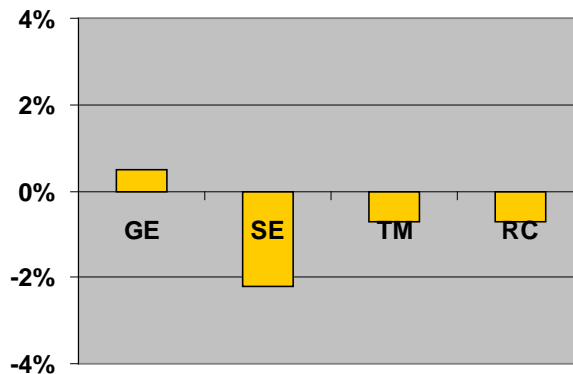
## VAT



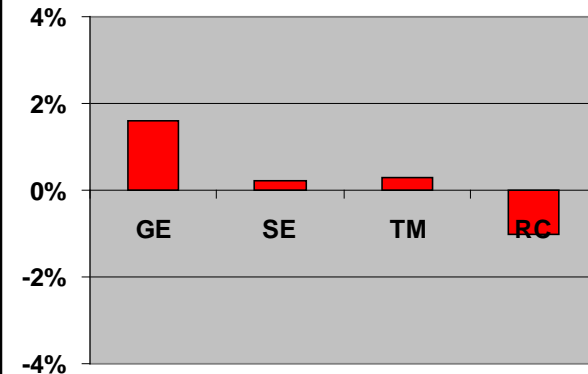
## Fuel tax



## Evening/night charge

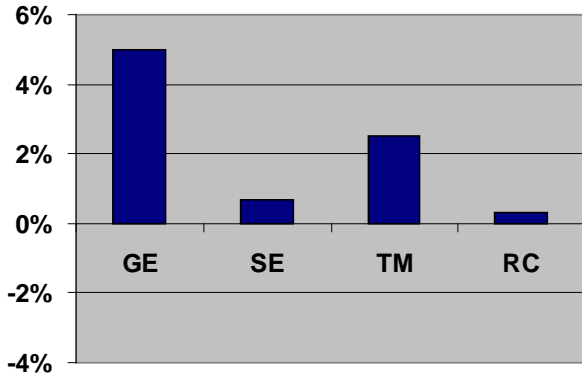


## Old technology charge

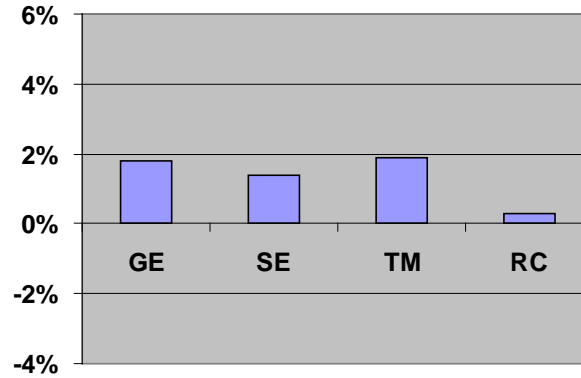


# Relative impacts on Transfer Percentage

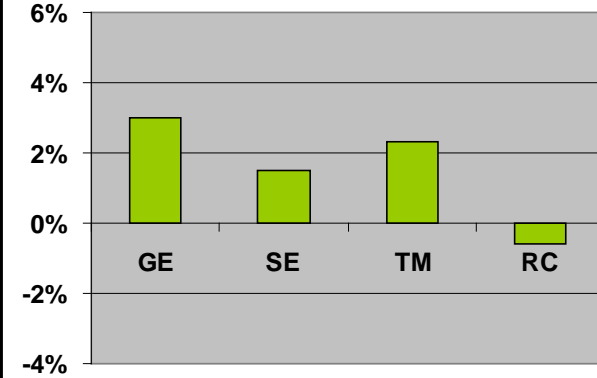
## Slot trading



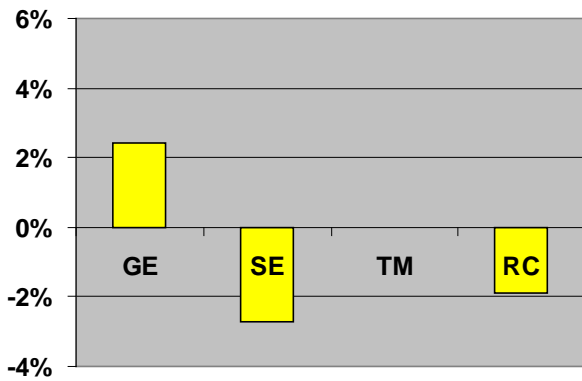
## Ticket tax



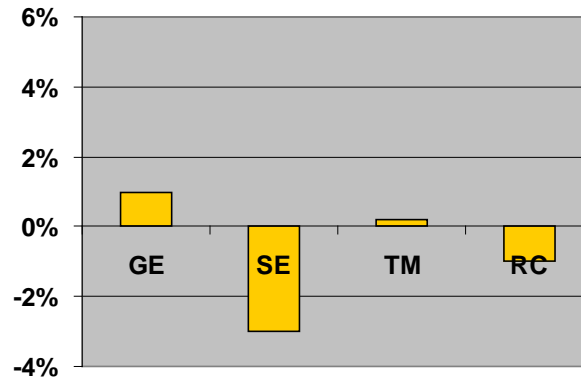
## VAT



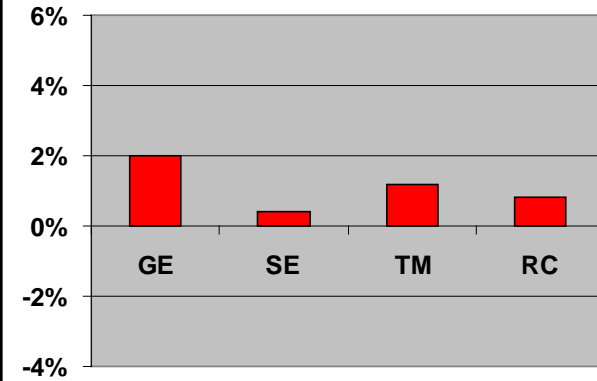
## Fuel tax



## Evening/night charge

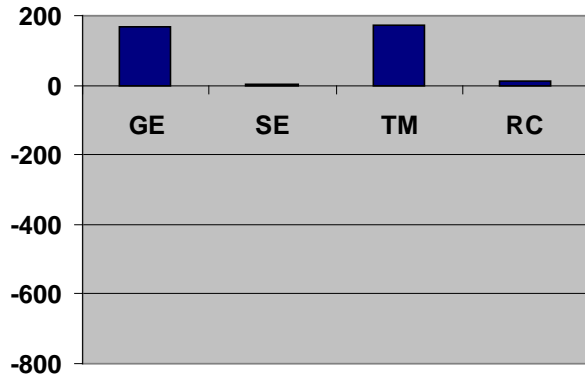


## Old technology charge

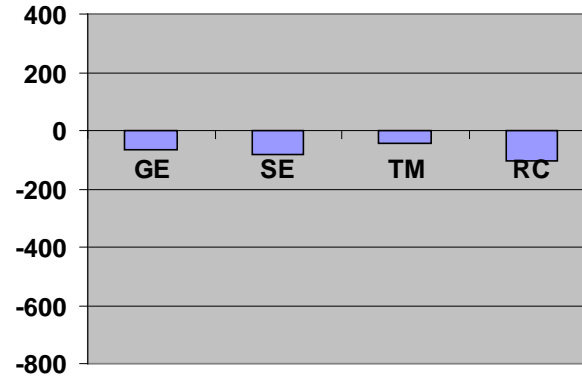


# Impact on Consumer Surplus (mio Euro)

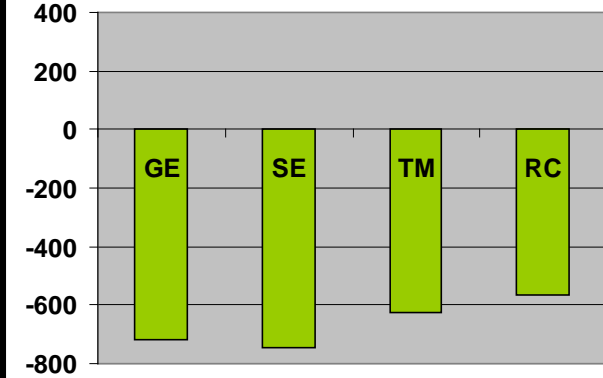
## Slot trading



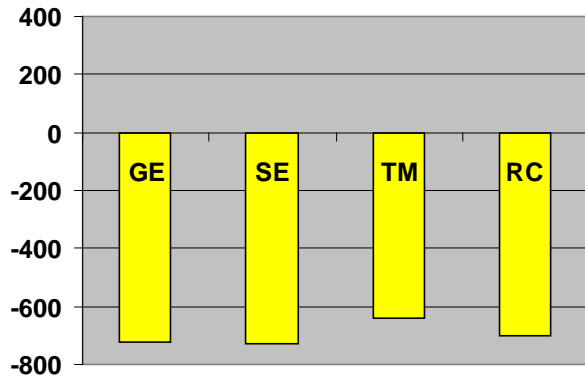
## Ticket tax



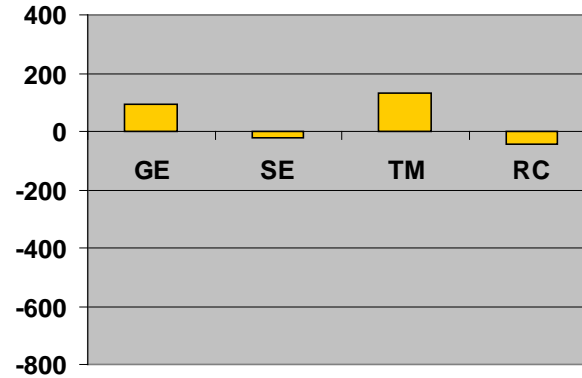
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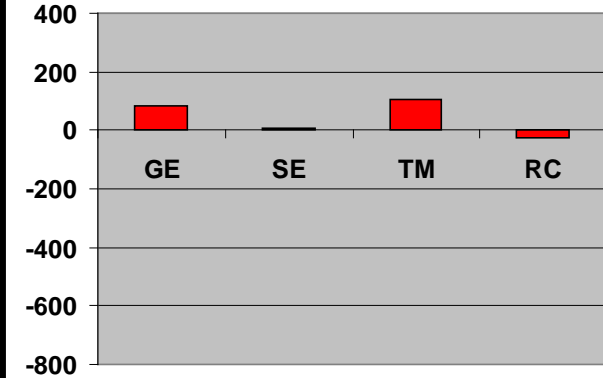
## Fuel tax



## Evening/night charge



## Old technology charge



# Assessment of policy options

|                  | Efficiency | Side effects | Robustness |
|------------------|------------|--------------|------------|
| Slot trading     | +          | +            | +          |
| General charges  | -          | +/-          | -          |
| Specific charges | +          | +/-          | +/-        |



# *Conclusions (1)*

- **Potential for substantial growth at Schiphol airport in period up to 2020**
  - Depends on macro-economic scenario
  - Capacity limits elsewhere increase potential demand further
- **Real chance that airport capacity will be reached before 2020**
  - Noise capacity more restrictive than runway capacity
- **Measures needed to accommodate growth**
  - Incentives to use less noisy aircraft: differential pricing

## ***Conclusions (2, tentative)***

- **Slot trading (if possible) would be very effective, few side effects and robust**
- **General charges: ticket tax/VAT/fuel tax may be effective but can have negative side effects and are not robust**
- **Specific charges: take off/landing by time of day/ aircraft technology class are potentially effective, but the side effects are uncertain, and the effects are not entirely robust**

## *Conclusions (3)*

- **But: research continues... and more simulations will be done in the coming weeks**

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