

Testing potential solutions to control urban sprawl

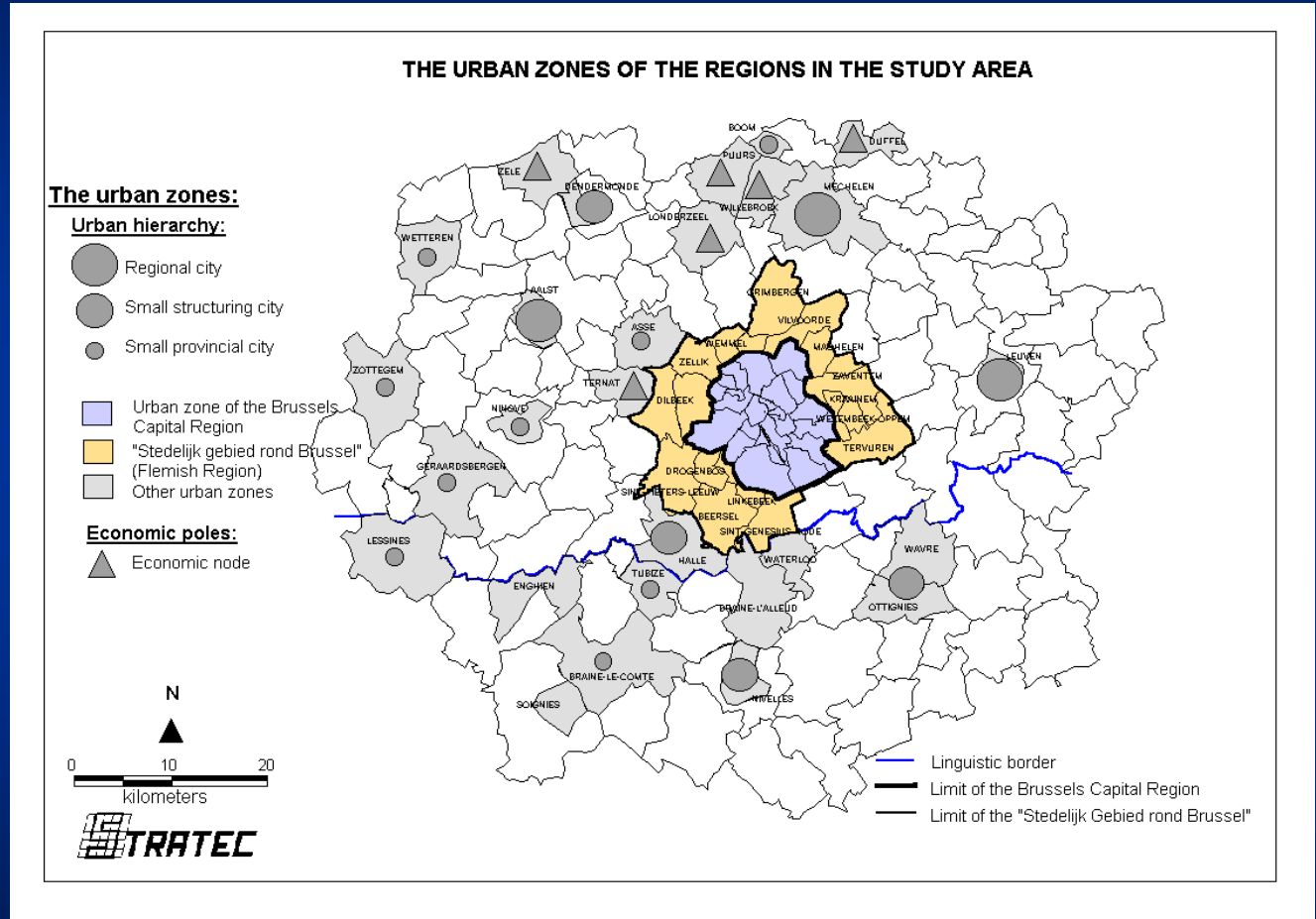
The Brussels case city

Brussels Metropolitan area:

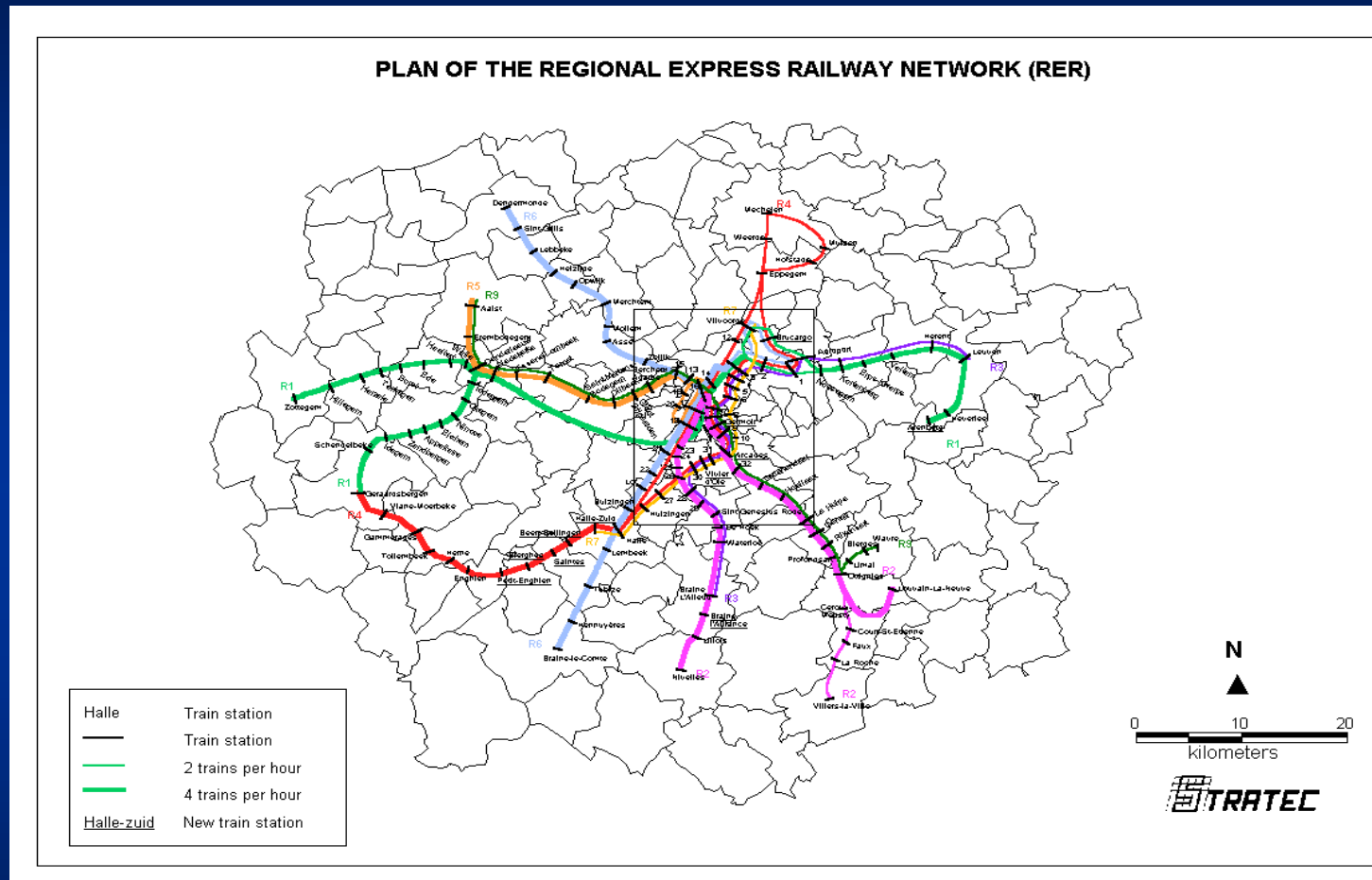
- 2.9 millions inhabitants
- 1.2 million jobs

Brussels-Capital Region:

- 1 million inhabitants
- 650 000 jobs
- lost 120 000 inhabitants in 30 years



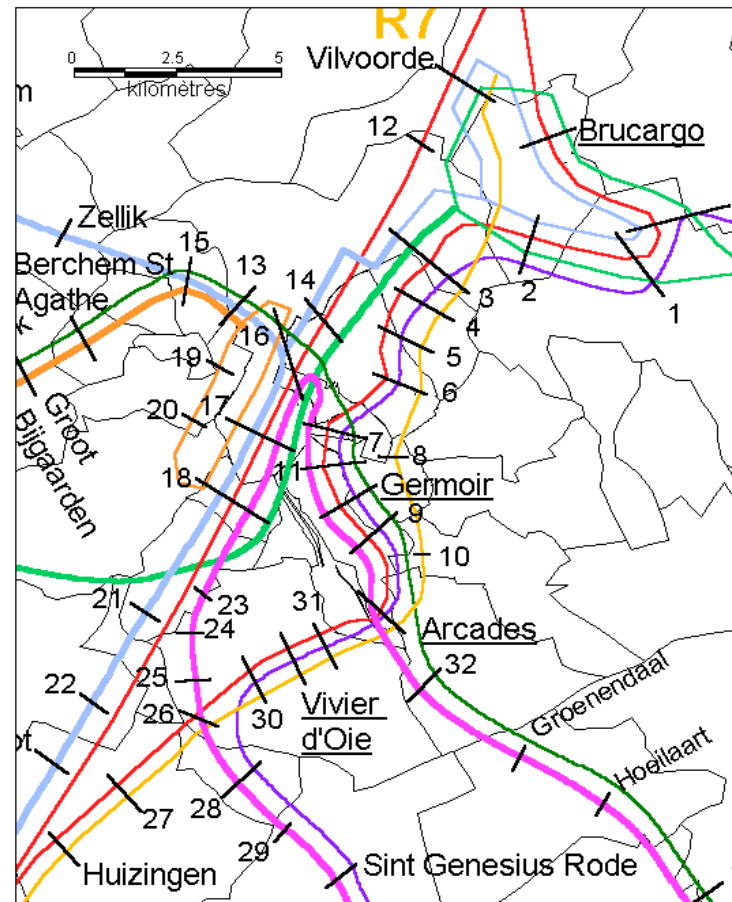
The RER project



- ✓ Investment cost: about 900 millions € - 8 new lines
- ✓ Short run impact on mobility: *strong modal shift towards PT*
- ✓ Long run impact on spatial structure: *risk of re-launch of urban sprawl*

The RER project

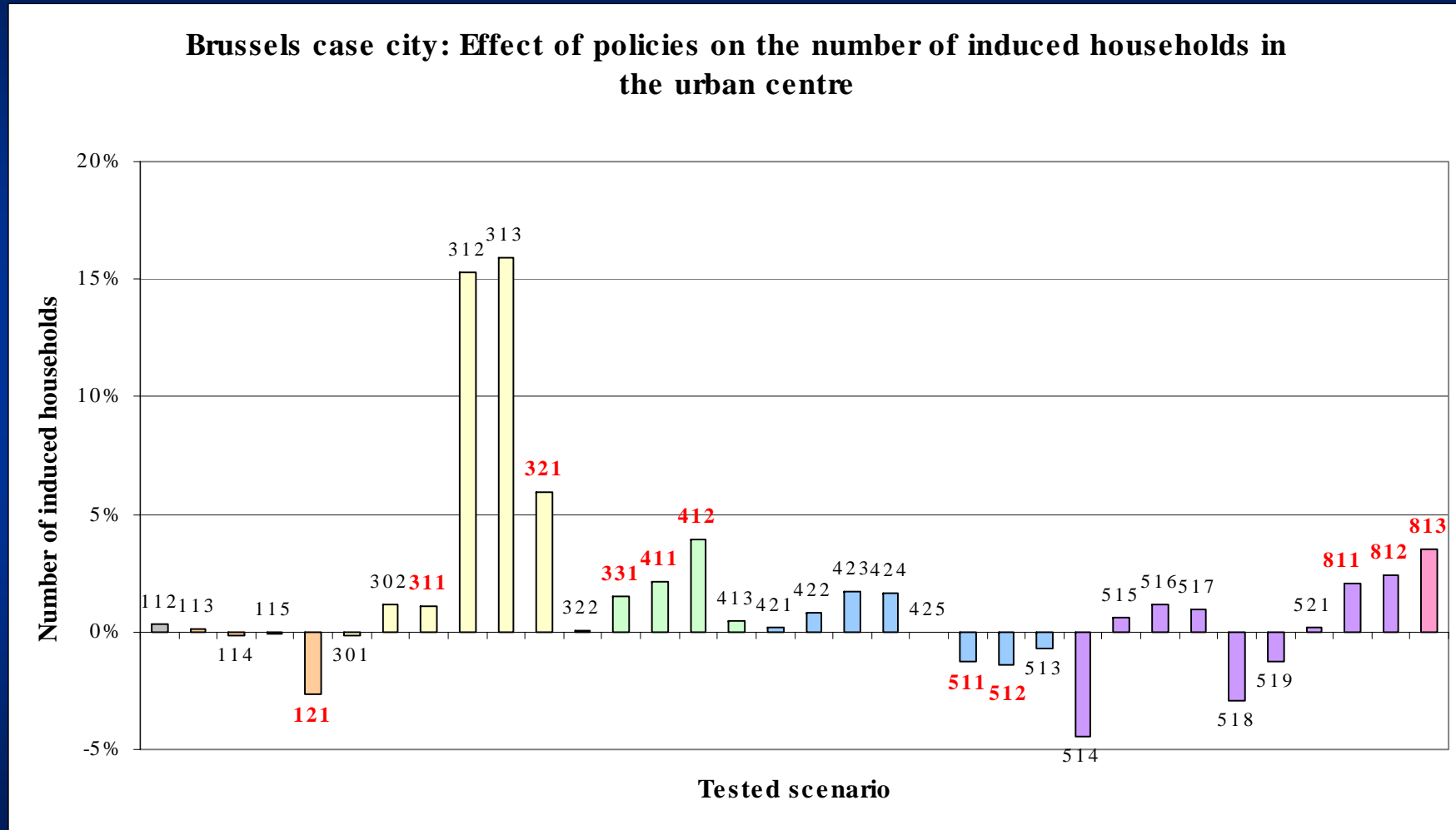
ZOOM OF THE REGIONAL EXPRESS RAILWAY NETWORK (RER) ON THE BRUSSELS CAPITAL-REGION



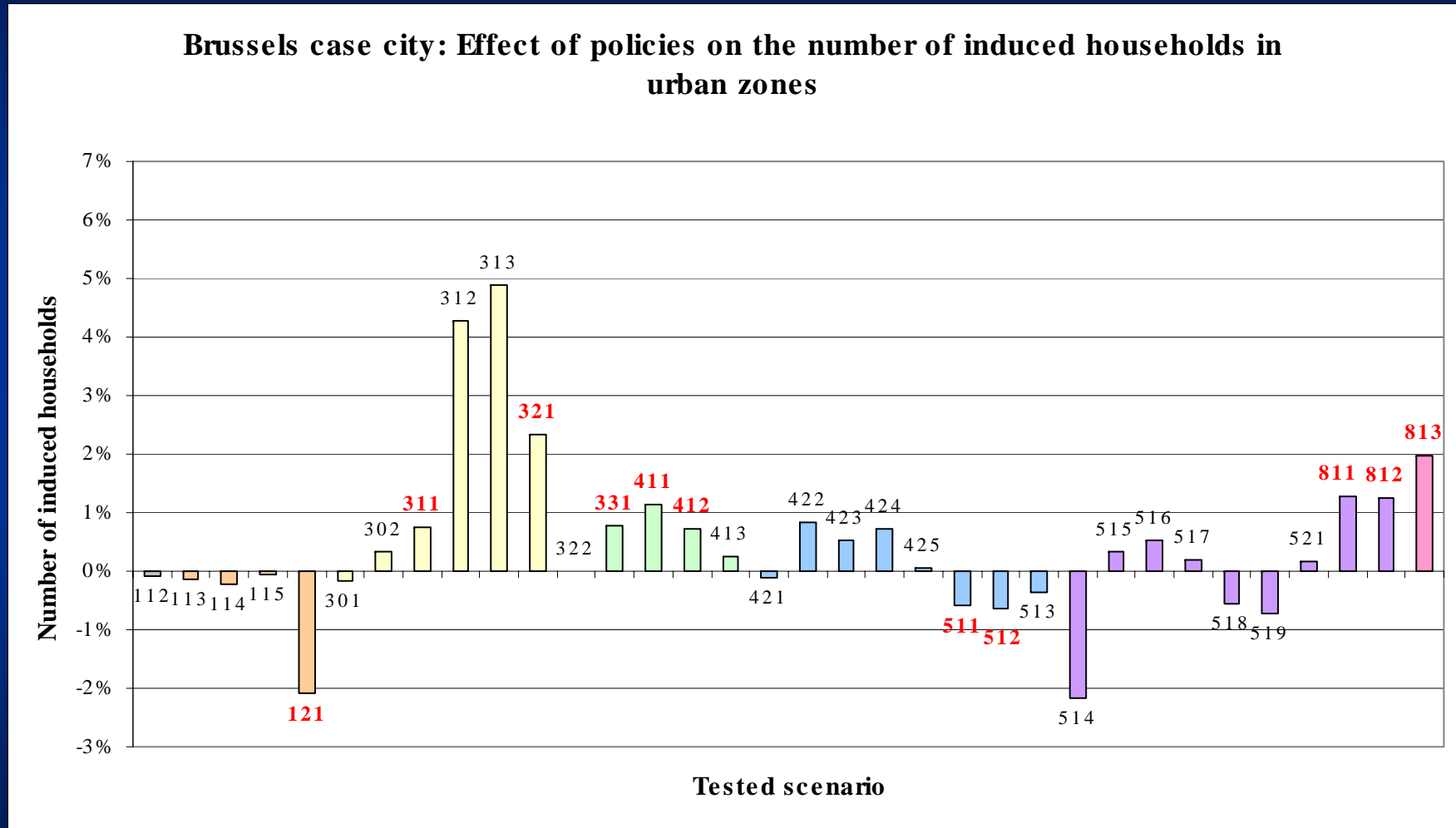
Numéro	Station
1	Zaventem
2	Diegem
3	Haren
4	Bordet
5	Evere
6	Meiser
7	Schuman
8	Mérode
9	Etterbeek
10	Delta
11	Luxembourg
12	Buda
13	Bockstael
14	Schaerbeek
15	Jette
16	Nord
17	Centrale
18	Midi
19	Simonis
20	Gare de l'Ouest
21	Forest-Midi
22	Ruisbroek
23	Forest-Est
24	Uccle-Stalle
25	Uccle-Calvoet
26	Moensberg
27	Beersel
28	Linkebeek
29	Holleken
30	Saint-Job
31	Boondael
32	Boitsfort



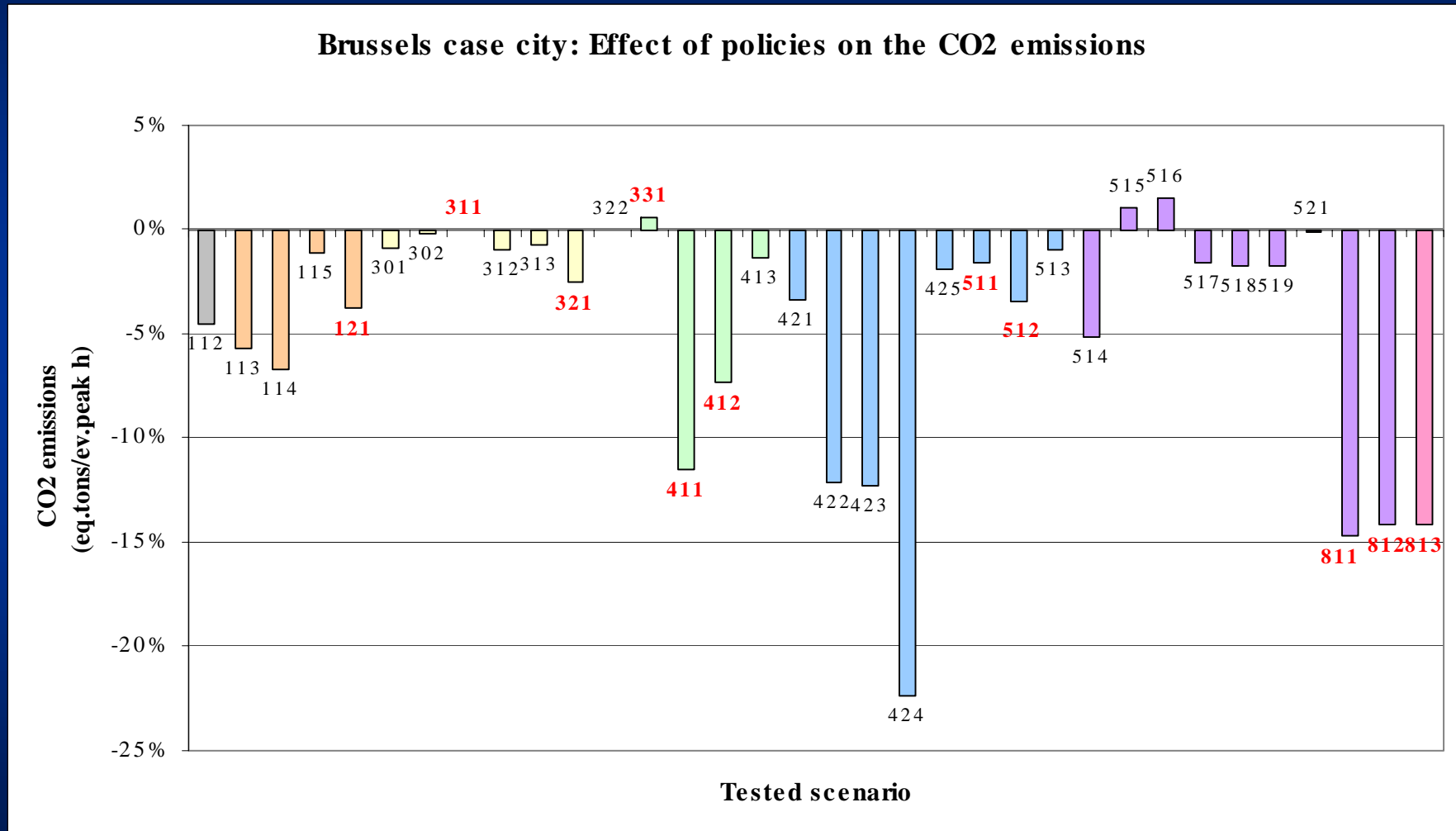
Effect on the number of households in the Brussels-Capital Region



Effect on the number of households in the urban areas



Effect on the CO2 emissions



Synthesis of results (1/3)

■ **Most effective policies**

(i) with regard to urban concentration and land consumption:

- Road pricing
- Fiscal measures related to land use
- Regulatory land use measure

■ **Indirect effects of land use policies:**

- Household-targeted policies: indirect effects on employment
- Employment-targeted policies: indirect effects on population

Synthesis of results (2/3)

- **All policies decreasing the generalised transport cost incite to urban sprawl:**
 - Improvement of PT commercial speed
 - Reduction of PT fare
 - Decrease of access time to rail stations

- **Decrease of the generalised transport cost limited to the central area makes it more attractive:**
 - See the results of the policy improving the PT commercial speed within the Brussels-Capital Region

Synthesis of results – Individual measures (3/3)

■ **Most effective policies**

(ii) with regard to fuel consumption and air quality:

- Road pricing
- Parking pricing + parking capacity restriction
- Express buses

■ **Cordon pricing:**

- Decrease of employment in the urban centre

■ **Parking policy:**

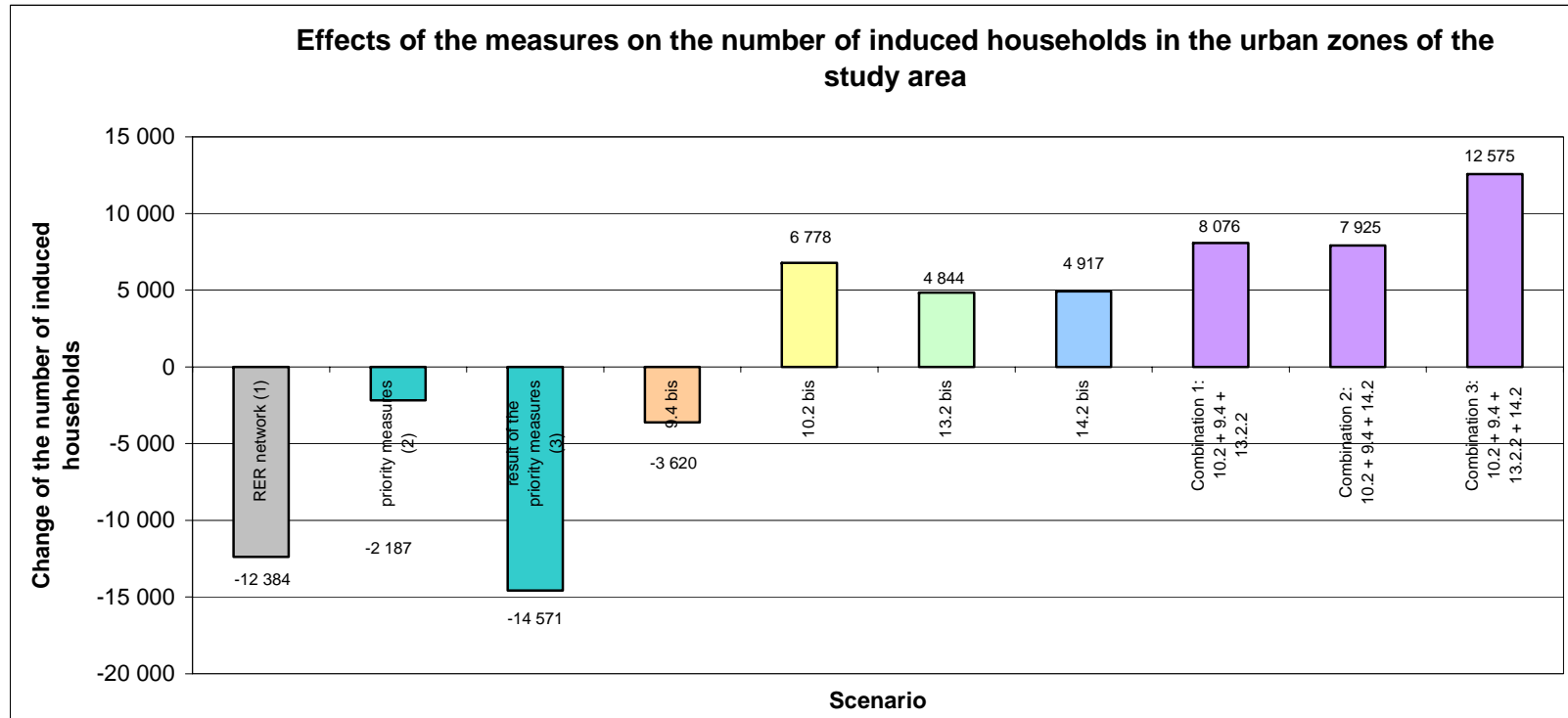
- Negative effect on employment
- Hence : spatial competition to be carefully considered when implementing such a policy

Impacts of the combination 813 in the case of Brussels








■ Components of the combination 813:

- Increase of car cost per km (+ 50 %)
 - ✓ *congestion pricing : increase of car use cost during the peak hours in the RER area*
- Decrease of PT fare for trips to work place (- 20 %)
- Fiscal measure on residential developments
 - ✓ *impact fee on new residential site developments*
 - ✓ *fiscal reduction in urban areas*
- Fiscal measure on services to business
 - ✓ *annual impact fee per employee when located in areas poorly served by public transport*

Effect on the number of households in the urban areas

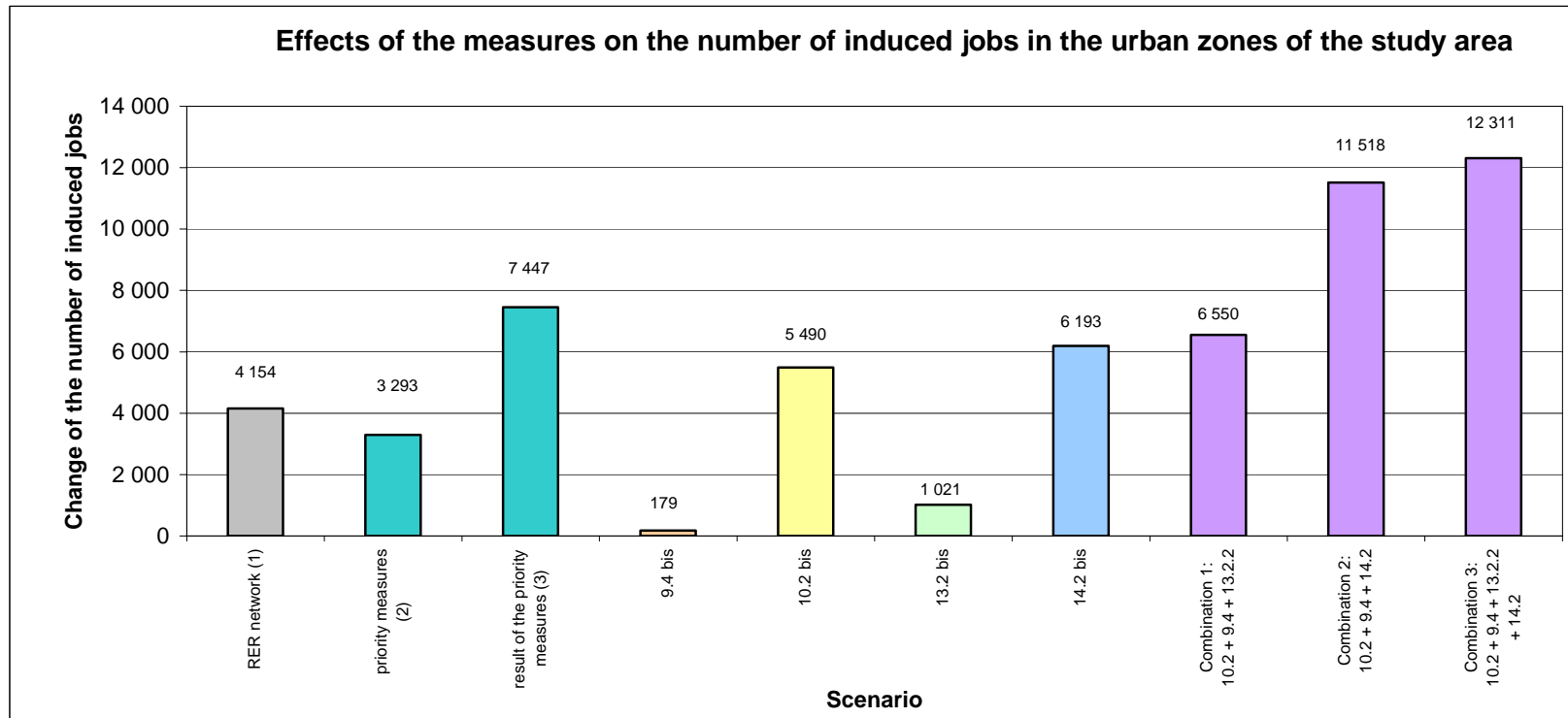


Types of scenarios:

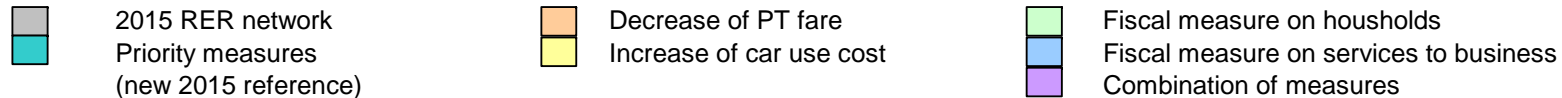
- | | | | | | |
|---|--|---|--------------------------|---|--|
|  | 2015 RER network |  | Decrease of PT fare |  | Fiscal measure on households |
|  | Priority measures (new 2015 reference) |  | Increase of car use cost |  | Fiscal measure on services to business |
| | | | |  | Combination of measures |

- (1) The effect of the RER network is calculated in comparison with the 2015 reference scenario
 (2) The effect of the priority measures is calculated in comparison with the 2015 RER scenario
 (3) The effect of the priority measures is calculated in comparison with the 2015 reference scenario
 The effects of the other measures are calculated in comparison with the priority measures

Effect on the number of jobs in the urban areas

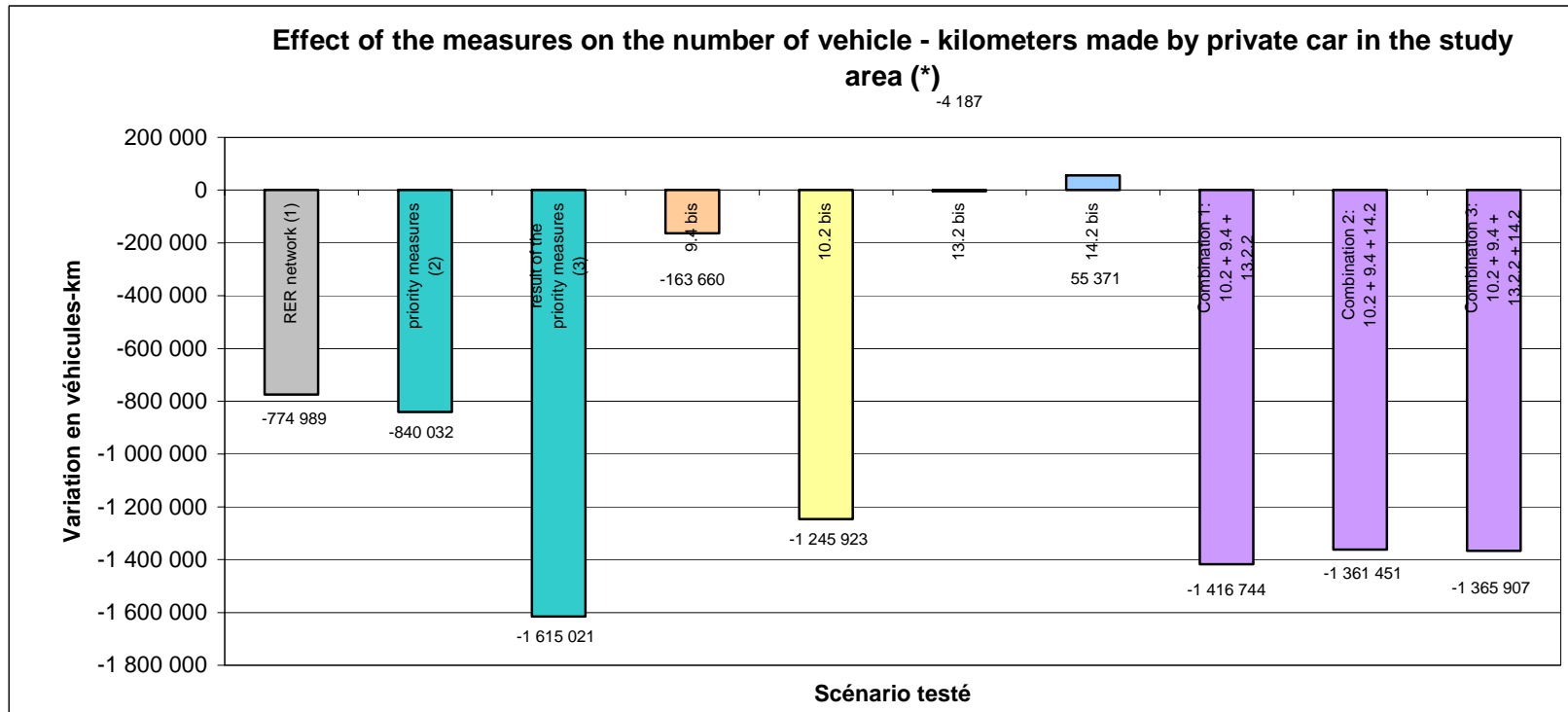


Types of scenarios:










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Effect on the vehicle-km by car



Types of scenarios:

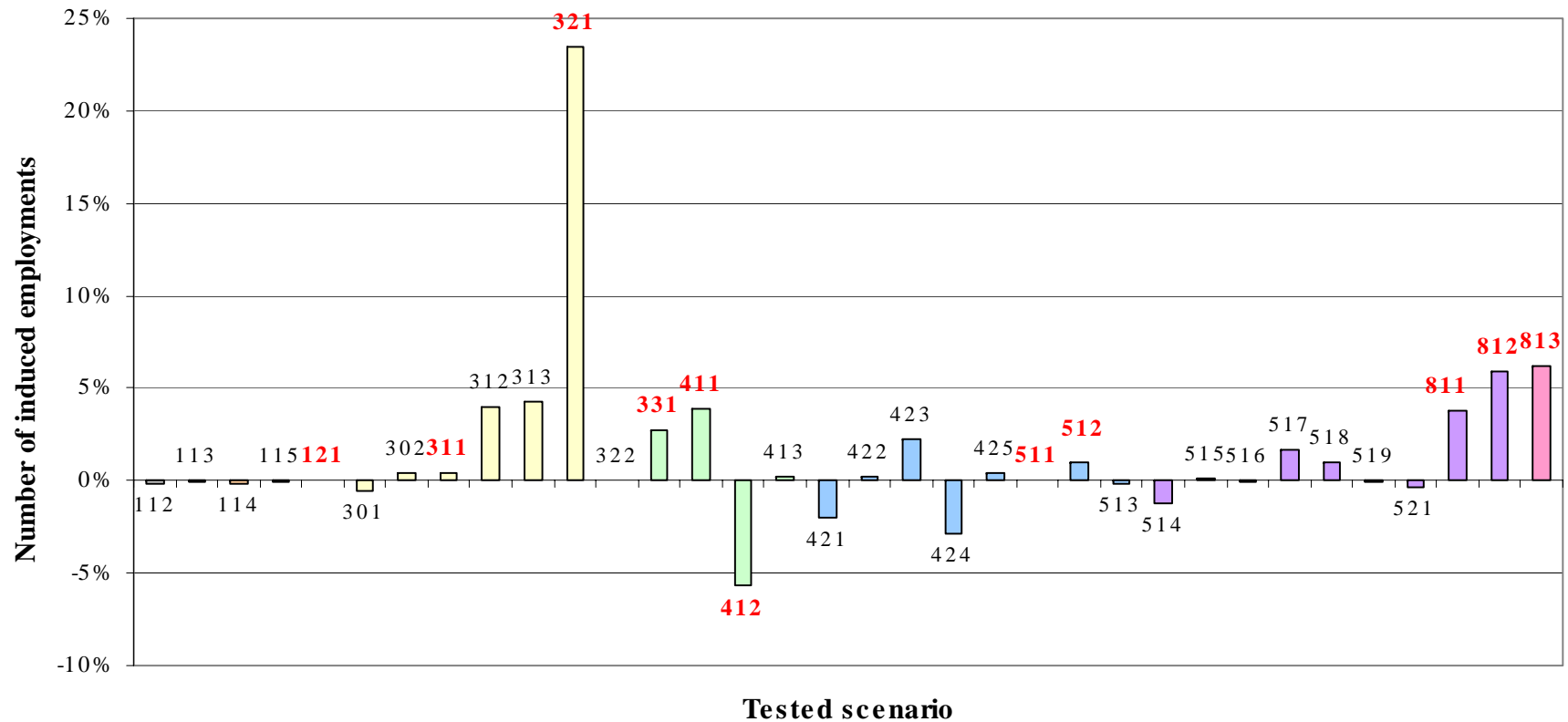
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(*): Vehicle-kilometers made by private car in the study area, including the entering and outgoing traffic, at the morning peak hour (7 a.m.-9 a.m.), for all travel purposes

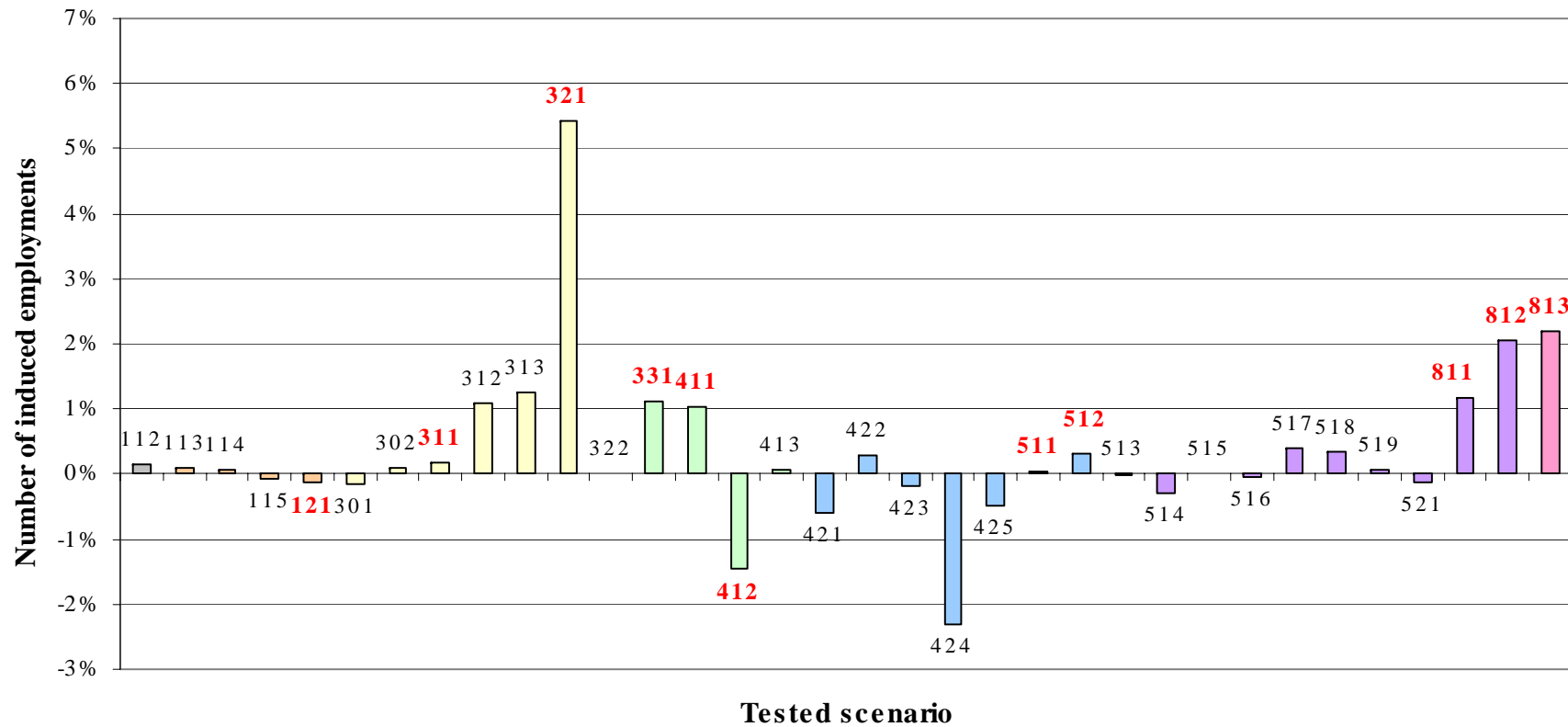
Effect on the number of jobs in the Brussels-Capital Region

Brussels case city: Effect of policies on the number of induced employments in the urban centre



Effect on the number of jobs in the urban areas

Brussels case city: Effect of policies on the number of induced employments in urban zones



Effect on the vehicle-km by car

