SPEED CAMERAS IN SWEDEN – EFFECTS ON EFFECTS ON SPEED AND TRAFFIC SAFETY

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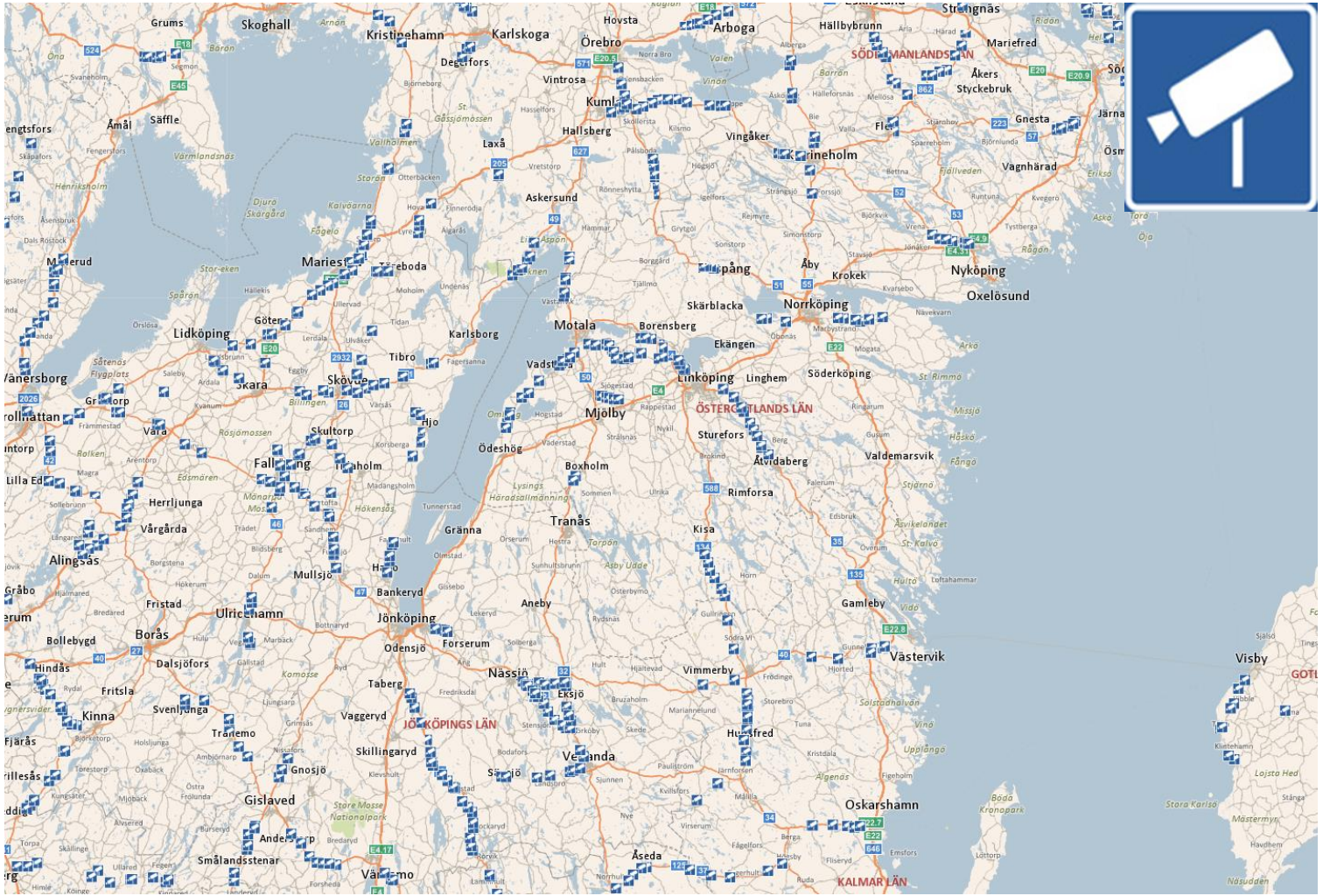
Foto Mark Cruz, Unsplash

SPEED CAMERAS IN SWEDEN

New system introduced in 2006

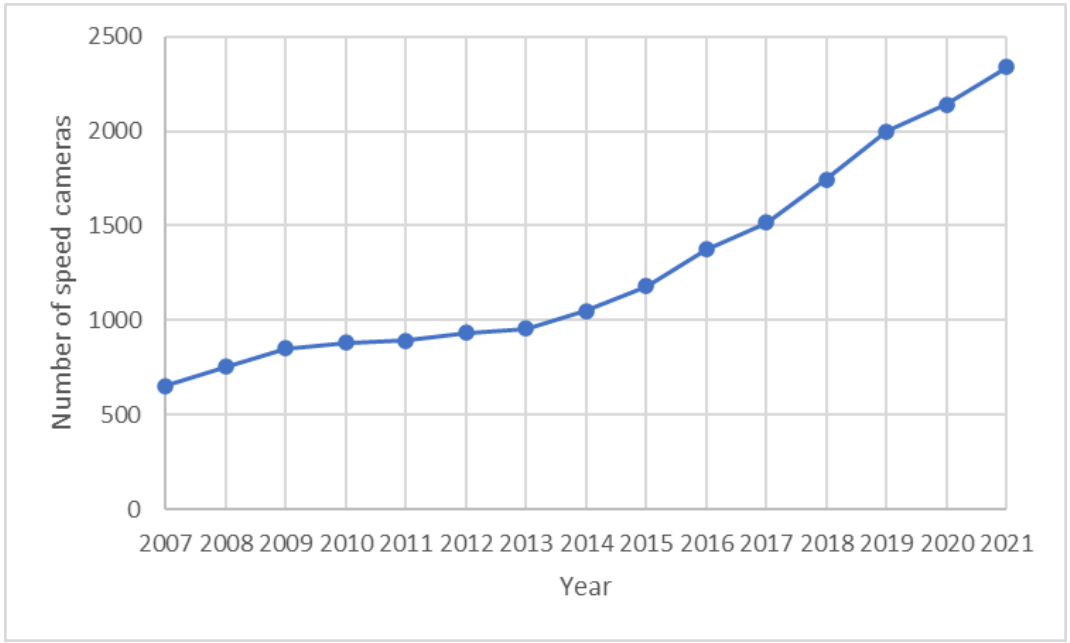
Swedish Road Administration and the Police are responsible for the camera system

Speed cameras often set in series with a mean distance between cameras of about 5 km



Source: https://nvdb2012.trafikverket.se/SeTransportnatverket

BACKGROUND



Today there are about 2300 speed cameras in Sweden

Aim is to reduce speeds and thereby severe crashes and injuries in traffic

Earlier evaluations (2012) have shown positive traffic safety results

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AIM OF THE STUDY

Increase knowledge about speed cameras and estimate their effect on speed and traffic safety. Three sub-aims:

1. Evalute short- and long-term effects regarding mean speed and speed compliance
2. Evaluate how the speed effects depend on the distance to the speed cameras.
3. Investigate effects on fatalities and severe injuries

SPEED

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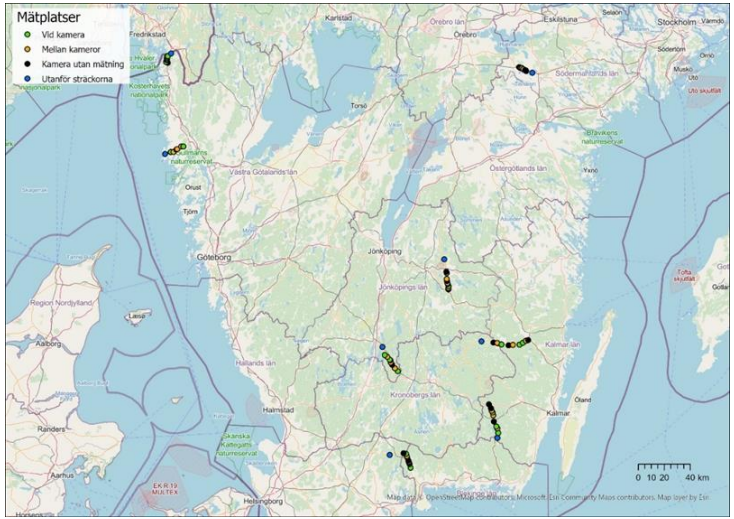
TWO DATA SETS ON SPEED

Speed measurements before and after speed cameras introduced

1. Speed measurements during 2003 – 2017 (STA)
2. Speed measurements during 2019 – 2021 within the project



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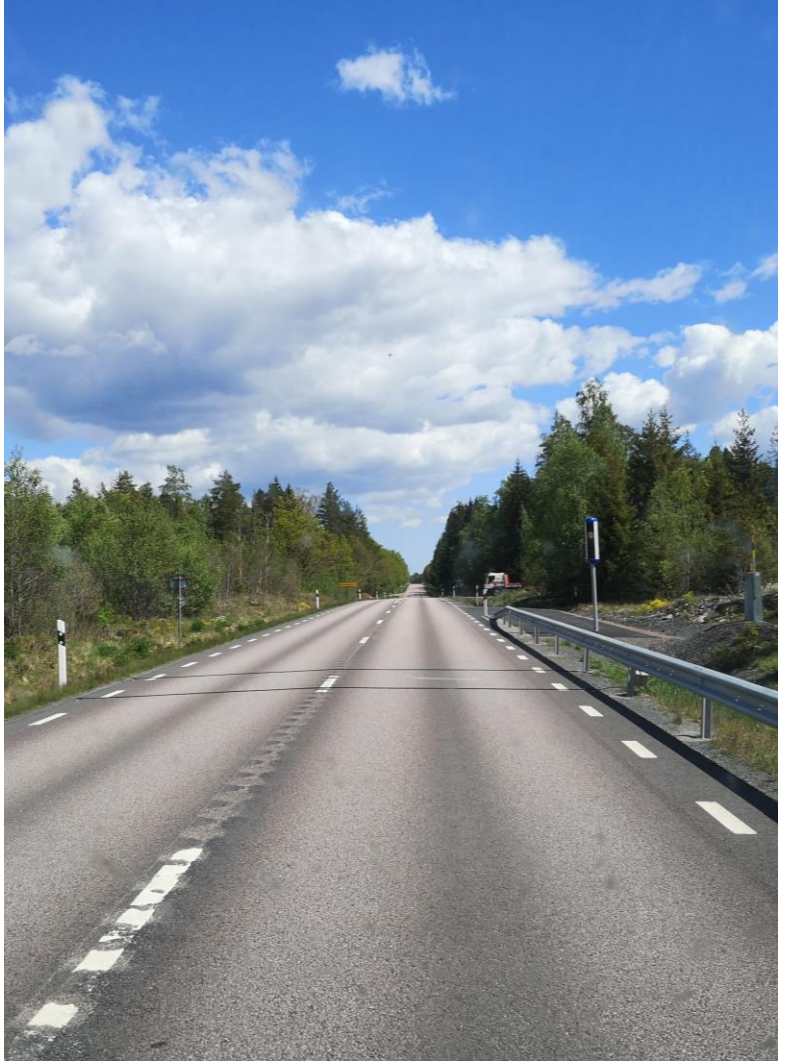
METHOD

- Speed data were collected using pneumatic tubes stretched across the road.
- The speed measurements were conducted before and after the speed cameras were installed.
- In total, speeds used in the analysis were recorded at 265 (study 1) and 96 (study 2) different locations.
- Only speeds of vehicles travelling in the direction of the camera orientation were considered



SPEED COMPLIANCE

- Increase of speed compliance both close to and between cameras.
- ***Close to the camera,*** speed compliance has increased by 22–56 percent units depending on the speed limit.
- ***Between cameras,*** speed compliance has increased by 11–15 percent units depending on the speed limit.
- Largest increases on roads with speed limit 80 km/h, which was also where speed compliance was the lowest before speed cameras were introduced.
- For trucks with trailers, the increase in speed compliance was generally lower than for passenger cars.
- Even though motorcyclists cannot be fined by the camera system, their compliance has increased as well, though not as much as the compliance of passenger car drivers.

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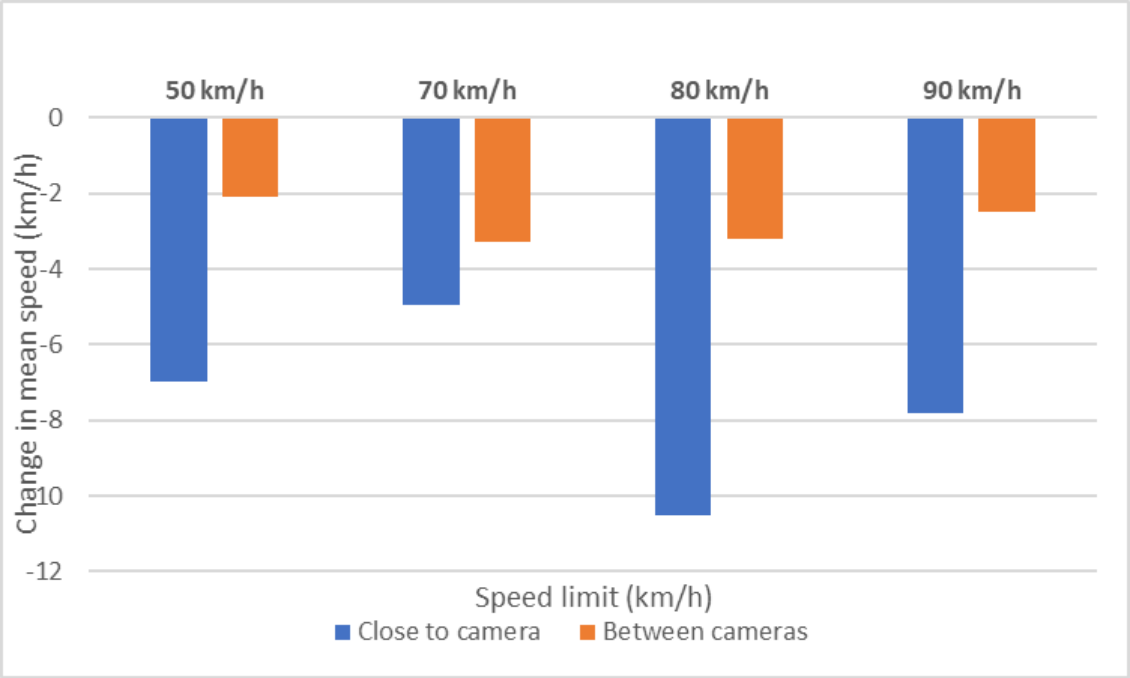
MEAN SPEED



Overall, mean speeds have been reduced by 3.5 km/h.

Close to the camera mean speeds decreased by 4–10 km/h

Between cameras, mean speeds decreased by 2–4 km/h.

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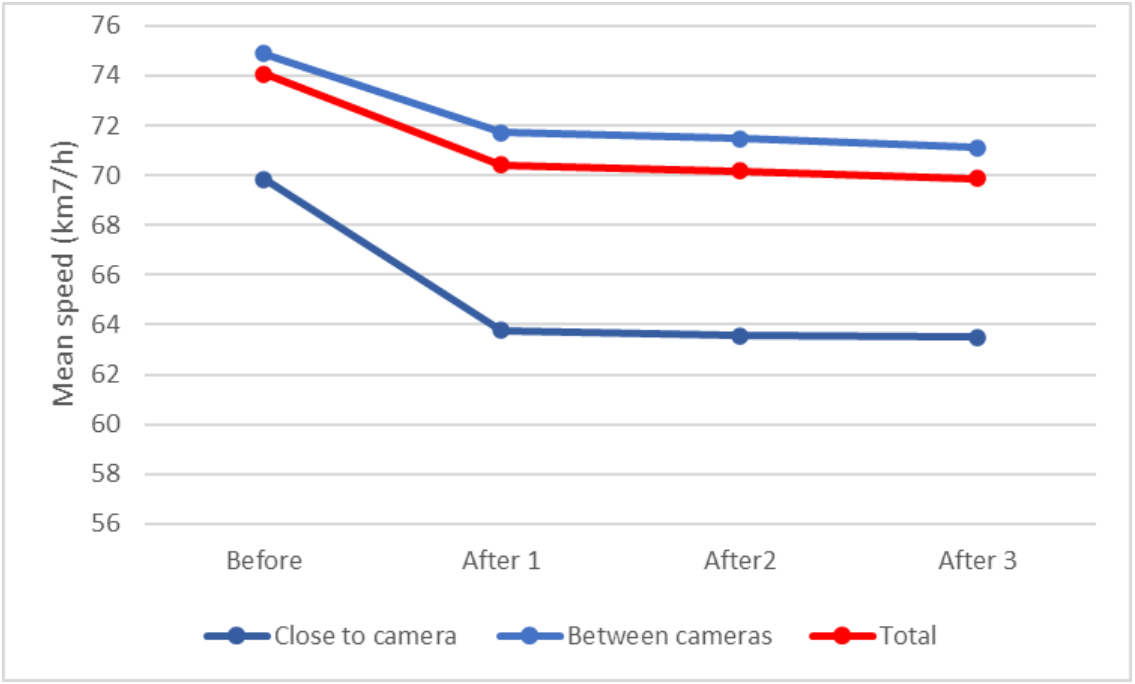
RESULT – LONG TERM EFFECTS



Mean year:

Before: 2005

After 1: 2008

After 2: 2012

After 3: 2016

N = 85

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CHANGE OF SPEED LIMIT AND SPEED CAMERA

Combined effect of two separate measures: reduced speed limit from 90 to 80 km/h and speed cameras

- Mean speed decreased additionally 3–4 km/h compared to spots that only changed the speed limit.
- This double effect from the speed cameras is in line with previous studies of roads where the speed limit was reduced from 90 to 80 km/h
- Close to cameras, mean speed decreased by 10 km/h and between cameras mean speed decreased by about 7 km/h.

CRASHES

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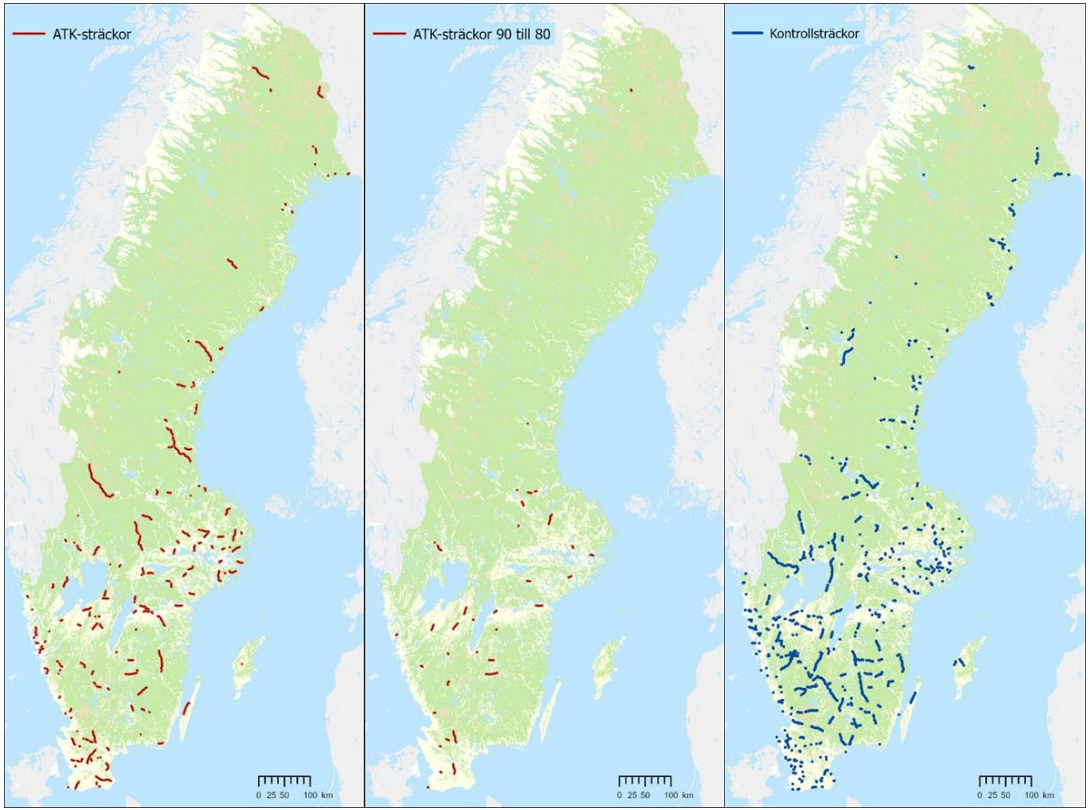
METHOD

- Data: National Road Data Base and the crash data base Strada
- Data matched in GIS
- Empirical Bayes study - comparing the outcome before and after with control roads (no speed cameras).



RESULT CRASHES

- The number of fatalities decreased by 39%.
- The number of FSI decreased by 19%.
- The number of seriously injured decreased by 15% (ns).
- Looking at the combined effect of speed camera and reduced speed limit from 90 – 80 km/h:
  - The number of fatalities decreased by 62%.
  - The number of FSI decreased by 39%.
  - The number of seriously injured decreased by 33%.

CONCLUSIONS

- The speed camera system maintains the effectiveness shown in previous studies and the reductions in mean speeds are sustained for the studied time period, 2006–2016
- Speed cameras increase speed compliance and decrease mean speed– both close to and between cameras.
- There are greatest effects close to the camera and the effect decreases with the distance to the camera and after 5 km the effects of the camera are marginal.
- Regarding traffic safety effects, the results show a 39% decrease of the number of persons fatally injured and a 15% decrease of the number of persons seriously injured

Read more?

VTI Report 1107: *Speed Cameras in Sweden. Effects on Speed and Traffic Safety,* in Swedish, summary in English.

Questions: anna.vadeby@vti.se

Thank you for listening!

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