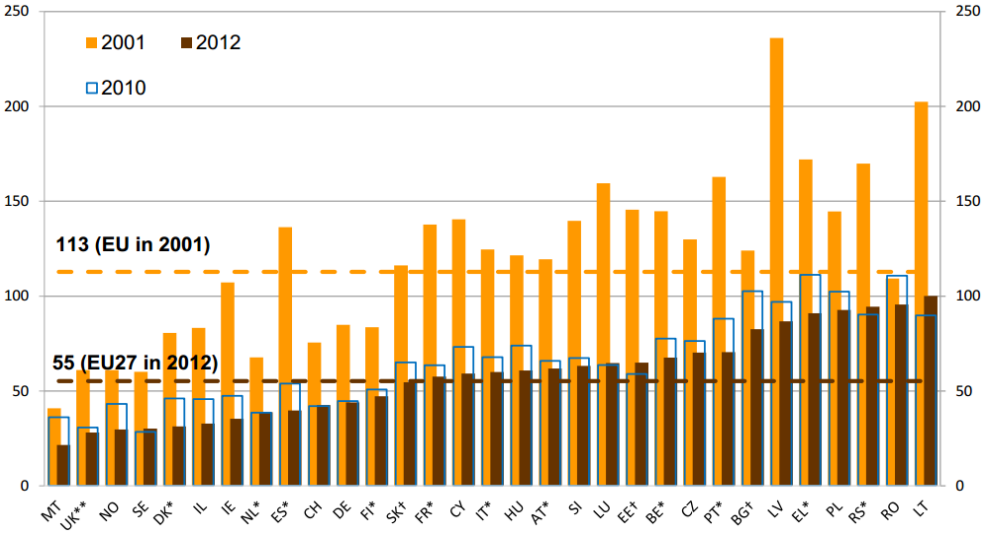
European Transport Safety Council - Road Safety Institute Panos Mylonas - Hellenic Institute of Transport

Greece's Road Safety in a European context

Road Safety Performance Index debate - PIN Talk

Athens, 19 March 2014

Monitoring road safety policies and performance



Source: ETSC

Source: HELSTAT

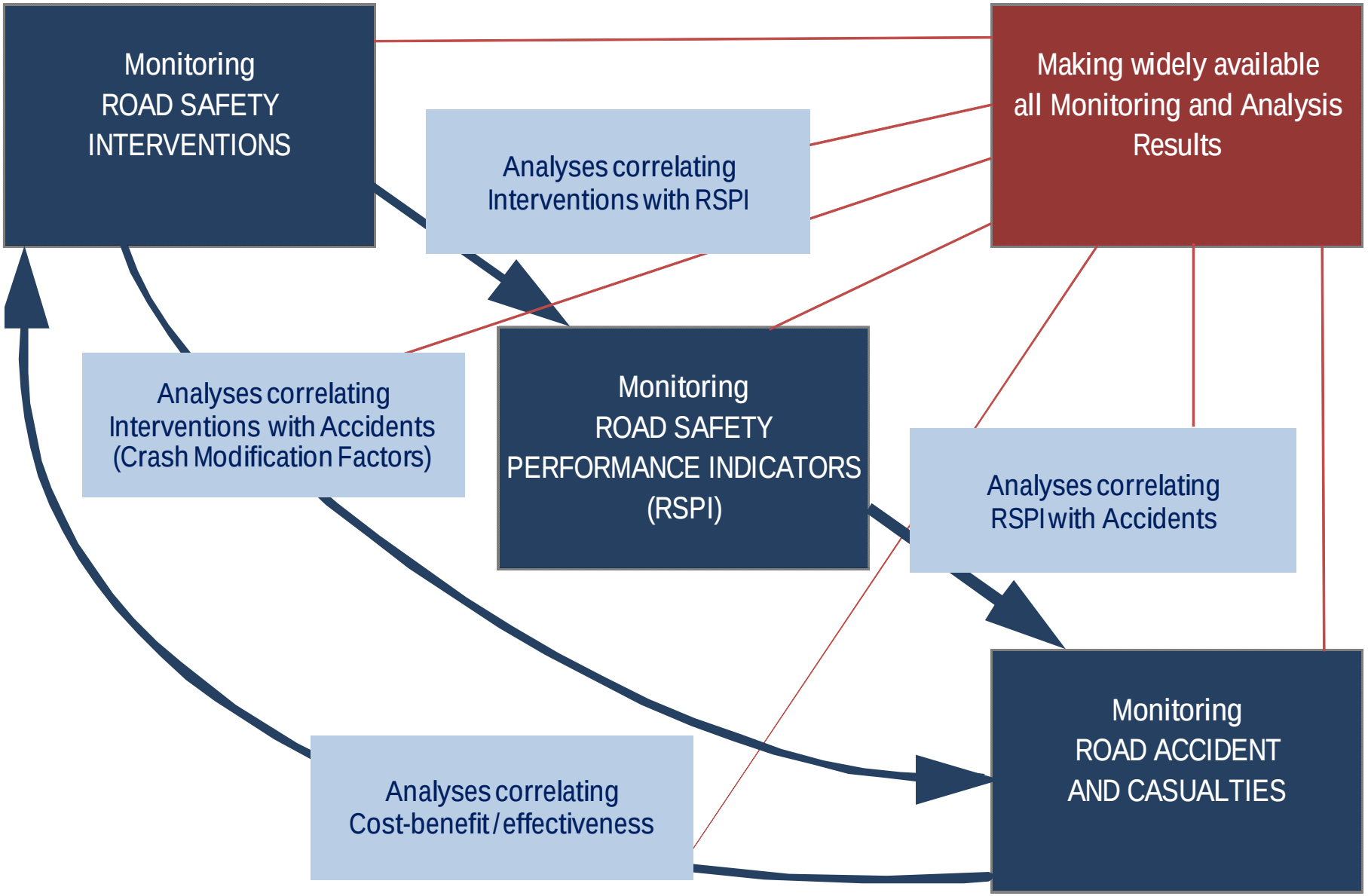
George Yannis, Associate Professor
National Technical University of Athens

A high need for monitoring road safety policies and performance

Road Safety is a typical field with high risk of important investments not bringing results.

*Absence of **monitoring and accountability** limits seriously road safety performance.*

Tools for road safety accountability



Monitoring Road Safety Interventions

Road User Behaviour

- number of road safety **campaigns**
- number of road safety **training** activities
- number of **enforcement controls** (speed, alcohol, seat belt, helmet etc)
- number of **police staff** taking part in enforcement activities per day / region

Vehicle and Post crash care

- incentives for vehicles with advanced **safety equipment**
- new equipment for **emergency** services
- training of emergency services staff
- new equipment for the **Traffic Police** and Fire Brigade services

Monitoring Road Safety Interventions

Road Infrastructure

- number of identified **high risk sites** and related interventions
- length of road **sections improved** (lighting, visibility, markings, signing, road surface, etc.)
- number (and length) of **Road Safety Audits** conducted
- number and length of road **work zones** treated

Support actions

- number of **studies / analyses** on road accident causes

Monitoring Road Safety Performance Indicators

Road User Behaviour

- **speeding**, comparison to mean speed, speed variance, speed limit violations
- percentage of **seat belts**‘, child restraints' and **helmets**’ use
- incidence of **drinking and driving**
- incidence of **mobile phone** use
- failure to stop or **yield** at junctions or at pedestrian crossings
- inadequate **headways** – close following
- use of reflective devices for **cyclists** and pedestrians
- use of **pedestrian** crossing facilities by pedestrians.

Monitoring Road Safety Performance Indicators

Road and vehicle

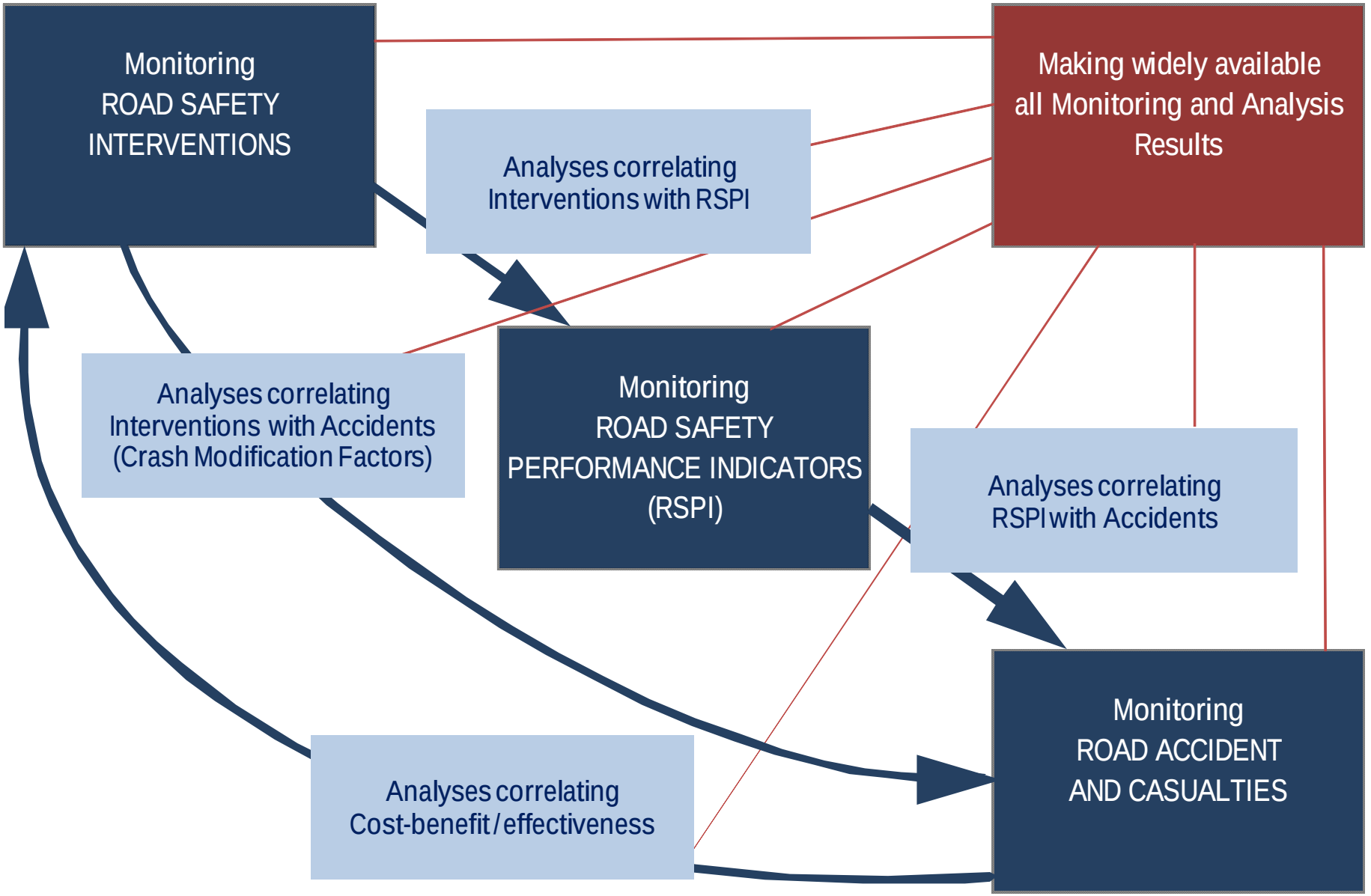
- percentage of road network not satisfying safety **design standards**
- **pavement friction** mostly in winter and on wet road surfaces
- percentage of **new cars** with the top star rating according to EuroNCAP
- percentage of technically **defective vehicles**

Quality of the post-crash care

Monitoring Road Accidents and Casualties

- number of **road accidents** with injuries or material damage only (per road type, vehicle type and road user type)
- number of **fatalities**, serious and slight **injuries** (drivers, passengers, pedestrians etc)
- **risk indicators** (number of accidents/injuries per vehicle-kms or passenger-kms, fatalities per million inhabitants etc)
- **severity indicators** (fatalities per 100 accidents etc)

Tools for road safety accountability

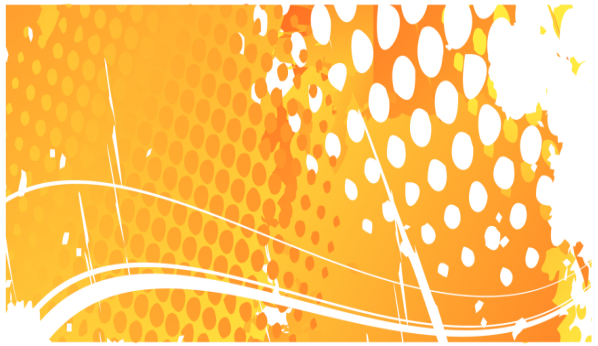


Road Safety Analyses

- Road safety analyses: important tool in the hands of decision makers but also a **complex task**.

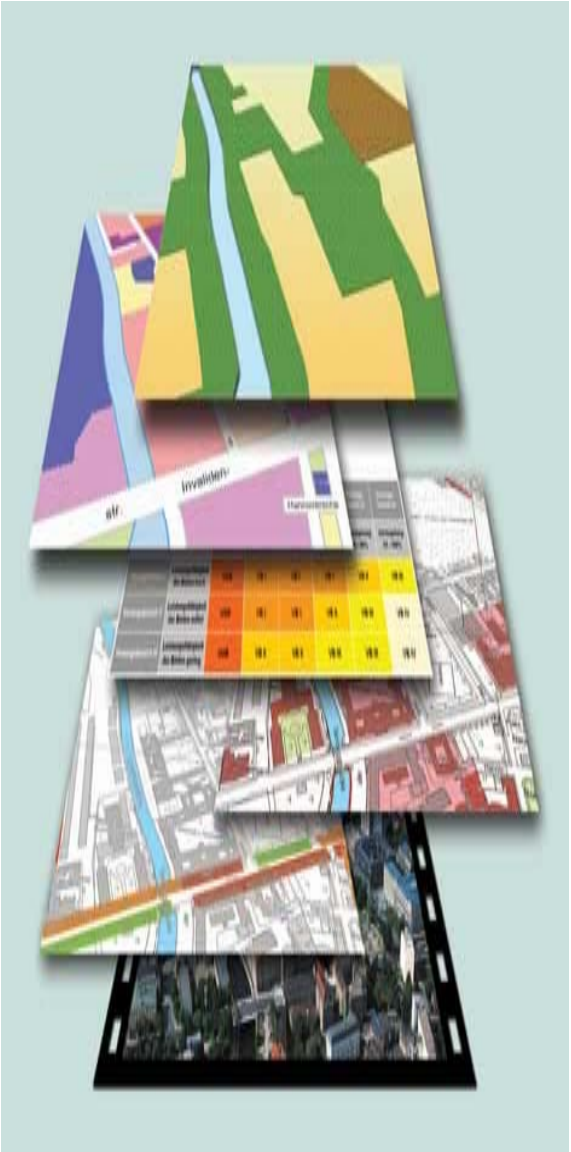
- Road safety analyses require:
  - high **expertise** to deal with the analyses complexity,
  - impartiality and expert **independence**,
  - maximum **transparency**.

- **Accident Prediction Models** (APMs) and **Crash Modification Factors** & Functions (CMFs) are fundamental for estimating road safety outcomes and identifying the most effective safety measures.



The need for good and transferable Analysis Results

- An APM aims to **forecast safety outcomes** on the basis of traffic and other site-specific conditions (including CMFs)
- A CMF is a synthesis of diverse evaluation results that allows for more **universal understanding** and application of safety measures.
- ex-post evaluations → meta-analyses → **theorizing**
- The more correct the functional form of the APM, and the narrower the CMF distribution, the larger is the probability that policy decisions are correct.
- APMs/CMFs could allow more rapid adoption and dissemination of **new safety measures**.
- They can be the basis for evidence based safety policies.



Technical barriers
for road safety interventions assessment

- difficulties in **isolating the safety effect** of a specific measure

- difficulties in **aggregating** information/data due to high diversification of the measures

- difficulties in **comparing** information/data among countries:
  - differences in road traffic environments,
  - differences in the actual investment costs among the countries,
  - differences in methodologies of safety effect calculation.

Political barriers
for road safety interventions assessment

- **Authorities and other stakeholders** may fear that ex-post evaluation of measures may prove that important road safety investments had little or limited impact.

- Comparisons of measures effectiveness between different regions and between different countries may reveal **high discrepancies** not only in the unit cost of the measures but also in the implementation effort.

Barriers for international cooperation for road safety interventions assessment

Transferability is not easy:

- not all successful measures are suitable for all different road traffic environments,
- it is very much possible that the same interventions may lead to significantly different results in two different traffic environments.

The **scientists**' competition and quest for the "excellent" methodology, together with the inherent difficulties of measures efficiency assessment, puts in question any initiative.

Sometimes measures assessment invited by the **authorities** tend to use faster and less rigorous methodologies, favouring prevailing opinions and decisions already taken, creating thus a wide variety of non-converging efficiency results.

Correlating road safety management and performance

- **Economically stronger countries** have a higher composite road safety performance index.
- Countries with **regular measurement** of road safety attitudes and behaviours have a higher operational level of road safety.
- Countries with **dedicated road safety budget**, systematic monitoring and evaluation of interventions, have a higher operational level of road safety.
- The presence of a **national vision and strategy** is not sufficient alone for a better operational level of road safety.

Correlating road safety management and performance

- Road safety management indicators **do not directly affect** road safety results.
- However, they do **affect the operational level** of road safety, as reflected by the safety performance indicators.
- Subsequently, higher safety performance indicators have a direct impact on the **decrease of accidents and casualties** (confirming the SUNflower pyramid).

Next steps for efficient monitoring of road safety policies and performance

- More **surveys** for exposure, performance indicators, driver behaviour.
- More large scale **experiments** (in-depth investigation, naturalistic driving, driving simulator).

- More **research and analyses**.
- More **solutions** to (new) real life problems.

- More data and knowledge **widely available**.
- More rigid European and National Road Safety **Observatories**.

NTUA Road Safety Observatory

In conclusion: Monitor - Analyse - Publish

- Beneath each high road safety performance lies **a powerful system** for the monitoring and analysis of interventions, indicators and safety results.

- Road safety Monitoring and Analysis should become **a mandatory procedure** for all road safety investments. Any following investments should be linked with the performance of the previous investments.

- The level of **economic and social development** of a society is based on and reflected in the level of road safety, as assessed by the Performance Indicators.

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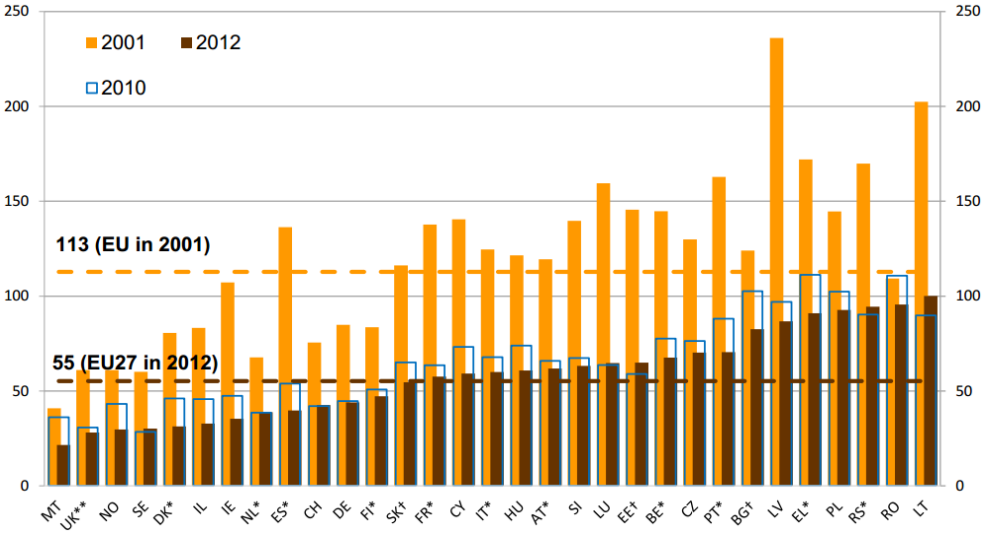

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