

# EUROPEAN DRIVERS AND ROAD RISK



## PART 1

*Report on principle analyses*

*SARTRE 3 reports*





# **European drivers and road risk**

SARTRE 3 reports

Part 1  
Report on principal analyses

**June, 2004**

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S.I.P.Si.Vi.



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# Foreword

For the third time, the SARTRE consortium has carried out the project studying car drivers' attitudes to road risk in Europe. After SARTRE 1 involving 15 "western" European countries, SARTRE 2 including 19 countries, there are now 23 European countries participating to SARTRE 3, composed of most of the former EU-15, 7 of the former applicant countries and 2 others.

With full support of FERSI, Forum of European Road Safety research Institutes, this project received agreement from EU High level group for road safety, financial support from most national bodies in charge of road safety, and was granted by EU DG TREN.

Two reports represent the analyses of the results of the third SARTRE survey:

Part 1: Report on principal results

Part 2: Report on in-depth analyses

## Glossary

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Country	
Austria	A
Belgium	B
Cyprus	CY
Czech	CZ
Denmark	DK
Estonia	ES
Finland	FIN
France	F
Germany	D
Greece	GR
Hungary	H
Ireland	IRL
Italy	I
Netherlands	NL
Poland	PL
Portugal	P
Slovakia	SK
Slovenia	SLO
Spain	E
Sweden	S
United Kingdom	UK
Croatia	CRO
Switzerland	CH

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# Chapter 1

## Introduction and methodology

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**Jean-Pierre Cauzard (INRETS, France)**

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### Social attitudes

SARTRE, an acronym for "Social Attitudes to Road Traffic Risk in Europe", is a research project, which aims at studying the opinions and reported behaviours of car drivers throughout Europe. The project is based on ad hoc data collection, which involves a representative questionnaire survey.

All countries in our scope apply similar countermeasures to improve the safety of road traffic. Concerning drivers' behaviour, everywhere speeding, driving under influence of alcohol or wearing of seat belt are submitted to regulations. An interesting fact is that the various countries, beyond common aspects, obtain apparently different success in their policies to reduce road traffic risk. This is a reason to develop a comparative study to learn best practices from each other.

It is widely recognised that human factors intervene in most, if not all, road accidents. It is a major reason for the present project to contribute to put forward the role of human factors in the road accidents origin. More specifically, the social dimension of human factors will be studied. What are the social groups that are supporting or against some measures, are they numerous or influent?

The main purposes of this project are to describe the state of drivers attitudes and reported behaviours throughout the continent with regard to road traffic risk, to evaluate the range from approval to opposition towards regulations and countermeasures, to search for underlying social or cultural factors leading to various behaviours in term of risk, and lastly to recommend actions to be taken into consideration when improving road safety policies.

The trends also are important to detect. The situation in various countries can be improving or in contrast deteriorating. We also can differentiate the evolution regarding the individual countermeasures and notice that in some cases such as drunk driving, the attitude is improving, whereas the attitude to speeding is deteriorating.

## Changes after five or ten years

We are now reporting the third phase of SARTRE project. The first SARTRE survey was carried out from October 1991 to June 1992 in 15 European countries, which consisted at that time of 10 European Union member states and 5 non-European Union countries. In each country a representative sample of about 1,000 vehicle licence holders, who actually drove, have been questioned, making a total of 17,430 car drivers. The main results and analyses conducted by project members were then published (SARTRE 1994, 95, 96) and the conclusions and recommendations presented to the European Union Road Safety High Level Group in November 1994 (Barjonet et al., 1994). After this presentation, it was decided to perform a follow-up survey, 5 years after the first one.

The second step, SARTRE 2, was carried out from October 1996 to April 1997, using the same methods regarding the surveys. For most questions, the questionnaire was similar to the first one. The SARTRE 2 field survey was carried out in 19 countries. All of the European Union members had been participating, except Denmark and Luxembourg. SARTRE 2 enjoyed the participation of Switzerland and the Central-European countries Czech Republic, Slovakia, Hungary, already in SARTRE 1, and, new in SARTRE 2, Slovenia and Poland.

We are pleased to present here the principal analyses of the results of the recent phase of the project, called SARTRE 3. The guidelines of the previous phases were applied again. We, again, tried to improve the questionnaire, cancelling a few obsolete questions, and adding new ones to reflect the most recent concerns or developments in road safety in Europe. The English version of the questionnaire is reproduced in the appendix. The first of the national surveys was launched in Spain in September 2002, and the last one in Portugal in April 2003. Fourteen of the EU-15 were involved, seven 'applicant' countries, as well as Switzerland and Croatia.

The principal results of the surveys are presented and analysed in the following documents, which cover most of the topics already explored in the previous steps, adding each time some views on evolution between the surveys.

Thirteen documents are composing this report.

- The present first chapter is dealing with methodological aspects. This first part is designed to explain the context of the studies. The objectives of the survey tasks, the applied methodologies, actual conditions for carrying out the fields, the characteristics of the collected data and the possible bias will be considered.
- In the second chapter, alcoholic beverages drinking and the consequence on driving and its regulations are described. The SARTRE 3 questionnaire contains several questions regarding alcohol consumption, drinking and driving behaviour and different opinions related to this topic. Questions are asked about the perceived risk of drinking and driving. Furthermore there are questions regarding the alcohol legislation in the different countries as well as the enforcement practices related to driving under the influence of alcohol. The first analyses mainly consist of descriptive results under the form of frequency tables and graphs comparing the participating countries. In addition there will be analyses for the different countries regarding their special situation with respect to drinking and driving.
- Part 3 relates to speeding, which is a major factor in road safety. Faster drivers have more accidents and faster roads (with the same 'posted' speed limit)

experience more accidents. It has been estimated that reducing average speeds by 1 mph results in a 3 to 5% reduction in accidents depending on the type of road. This chapter will examine a variety of factors influencing speed behaviour and drivers attitudes to speed issues. The objective will be to provide information on how each of the 3 'Es' of safety (engineering, enforcement and education) can be used to improve safety. Factors that will be examined include demographic factors (such as age, experience and gender), perceptions of risk and attitudes, for example, to other drivers, traffic penalties, enforcement and speed limits. The behaviours that will be considered include (reported) speed choice, traffic convictions and accident involvement. In addition the behaviours and perceptions of drivers in different countries will be compared and related to 'local' laws and enforcement activity. Also changes over time will be examined by comparing the latest results with both previous SARTRE surveys.

- In chapter 4, the principal results of the survey regarding seat belts will be presented. For example, the survey results might cover the following areas by country: frequency of seat belt installations, seat belt use in different environments, attitudes towards seat belt wearing and enforcement of seat belt laws. The results will be compared with the corresponding results of SARTRE 1 and 2 when applicable. The implications of the main findings will be discussed in order to provide specific recommendations for further measures. A short part concerning children equipment will be added.
- Chapter 5 will examine several questions on personal driving behaviour. For example, questions are asked about the perceived risk of one's own driving behaviour and accident involvement. Furthermore there are questions regarding the alcohol legislation in the different countries as well as the enforcement practices related to driving under the influence of alcohol. Data analyses will be carried out using mainly descriptive methods. The results will be presented under the form of frequency tables and graphs comparing the participating countries. Additionally, analyses for the different countries regarding their special situation with respect to reported driving behaviours will be done, establishing the most significant differences between countries.
- The sixth chapter aims at analysing the impact of important demographic variables like age, gender, income, size of town, on attitudes towards the cause of road accidents and the acceptance of different countermeasures. In addition, the results of life style questions should be described and used to demonstrate a possible influence of different life styles on driver attitudes and reported driver behaviours. The indicators of life style are occupation, private situation, education, living area, experience with accidents, car use, amount of car insurance.
- Chapter 7 gives an overview of the interest of comparison between younger/older drivers. It is that of having a clearer picture of how different age-groups appear in relation with old and new safety problems and if, somehow, it seems they have learned from specific interventions (safety programs) and show changes in the previously detected risky attitudes and behaviours.
- In document 8, effective enforcement is recognised as being a key to improve traffic safety. However, it should be recognised that a key objective is to discourage unsafe behaviours in the driving public rather than catching large numbers of offenders. This means that driver's perceptions - such as the likelihood

of being 'caught' - are a key factor in how effective the enforcement activity is. In addition to general enforcement issues (such as the perceived need for more enforcement and the size of penalties, etc) this chapter will examine the link between drivers' subjective perception of enforcement activity, their personal experience of enforcement (either by the police or speed cameras) and objective national statistics. An additional objective will be to identify how attitudes to enforcement can be used to improve behaviour and safety. The analysis will focus primarily on the enforcement of drinking and driving, speeding and seat-belt use enforcement. The chapter will compare the perceptions and behaviours of drivers in countries that differ in terms of traffic law (such as the legal alcohol levels, the size of penalties), the amount of enforcement, the use of speed cameras, having a penalty points system, etc. Because similar questions were included in both first SARTRE surveys it will be possible to explore changes in attitudes over time and relate these to other traffic safety developments that may have occurred over this interval.

- In chapter 9, we will outline the attitude of the European drivers towards new technologies. This topic has not been paid very much attention in the previous SARTRE surveys, so only a few items will allow comparisons with SARTRE 1 and SARTRE 2 data. Comparisons by countries will be given and it can be assumed that there will be considerable differences. New technologies concern driver assistance systems, driver communication and comfort systems but also the systems, which can be used for enforcement purpose. The experience with systems, the willingness to use or pay for such systems and the expected benefits are the dimensions which may take quite different directions and this is an issue which will be given special attention in this chapter. The acceptance of restriction in using new technologies will be shown with the example of cellular phones.
- In document 10 we will analyse the answers on the questions concerning the harmonisation of traffic laws in Europe. We will compare the results of different countries like Poland, Slovenia, Belgium, France, etc. Furthermore, a comparison with the results of SARTRE 1 and SARTRE 2 will be made. This descriptive analysis, based on simple cross-tabulation, will take into consideration the contextual data of the different countries. Gathering and interpretation of this information is important with regard to support and/or justification of policy-making towards traffic safety on a European level.
- Chapter 11 will establish the changes in behaviour and opinions of European drivers from SARTRE 2 to SARTRE 3 in areas that were investigated in both questionnaires. Countries with substantial shifts over time will be identified according to the area of subject concerned. Results will be presented per country. Furthermore, the changes in socio-demographic variables between SARTRE 2 and SARTRE 3 will be identified. Data analyses will be performed on the basis of qualitative and quantitative methods. Quantitative methods include descriptive and inference statistical methods.
- Chapter 12 summarizes the findings of the contextual data study.
- We will conclude in last chapter, summarising the particular conclusions of the previous chapters and stressing on recommendations.

## About survey(s)

### Sampling method

In each country, an attempt was made to have a representative sample of the active car drivers. The respondents had to have a full driving licence and must have driven during the past year. They were selected according to the local best practice to constitute such a representative sample. The method varied according to countries as shown in Table 1.2. The problem we are faced with is that there exists no exhaustive register of 'active car drivers', which is our target, in almost all of the participating countries. No statistics indicate how many they are, by gender, age, occupation, geographical level, etc. Two main types of sampling method are used related to random finding process or quota selection. In all cases, the method takes care of geographical distribution and rural-urban balance, final individuals being chosen at random or to comply with quota rates according to the finding rules.

### Sampling and surveying problems and solutions

The underlying assumption is that the samples were collected according to the requirements or that the remaining errors do not result in any major problems. However, a few words of caution are necessary.

Concerning the method used to obtain the national samples of drivers, the data was collected at home by face-to-face interviews, there is a risk of a systematic under-representation of long distance drivers, often professional, most of the time absent at home. In addition, in any survey of this type – especially when conducted face-to-face - there is a tendency for people to give more socially acceptable answers. In this case, interviewer and questionnaire are soon identified as speaking from "in-favour-of-road-safety" point of view.

There are also some concerns dealing with the questionnaire and performance of interviews. Each partner had to check the comparability of the translations with the reference version in English (which had to be translated into 19 other European languages). It should be noted that each version was pre-tested, and there was some coherence verifications made about translations in German (D, A, CH), French (B, F, CH), Dutch-Flemish-French (B), Italian (CH, I), German-French-Italian (CH), but no systematic back-translation test was conducted. Each of the language versions needed to stay close to the national context and expression (idiomatic). And we have to keep in mind that most poll agencies arrange a little bit the questions so that it is easiest/safest/faster for interviewers according to questionnaire pre-test and their experience!

Furthermore, we have to acknowledge a few mistakes in applying the guidelines. For example, in Poland, the answer category 'Don't know' was not allowed to interviewers. However, we have assessed that these concerns did not affect the results so harmfully that the data of any country should have been omitted. As in the 2 former steps, the duration of data collection ranging from September 2002 to April 2003 was relatively long, even though each national survey field lasted less than 2 months (see Table 1.2). The experience of analyses tends to prove that the national social contexts have some influence on results. In this sense for example, the increase of enforcement in France from July 2002, might have had impacts on opinions dealing with safety and security, in

the case of French drivers.

Enormous efforts were made to correct the dataset regarding plausibility, representativity and other errors. But of course such a dataset is never without errors.

In the following cases, we went further in improving the samples.

Regarding the Portuguese sample, it appears that it has been calculated on the figures of over 18 years old population. To correct this error, we started with the statistics of licence owners. Like for most licence files, the problem is that it is not updated. To remedy, we took the distribution of mortality and applied it to the licence owners' figures. One more point for this sample: no driver from the occupation category "farmer-fisherman" was found. A number of 25 supplementary questionnaires have been collected over the country from this category.

Considering the Italian sample, also calculated on the figures of over 18 years old population, we had to look for a correction base. The central office of statistics having no accurate figures available for the driving population, we found a solution at the Fiat research institute. Based on a car drivers survey they already carried out, we took the distribution of drivers age and gender by region to calculate a weighting factor.

In Cyprus the distribution of gender observed was not plausible. We collected the actual number of licensed drivers in the districts of Nicosia, Famagusta, Larnaka, Limassol and Paphos, by age and gender. This allows computing a corrective factor to weight the sample.

In Spain, the size of the sample has been boosted to allow a better representation of Atlantic islands, Canarias. The data collection has been of the same number of cases according to the regions. A local weight was calculated to reflect the proportion that each region occupies in the national context.

A final check to try to confirm some extreme values in specific countries compared to the others, led us to invalidate a number of records being duplicates (fakes) in the raw data furnished by respective poll companies. The second record of pairs have been deleted in samples from Switzerland (112) and Cyprus (250). The local weight was recalculated.

## Presenting results

Generally in this report we will present the percentage of answers by categories for each country. When presenting SARTRE 3 only results, an 'Average' line will often appear. This 'Average' line represents the mean values of the group of considered countries. It may be the group of states belonging to the European Union-15, or belonging to the present applicant countries, or any other group defined by the authors.

According to the variety of sampling methods, we do not have a general rule for the result accuracy. In the following report we choose to follow the indication given by the formula described below. Given 'r' a percentage result coming from the survey, 's' the size of sample on which it is calculated, and 'p' the real percentage that we try to measure. Then in 95% of cases (if 's'>50) the estimated percentage 'p' is included between 2 limits:

$$r - 1,96 \sqrt{\frac{r(1-r)}{s}} < p < r + 1,96 \sqrt{\frac{r(1-r)}{s}}$$

The 2 values represent the theoretical extreme limits. In fact, the real uncertainty is lower.

## Participation in the SARTRE 3 project

Most countries covered in the second step have been involved in the present one (see map Fig. 1.1). We include again 13 of the 15 members of European Union, version 2002, Austria, Belgium, Finland, France, Germany, Greece, Italy, Ireland, Netherlands, Portugal, Spain, Sweden and United Kingdom, and Denmark, not involved in SARTRE 2, came back to the project. We regret the absence of Luxembourg. Estonia and the Republic of Cyprus have joined the 5 Centre-East countries previously involved, Czech Republic, Hungary, Poland, Slovenia and Slovakia, with now the status of 'applicant'.

Switzerland is still participating in the project, and Croatia has joined.

**Figure 1.1: Countries participating in SARTRE 3**



Table 1.1: List of participants

Country	Institute	Address	Partner
Austria	KfV, Kuratorium für Verkehrssicherheit	Özeltgasse 3, Postfach 190, A — 1031 WIEN III	Mr Werner KLEMENJAK Mr Rainer CHRIST tel +43 222 71 77 00 fax +43 222 71 77 09
Belgium	IBSR/BIVV, Belgian institute for road safety	Chaussée de Haecht 1405, B — 1130 BRUXELLES	Mr Ward VANLAAR Mrs Marilyns DREVET tel +32 2 244 15 11 fax +32 2 216 43 42
Croatia	HAK, Automobile Club Croatia	Derencinova 20 CRO — ZAGREB	Mr Nenad ZUBER tel +385 1 6611930 fax +385 1 6623101
Cyprus	ETEK, Cyprus Science and Technical Chamber	P.O.Box 60125 CY — PAPHOS 8100	Mr Neophitos ZAVRIDES tel +357 26 950047 fax +357 26 953598
Czech Rep.	CDV, Centrum Dopravního Vyzkumu	Sokolovská 82 CZ — 18600 PRAHA 8  Lisenská 33a CZ — BRNO	Mrs. Vlasta REHNOVÁ tel: +420 2 24818391 fax: +420 2 24817383  Mrs Pavlína SKLÁDANÁ tel: +420 5 43215050
Denmark	DTF, Danmarks TransportForskning	Knuth-Winterfeldts Allé, Bygning 116 Vest DK — 2800 LYNGBY	Mrs Gitte CARSTENSEN Tel: +45 45 25 65 00 /+45 45 25 65 19 fax: +45 45 25 65
Estonia	STRATUM	Juhkentali 34 ES — 10132 TALLIN	M. Dago ANTOV tel +372 66 594 60 fax: +372 66 594 68 Mrs Tiia ROIVAS
Finland	VTT, Valtion Teknillinen Tutkimuskeskus	Lämpömiehenkuja 2, FIN — 02150 ESPOO	Mr Juha LUOMA tel: +358 04 56 45 33 fax: +358 04 64 850 Mrs Kirsi PAJUNEN
France	INRETS, Institut national de recherche sur les transports et leur sécurité	2 av. Malleret-Joinville, F — 94114 ARCUEIL	Mr Jean-Pierre CAUZARD tel +33 1 47 40 73 61 fax +33 1 45 47 56 06
Germany	BAST, Bundesanstalt für Strassenwesen	Brüderstrasse 53, D — 5060 BERGISCHE GLADBACH 1	Mrs Claudia EVERS Mr Hardy HOLTE  tel +49 (0) 2204 / 43-432 fax +49 (0) 2204 / 43-682
Greece	Certh/HIT, Hellenic Institute of Transport  NTUA, National Technical University of Athens	P.O. Box 361 GR — 57001 THERMI  5, Iroon Polytechniou str., GR — 157 73 ATHENS	Mr George KANELLAIDIS   Mr George YANNIS tel: +30 1 7 72 1326 fax: +30 1 7 72 13 27
Hungary	KTI, Közlekedéstudományi Intézet	Thán Károly u. 3/5, H — 1119 BUDAPEST	Mr GÁBOR Miklós tel +361 1 85 03 11 fax +361 1 66 92 10
Ireland	NRA, National Road Authority	St Martin's House, Waterloo Road, IRL — DUBLIN 4	Mr Finbarr CROWLEY Mr Fergal TRACE tel +353 1 60 25 11 fax +353 1 68 00 09
Italy	SIPSIVI, Società Italiana di Psicologia della Sicurezza Viaria	Via Cavalli 30, I — 10138 TORINO	Mr Gianmarco SARDI Mrs Lucia LISA tel: +39 17174093 fax: +39 17172024
Netherlands	SWOV, Stichting Wetenschappelijk Onderzoek Verkeersveiligheid	p.o. box 170, NL — 2260 AD LEIDSCHEMENDAM	Mr Charles GOLDENBELD Mrs Saskia de CRAEN tel +31 70 32 09 323 fax +31 70 32 01 261
Poland	ITS, Instytut Transportu Samochodowego	ul. Jagiellońska 80, PL — 03-301 WARSZAWA	Mrs Ilona BUTTLER tel: +48 22 811 32 31 fax: +48 22 811 09 06
Portugal	ISCTE, Instituto Superior de Ciências do Trabalho e da Empresa	Av das Forças Armadas, P — 1600 LISBOA	M. José PAQUETE de OLIVEIRA M. José Jorge BARREIROS Mrs Catarina LORGA Mrs Elisa CHAGAS tel: +351 21 7903046/7 fax: +351 21 7903964

Slovakia	ASSp, Asociácia supervízorov a sociálnych poradcov	Grosslingova 67 SK — 811 09 BRATISLAVA	M. Peter VÁS tel +42 32 36 79 fax +42 7 36 45 44 M. Vladimír LABATH
Slovenia	SPV, Svet za preventivo in vzgojo v cestnem prometu	Trdinova 8, SL — 1000 LJUBLJANA	Mr Bojan ŽLENDER tel: +386 1 232 78 92 fax: +386 1 43 93 034 Mr Marco POLIC
Spain	DGT, Dirección General de Trafico	Josefa Valcarcel, 28, E — 28027 MADRID	Mrs Fermina SÁNCHEZ MARTÍN tel +34 91 3018267 fax +34 91 3018537
Sweden	SNRA, Swedish National Road Administration	SE — 781 87 BORLANGE	Mr Ulf MAGNUSSON tel +46 243 750 00 fax +46 243 728 25
Switzerland	BPA/BFU/UPI, Swiss Bureau for Accidents Prevention	Laupenstrasse 11, CH — 3001 BERNE	Mr Uwe EWERT tel +41 31 390 22 22 fax +41 31 390 22 30
United Kingdom	TRL, Transport Research Laboratory	Old Wokingham Road, GB — CROWTHORNE, BERKSHIRE - RG11 6AU	Mr Allan QUIMBY tel +44 3 44 77 08 98 fax +44 3 44 77 03 56

## Carrying out surveys

We describe in table 1.2 the main characteristics of the surveys. For each participating country, we give the national sponsor, the poll agency in charge of the field, the sampling method applied by the agency, an estimate of actual car drivers population size, the final size of the sample and the dates of survey periods.

Table 1.2: the SARTRE 3 surveys

Country	National sponsor	Poll agency	Sampling method	Actual car drivers 10 <sup>6</sup> estimate	Sample size	Field dates
AUSTRIA	Kuratorium für Verkehrsicherheit & Österreichischer Verkehrssicherheitsfonds	Fessel+GfK	To select the sample, the quota method was used, 2 plans combining differently age, gender and occupation	5,2	1002	01/11/02 08/12/02
BELGIUM	IBSR/BIVV, Belgian institute for road safety	INRA Belgium	The sample was stratified according to province (10 provinces and Brussels), according to urbanisation (4 degrees of urbanisation ranging from cities to small villages), according to gender, age (6 categories), profession (working or non-working) and social class (lower, average, higher). The sample was achieved in two stages: firstly, random selection of cities/villages; secondly, random selection of interviewing starting points. Finally, research units were interviewed.	4,6	1006	28/11/02 20/12/02
CROATIA	HAK, Hrvatski AutoKlub	HAK, Hrvatski AutoKlub	The research sample (1000 addresses) comes from the database of Ministry of Interior. The sample was chosen using two steps: 1. The proportion of the number of registered drivers in each county was calculated in relation to the number valid for the whole country and, using this method, we have got the number of drivers to be interviewed per each county; 2. The drivers to be interviewed in each county were chosen by using «at random» method from the register of drivers in the county. The so called «systematic step» method was used. In case that some «chosen» drivers will not be willing to participate, the Ministry provided additional addresses.	1,5	1035	02/11/02 28/12/02
CYPRUS	ETEK, Cyprus science and technical chamber	AKTI Centre of projects and research	The survey was based on the distribution per district, per urban and rural area, per age, per gender. The number of questionnaires collected was 1069, of which 754 were validated.	0,4	754	02/11/02 23/12/02
CZECH REP.	Ministry of transport	FOCUS	To select the sample, the quota method was used. The sample is representative of the active car drivers' population by age, gender, education and size of the town within respective regions.	3,8	1026	22/11/02 12/12/02
DENMARK	DTF, Danmarks TransportForskning	SFI - Socialforskningsinstituttet (Danish National Institute of Social Research)	A random selection of the 18 years old and over from the central register on all Danes was made. Letters were sent with 2 questions: possession of car licence and driving last 12 month. Persons with positive answers to both questions (and persons, who did not answer) were visited by interviewers.	3,4	1076	06/11/02 16/01/02
ESTONIA	STRATUM	Valikor Konsult	The sample was based on a national population register sample weighed using the drivers licence holders data from the Estonian Motor Vehicle registration Centre.	0,4	1001	01/11/02 15/12/02
FINLAND	Ministry of transport and communications	Taloustutkimus Oy	The household selection for face-to-face interviews was based on Primary Sampling Units stratified by region and population density. The final sampling points were then chosen randomly with probability proportionate to the population. After random selection of the points, we checked if we have any interviewers near the randomly selected sample point. If not, we selected another point in the same province with the same population density and same character as the randomly selected one. A maximum of 5 interviews were carried out per sampling point. If there were more than 1 eligible candidate per household, the interviewee was selected according to the next birthday rule. The respondents were selected randomly from those aged 18+, taking into consideration the quotas used as well as the target group conditions defined (actual car drivers).	2,9	1000	20/10/02 15/12/02

FRANCE	Direction de la Sécurité et de la Circulation Routière	TNS-SOFRES	To select the sample, the quota method was used, based on region and rural/urban consistency; age, gender & occupation. Size of quota computed from Metascope database.	35,0	1000	26/11/02 16/12/02
GERMANY	BASf, Bundesanstalt für Strassenwesen	TNS-EMNID	The selection of sample points (315 W, 105 E); households are targeted for each point (random route); persons are targeted for each household; selection of active drivers; choice by birthday key if more than one	45,6	1005	07/01/03 29/01/03
GREECE	Certh/HIT	Global link	Target in 18-64 drivers. 8 zones as primary sampling units, nb of respondents in each in proportion with target population, and breakdown for rural, semi-rural, urban districts	4,6	1000	14/11/03 17/12/03
HUNGARY	Technical and Information Services on National Roads (AKMI Kht)	TARKI	Stratification of population by town size (9 classes). Each stratum is weighted by own motorization rate. Random selection of town in each stratum, weighted by own motorization, then selection of car driver at random at fixed starting point.	3,3	1020	21/11/02 04/12/02
IRELAND	NRA, National Road Authority, Ministry of Environment	The Economic and Social Research Institute (ESRI)	The persons interviewed were randomly selected from the electoral register using the ESRI's RANSAM computerised random sampling system. RANSAM provides a nationally representative sample of persons on what is called a two stage clustered basis. This involves using the electoral register to identify clusters of the order of 1,000 persons - since there are about 2.59 million persons on the electoral register, a total of approx. 2,590 of such clusters exist. Once these clusters were set up, a sample of these clusters - known as Primary Sampling Units - were drawn. Approximately 120 clusters each of 16 respondents were chosen, from which 1,014 successful responses were drawn.	2,0	1014	02/11/02 04/02/03
ITALY	Ministry of Public Works	SIPSiVi	To select the sample, the quota method was used by region, by rate of gender and age	32,8	1002	02/01/03 27/02/03
NETHERLANDS	SWOV, Stichting Wetenschappelijk Onderzoek Verkeersveiligheid  Directoraat-Generaal Personenvervoer (DGP) van het Ministerie van Verkeer en Waterstaat	NIPO Bureau	A quota sampling technique was used. On the basis of the characteristics of gender, age and region the population was divided into groups and it was determined in advance how many respondents were to be interviewed in each group. If a respondent was not at home, the interviewer went to the next address until his quota per group was reached. By way of NIPO CAPI (Computer Aided Personal Interviewing) 1009 persons filled in the questionnaire. To achieve this number, 1740 addresses were approached, bringing the response to 58% (and non-response 42%). Per household only one respondent was interviewed! So the sample was proportionally drawn and there has been no re-weighting of the data.  To determine the sample composition in terms of age, gender and region, the national data from the Central Bureau of Statistics (abbreviated as CBS) were used concerning the population of license holders.	6,6	1009	14/11/02 23/12/02
POLAND	ITS, Instytut Transportu Samochodowego	OBOP	Sample selection based on multi-tier procedure. The former 49 regions (voivodships) division was the starting point. From each, a certain number of persons, proportional to the % of the population of that region to the total population were sampled. In cities and towns, smaller areas: statistical regions and census districts were then sampled. They are more or less equipotent, providing the same probability of being included in a sample to all adult residents. Each sample dwelling (address) constitutes a starting point in which no interview is made and from which the interviewer starts his route using the sample number assigned to this address. In villages, a total of 1050 starting points were selected, in which one interview with a driver was made. In each dwelling visited according to the route pattern, one respondent is randomly selected, with "last birthday" technique, among active car drivers.	11,3	1015	15/11/02 25/11/02

## European drivers and road risk

PORTUGAL	Prevenção Rodoviária Portuguesa	RHmais  ISCTE	Data provided by Census 2001, carried out by the Nacional Statistical Institute Portugal (INE), according to NUTS II, stratified by region, gender and age; in order to achieve the most representative population sample. Sample size: 1000 individuals inhabiting selected sampling units. (Standard error +/- 3,1%; for a confidence interval of 95%).	4,0	1025	20/01/03 08/04/03
SLOVAKIA	ASSp, Asociácia supervízorov a sociálnych poradcov	Asociácia Dopravných Psychológov	A quota sampling technique was used based on region; quotas determined according to the number of drivers/population/density/km2	2,4	1115	01/11/02 30/11/02
SLOVENIA	Slovene Road Safety Council	University of Ljubljana	Sample points have first been chosen (100 main points and 200 subsidiary points) and then random sample - target: active drivers over 18 years	1,1	1056	04/11/02 23/12/02
SPAIN	DGT, Direccion General de Trafico	QUOTA UNION	Provided a sample size of 1680 drivers, it was divided into 7 geographical areas (240 interviews in each area. Maximum sampling error = 6.64%. C.L.=95%). We took the same number in each area to get a big enough group also in Canarias. But for comparisons we have weighted them according to their real drivers population, reducing the sampling error to +/- 2.4%. (C.L. = 95%).	18,6	1694	16/09/02 27/10/02
SWEDEN	SNRA, Swedish National Road Administration	SIFO	Stratum towns/cities/regions, random choice in first two, and selection of addresses drawn in names register in the third	5,1	1027	02/11/02 12/12/02
SWITZERLAND	BPA/BFU/UPI, Swiss Council for Accident Prevention	ERNEST DICHTER	A quota sampling technique was used based on region; sampling points; random choice by gender & age. Size 1000, of which 888 were validated	3,8	888	15/01/03 08/02/03
UNITED KINGDOM	Road Safety Division, Department of Transport Environment and Regions	MORI	To select the sample, the quota method was used, based on rural/urban voting consistencies; age, gender & working status	28,4	1237	15/02/03 28/03/03

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Barjonet P.E., Benjamin Th., Huguenin R.D. and Wittink R. Towards a new policy-relevant understanding of Europe's drivers. SWOV, Leidschendam, 1994.



# Chapter 2

## Drinking and Driving

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**Claudia Evers (BAST, Germany)**

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### Introduction

The SARTRE 3 survey has given the possibility to study and analyse several aspects of 23 different countries not only regarding road safety, but also about cultural aspects, as the drinking culture of the participant countries. This chapter will explore the following points:

- Drinking behaviour and habits in participant countries
- Opinions about alcohol risk when driving
- Opinions about alcohol legislation
- Reported experiences and opinions about enforcement
- Opinions about measures to prevent drink-driving
- Conclusions and recommendations

On one hand having so many participants will provide us with the possibility to have more points of views. But on the other hand it is much harder to identify groups of countries with similar characteristics or a “typical“ behaviour and phenomena as common denominator. For this reason analyses of groups of countries have been conducted, in order to have a more general view of the studied topic.

The participant countries have been grouped as follows:

- 5 Southern countries: Cyprus, Greece, Italy, Portugal, Spain
- 3 Northern countries: Denmark, Finland, Sweden (= Scandinavia)
- 7 Eastern countries: Czech Republic, Estonia, Hungary, Poland, Slovakia, Slovenia, Croatia
- 8 Western countries: Austria, Belgium, France, Germany, Ireland, Netherlands, United Kingdom, Switzerland

The reported mean-averages of the answers in these four countries represented in the groups are not weighted with respect to the size of driver population in the respective countries.

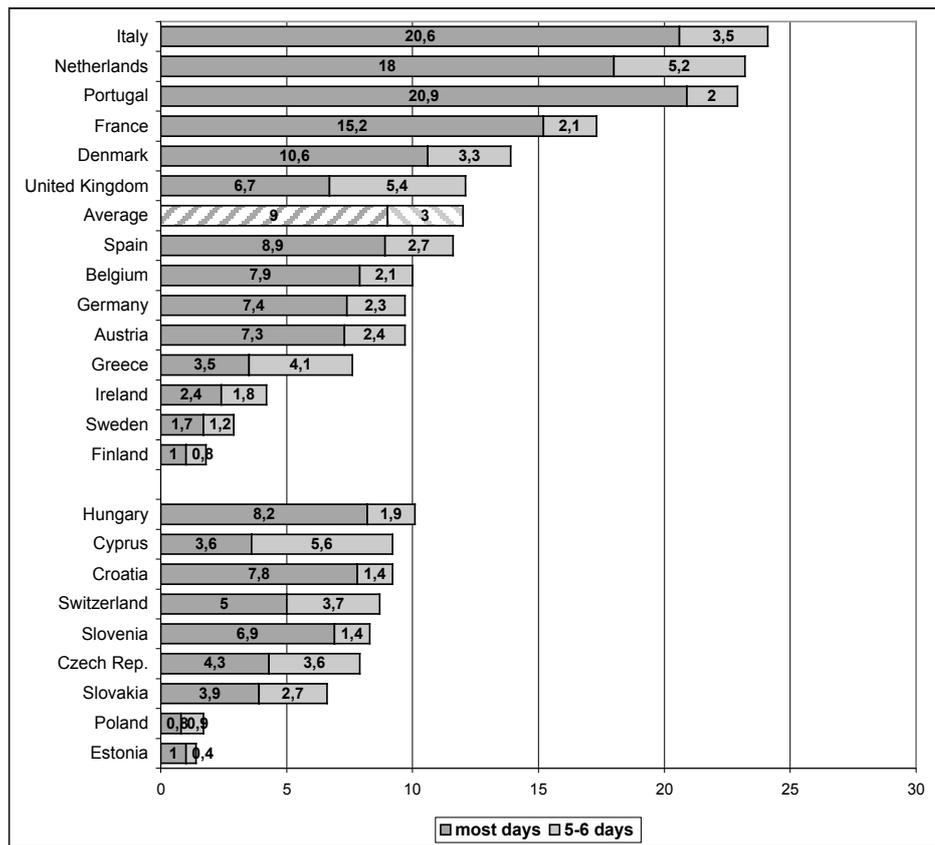
In addition, the results of the SARTRE 3 survey have partially been compared to the SARTRE 2 survey from 1997 to check for changes in time. As only 19 of the 23 SARTRE 3 countries also participated in SARTRE 2, these comparisons are restricted to the countries that participated in both surveys.

## Drinking behaviour and drink-driving behaviour

In order to identify the alcohol consumption behaviour and habits in the participant countries, two categories have been studied: the frequency of alcohol consumption in general and alcohol consumption with respect to car driving.

### Frequency of consumption

**Figure 2.1: In general, how often do you drink alcohol in a week? (Q19)  
most days + 5-6 days, in %**



A frequent consumption of alcohol (Question 19 “most days”+“5-6 days”) is reported by 10% of the interviewed drivers. As shown in figure 2.1, the highest

percentages are given in Italy (25%), the Netherlands and Portugal (both 23%) while the lowest rates are found in Estonia (1%), Finland (2%), Poland (2%), Sweden (3%) and Ireland (4%).

The group averages show a remarkable difference among participant countries, with a higher percentage of drivers with a frequent drinking behaviour in southern and western countries compared to the other participants:

- Southern countries = 15%
- Northern countries = 6%
- Eastern countries = 7%
- Western countries = 12%

A comparison of the SARTRE 2 and the SARTRE 3 survey data show a decrease of very frequent alcohol consumption (here: “most days“) by 5%-points or more for the Czech Republic, Greece, Portugal, while for France, Hungary, the Netherlands, Slovenia, Spain and the United Kingdom the decrease was smaller. A slight increase of frequent alcohol consumption could be found in Belgium (+ 2%-points) and Sweden (+ 1%-point).

Regarding the number of abstainers, over all the countries about 26% of all participating drivers never drink alcoholic beverages. The highest numbers of abstainers are found in Belgium (46%) and Croatia (41%), while in Denmark and Sweden (both 12%) we find the smallest proportions of non-drinkers (see figure 2.2). However, female abstainers are over represented: while 20% of the male drivers state that they generally never drink alcohol, the share is 35% in the female driver sample. Especially in southern countries, the percentage of female abstainers is high (47%), while it is lower in northern (19%), western (33%) and eastern (37%) eastern countries.

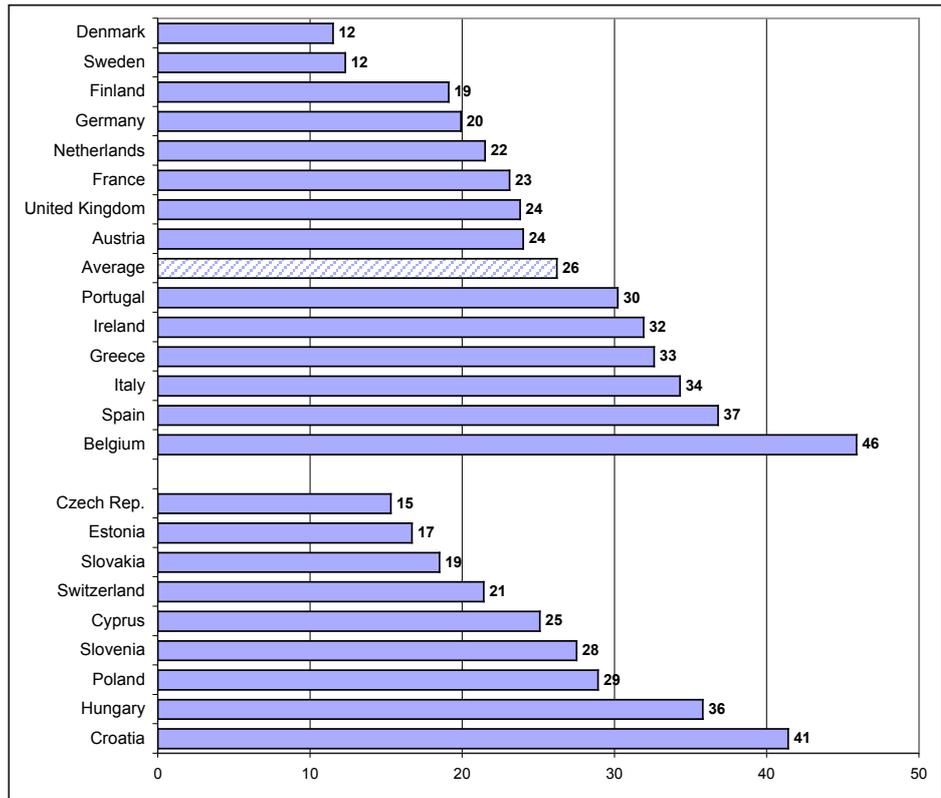
Generally, in the southern countries the “non-drinkers“ are slightly over represented, while in northern countries they are under represented as the grouping averages show:

- Southern countries = 33%
- Northern countries = 14%
- Eastern countries = 26%
- Western countries = 26%

A comparison of the SARTRE 2 and SARTRE 3 reveals a decrease of abstainers (“never“) for the Czech Republic, France, Germany, Italy and Spain and an increase of abstainers for Belgium and the United Kingdom (for each group a change of 5%-points or more).

Generally we observe, as expected, that in southern countries people consume alcoholic beverages more frequently than in northern or eastern countries. Simultaneously, a higher percentage of persons does not drink any alcohol in southern Europe, confirming the findings of SARTRE 2 that have shown that a high or low proportion of frequent drinkers does not necessarily correspond to a low or high proportion of abstainers.

**Figure 2.2: In general, how often do you drink alcohol in a week? (Q19)  
never, in %**



### Frequency of drinking and driving

On average 15% of the interviewed drivers declared to drive after having drunk even a small amount of alcohol one day or more a week (Question 20). The highest percentages (more than 20%) are found in Cyprus, Italy, Spain and Portugal, while the lowest shares (less than 3%) result in Poland, Sweden, Hungary, the Czech Republic, Estonia and Finland.

A comparison of the four country groups shows that driving after drinking even a small amount of alcohol is relatively widespread in southern European countries: 43% of the drivers drive one day or more per week after having drunk alcohol. In western countries it is every fifth driver (19%), while in northern (8%) and eastern countries (11%) driving after drinking alcohol happens comparatively seldom.

Comparing the SARTRE 2 and SARTRE 3 data we find that for many countries driving after drinking on „most days“ has decreased as is the case for Austria, Germany, Greece, Italy and Spain. A slight increase of the frequency of driving after drinking can be found for Belgium, the Netherlands and Switzerland. However, as the frequencies in this category of answers are generally low, changes only vary between 1-4%-points.

From SARTRE 2 to SARTRE 3 a decrease of drivers responding „never“ (persons who generally do not drink alcohol, so-called „non drinkers“ excluded) when asked

how many days per week they drive after having drunk alcohol is evident only in Hungary (-15%-points) and Portugal (-12%-points), while an increase is registered in Austria, Germany, Greece, Poland and Slovenia (+5%-points or more) . It is notable that for the northern and southern countries there is a reverse trend for the drivers that declare they never drink before driving (Question 20) and for the number of drivers that generally do not drink alcoholic beverages (Question 19): for Southern countries, the share of people that declare they do not drive after drinking is comparatively low, while the share of people that generally do not drink alcohol is highest for all country groups. A possible explanation to this result is that in southern countries drinking behaviour is more or less independent from the situation (e.g. driving), while in northern countries the habit of drinking is in general more widespread but simultaneously more separated from the situation of driving.

The general BAC limit and driving after drinking even a small amount of alcohol show a significant correlation ( $r = -0.28^1$ ) which indicates the tendency that the higher the legal BAC limit is, the more frequent is driving after drinking<sup>2</sup>.

Regarding the habit to drive being over the legal limit of BAC (Question 21), over all in the participant countries on average 5% stated that they drove in such situation one day or more in the past week. Generally the proportions found are very low, however it is interesting to find the highest percentage in Cyprus (29%) where the legal BAC is 0.9 g/l, followed by Italy, Spain, Greece, Croatia and Slovakia while the lowest proportions are found in Sweden, Poland, Denmark, Finland and the United Kingdom, with less than 1% (figure 2.3). However, it should be noted that all answers are self-reported behaviours and thus socially acceptable answers might bias the results.

In fact, it is evident that driving over the legal limit is a rather infrequent behaviour, but still notable differences are found between countries: in southern countries this behaviour is reported three times more frequently than in western and eastern countries while it was nearly never reported in northern countries, as seen in the grouped average (referring to „one day or more“):

- Southern countries = 13%
- Northern countries = 0.2%
- Eastern countries = 4%
- Western countries = 4%

In comparison with SARTRE 2, driving over the legal limit on one day or more during the last week has decreased in Austria, Belgium, the Czech Republic, Germany, Poland, the United Kingdom and Switzerland by 1%-point at minimum. Although the shares of drivers driving over the legal limit are generally relatively low, the percentage of drivers driving over the legal limit one day per week at minimum has increased in France, Hungary, Italy, Portugal, Slovakia, Slovenia and Spain by 1%-point or more since the middle of the 1990s.

Over all countries, on average 59% of all participants stated that they never drove over the legal limit over the last week and another 31% are classified as non-drinkers. Comparatively high proportions (>70%) of drivers that declared they never drove over the legal limit in the last week are found in the Czech Republic, Denmark, Estonia,

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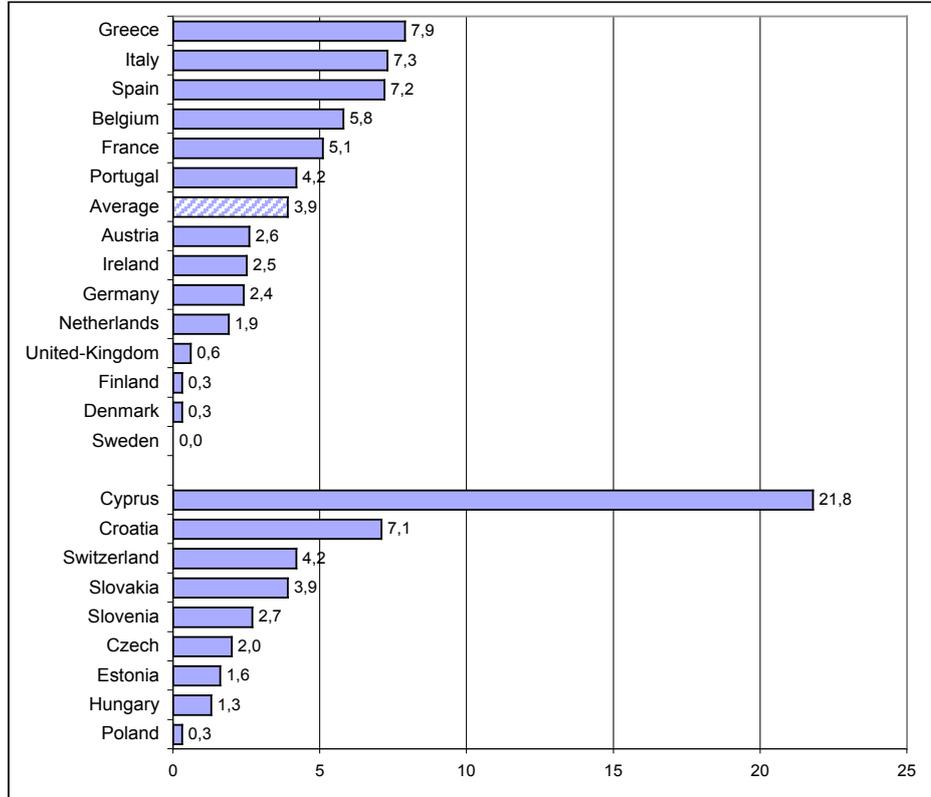
<sup>1</sup> the correlation is negative because of the item polarity of question 20

<sup>2</sup> persons classified as „non-drinkers“ are excluded

Finland, the Netherlands, Sweden and the United Kingdom, while a low percentage (< 30%) is found in Hungary and Germany. However, the averages of the four groups of countries are about 50% and do not differ much except for northern countries with an exceptionally high share of 84% of “never“.

The weak correlation between the legal BAC limit and driving over the legal limit ( $r = -0.13^3$ ) confirms the result found before: the higher the limit, the more frequent is driving over the limit<sup>4</sup>.

**Figure 2.3: Over the last week, how many days did you drive, when you may have been over the legal limit for drinking and driving? (Q21) one day or more, in %**



## Opinions about the risk of driving under the influence of alcohol

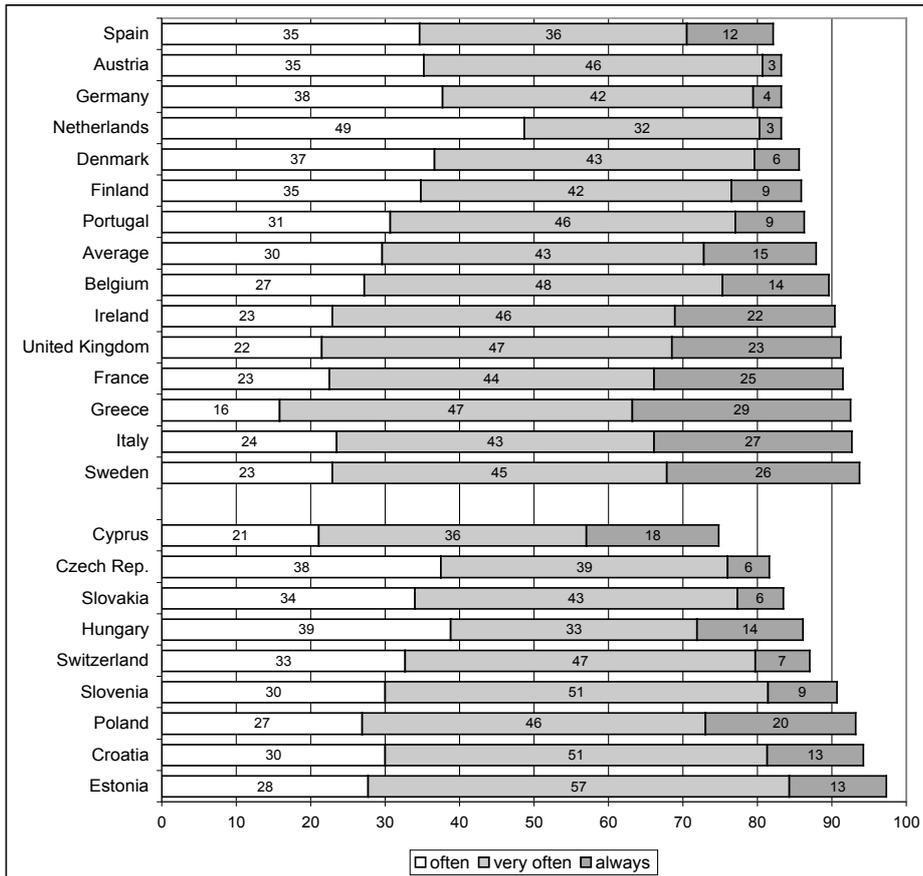
Generally, drinking and driving is considered to be a major cause of accidents across all countries. More than 87% of the interviewed drivers think that drinking and driving

<sup>3</sup> the correlation is negative because of the item polarity of question 21

<sup>4</sup> persons classified as „non-drinkers“ are excluded

is “often + very often + always“ a factor causing road accidents (Question Q04\_b). As can be seen in figure 2.4 the distribution is rather homogenous.

**Figure 2.4: How often do you think drinking and driving causes road accidents (Q04\_b) often, very often or always, in %**



The highest proportions are found in Estonia (97%), Croatia (94%), Sweden (94%), Poland (93%), Italy (93%), Greece (93%), France (92%), United Kingdom (91%), Slovenia (91%) and Ireland (90%), while we find percentage lower than 80% only in Cyprus. Looking at the grouped averages the homogeneity of the European regions is quite evident:

- Southern countries = 86%
- Northern countries = 85%
- Eastern countries = 89%
- Western countries = 87%

Comparing the SARTRE 2 and SARTRE 3 survey data (referring to “very often“ and “always“) we find an increased perception of alcohol as accident cause in Austria, France, Greece, Ireland, Italy, Slovenia and Sweden, and a decreased perception in Hungary, the Netherlands, Slovakia and Spain (for each group a change of 5%-points or more).

## Opinions about alcohol legislation

### Opinions towards penalties for drink-driving

More than 88% of interviewed drivers think that the penalties for drink-driving offences should be much more severe (Question 03\_b “agree + „strongly agree“). It is evident from the grouped average there is a homogeneity across countries also in respect of this topic:

- Southern countries = 87%
- Northern countries = 92%
- Eastern countries = 89%
- Western countries = 88%

The highest agreement is found in the Netherlands (95%), Finland (95%), United Kingdom (94%) and the lowest in Spain (76%) and Austria (79%).

### Opinions about alcohol permitted when driving

About 80% of the sample think people should not be allowed to decide for themselves how much alcohol they can drink before driving (Question 03\_d „disagree“ + „strongly disagree“); a noteworthy difference is found between northern (96%) and southern (60%) countries where especially Cypriot drivers show quite liberal ideas about this matter (35%).

It is important to note that over all countries 45% of participants think that drivers should not be allowed to drink any alcohol before driving (Question 22). A large variance is reported in the country groups:

- Southern countries = 26%
- Northern countries = 47%
- Eastern countries = 60%
- Western countries = 43%

A strong support for a ban of alcohol when driving is found in candidate countries such as Slovakia (87%), Hungary (73%) and Poland (75%); while only less than 25% of the Danish and Portuguese drivers favour an alcohol ban when driving (figure 2.5).

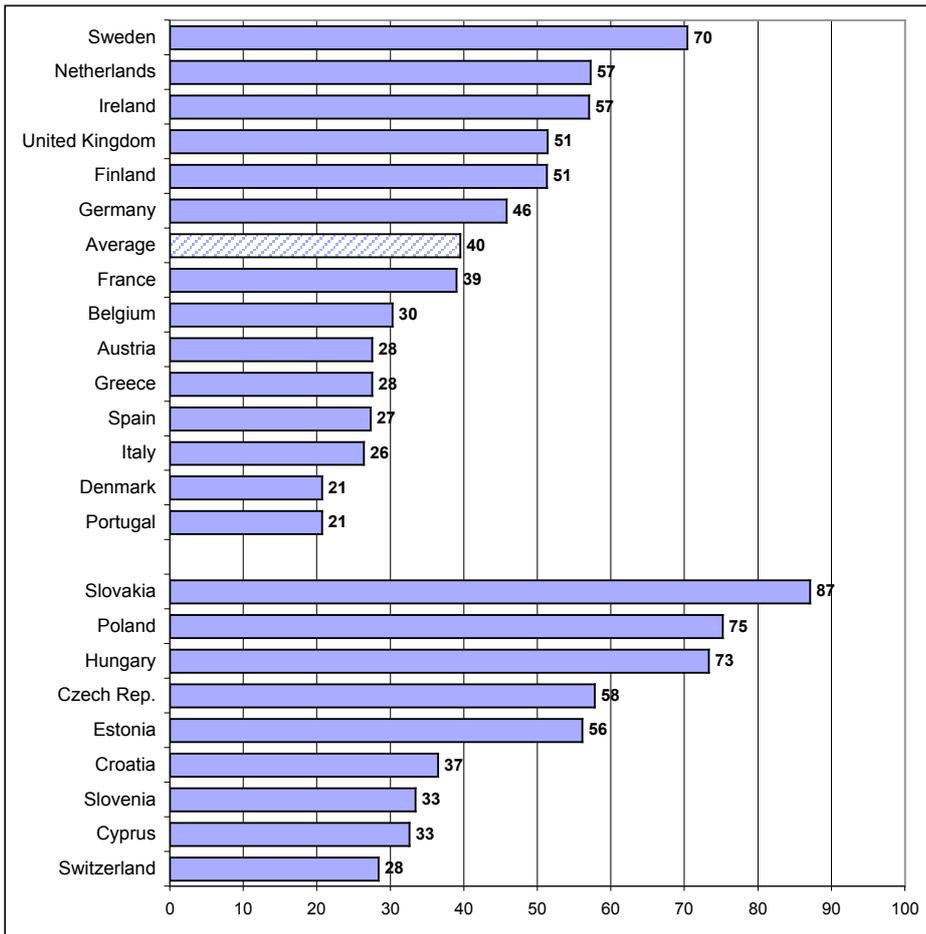
Comparing the SARTRE 2 and SARTRE 3 data we see that more drivers say “no alcohol at all“ in Austria, France, Ireland, Poland, Sweden and Switzerland; less drivers instead are in favour of a ban of alcohol on the road in the Czech Republic, Finland, Greece, Hungary, Italy, Slovakia, Slovenia and Spain (for each group a change of 5%-points or more).

One third of all participants think that drivers should be allowed to drink as much alcohol as at present. But there is some variance between countries as seen in grouped average:

- Southern countries = 40%
- Northern countries = 39%
- Eastern countries = 20%

- Western countries = 38%

**Figure 2.5: Opinions about what the legal limit should be. Do you think that drivers should be allowed to drink... ? (Q22) no alcohol at all, in %**



It is interesting to note that especially eastern countries, where the BAC limit is usually very low or even 0.0 g/l, are in favour of no alcohol when driving, as partially confirmed by the tendency of correlation ( $r = 0.15$ ) between the lower limit and the preference for a lower limit.

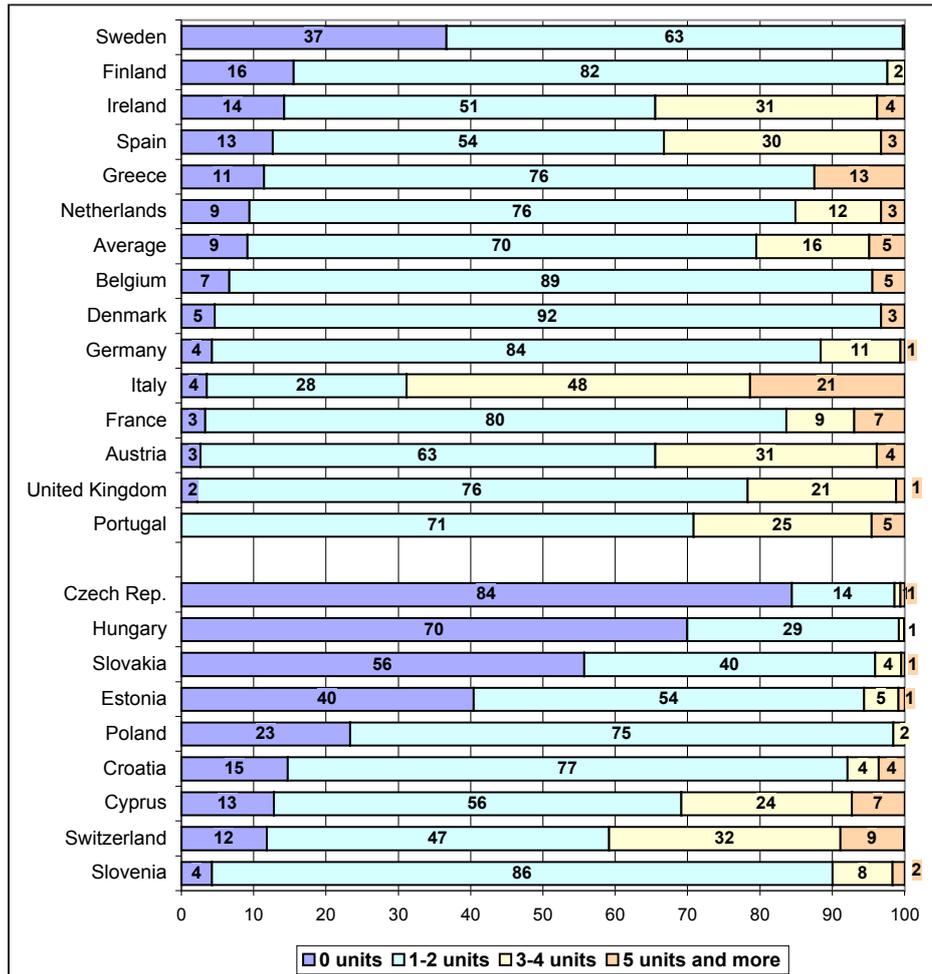
### Units of alcohol permitted

In order to produce statistically comparable data about the amount of alcohol permitted, the SARTRE 3 survey has defined a unit applicable to the different kinds of alcoholic beverages. Since the percentage of alcohol contained in wine, beer or spirit is different, it was defined that one drinking unit is equivalent to 10 g of pure alcohol, and then redistributed according to the typical glass corresponding to that beverage, e.g. a 12 cl glass of wine at 12% volume of alcohol equals one unit. In this way it is possible

to estimate the amount of alcohol that drivers think they can drink to stay under the legal limit (Question 26).

19% of the interviewed drivers think they should not drink any alcohol at all (i.e. 0 units) if they want to stay under the legal BAC limit, another 63% think that they should not drink more than 1-2 units, 13% think they can drink 3-4 units and 4% of the sample believe that after 5 and more units they can still drive and being under the legal limit of BAC. As shown in figure 2.6, the variance between countries in this case is quite wide: although the majority of countries believe that the limit is 1-2 units, the percentage of drivers who answered that they should not drink any alcohol at all varies between 0% (Portugal) up to 84% (Czech Republic). In Italy 48% think they can drive after 3 or more units and still being under the limit and this country has the maximum percentage of drivers declaring to drive over these (supposed) limits: this national case is possibly related to a lack of enforcement (see chapter 8).

**Figure 2.6: Estimation of alcohol allowed to drink staying under the legal limit (Q26) in %**



The lower the legal BAC limit in a country is, the more drivers think that they can drink less to stay under the legal limit, which reveals – besides accident reduction - a positive effect of low BAC limits for the prevention of drink-driving. However, the inversion of that argument means, those drivers of countries with a high BAC limit estimate that they can drink more units and still remain under the legal limit. On average, 70% of the drivers of countries with a legal BAC limit of 0.0 g/l (the Czech Republic, Hungary, Slovakia) state that they may not drink any alcohol at all to remain under the legal limit, in countries with a legal BAC of 0.2 g/l (Estonia, Poland, Sweden) it is 33%. In countries with a legal BAC of 0.0 g/l, on average 28% have opinion that they may drink 1-2 units of alcohol to remain under the BAC limit, while it is 64% of the interviewed drivers in countries with a 0.2 g/l limit and 78% in countries with a legal BAC of 0.5% (Austria, Belgium, Denmark, Finland, France, Germany, Greece, the Netherlands, Portugal, Slovenia, Spain, Croatia). However, more drivers of countries with a higher BAC limit consequently estimate that they can drink more than 1-2 units to stay under the legal limit: in 0.8-countries (Ireland, Italy<sup>5</sup>, United Kingdom and Switzerland) 42% of the drivers state that they can drink more than two units, and also in Cyprus with a BAC limit of 0.9 g/l 31% of the drivers estimate that drinking more than two units will still result in remaining under the limit. As also can be seen in figure 2.6 there is a large variance in the estimation of how many units of alcohol can be consumed to stay under the legal limit between countries with the same legal BAC limit.

Table 2.1 gives a more detailed overview of the relation between the legal BAC limit in the countries and the estimation of the number of alcohol units one can drink and still remain under the legal limit and underlines the above stated results. For example, on average drivers from countries with a 0.2 g/l limit estimate that they can drink twice as many units of alcohol than drivers from countries with a 0.0 g/l limit (0.8 vs. 0.4 units of alcohol on average). Drivers from countries with a 0.5 g/l limit estimate that they can drink on average 1.5 units of alcohol, for drivers from countries with a 0.8 g/l limit it is 2.5 units. Although Cypriot drivers, the only ones with a legal BAC limit of 0.9 g/l, estimate that they can drink slightly less alcohol than drivers from countries with a 0.8 limit, the tendency is quite obvious.

**Table 2.1: Estimation of units of alcohol to remain under the legal limit (Q26) according to the legal BAC limit**

Legal BAC limit (g/l)	Mean	Confidence interval (95%) <sup>6</sup>	Number of countries
0.0	0.4	0.0 – 2.1	3
0.2	0.8	0.0 – 2.5	3
0.5	1.5	0.0 – 4.8	12
0.8	2.5	0.0 – 5.6	4
0.9	2.1	0.0 – 5.6	1
Total	1.4	0.0 – 4.6	23

<sup>5</sup> At the time of the survey Italy still had a legal BAC limit of 0.8 g/l

<sup>6</sup> 95% of the respondents estimate within this range.

In regard of having a maximum alcohol limit of 0.5 g/l, it is interesting to note that more than two thirds of all drivers are in favour of this limit (Question 28\_c “very“ + “fairly“); in general, the countries that already have 0.5 as limit are the most in favour, with a 80% of preferences, but also three quarters of drivers of countries with a 0.8 limit favour a lower limit of 0.5 at maximum. In contrast, countries with a 0.0 BAC limit are least in favour of a 0.5 BAC limit: on average only 44% of the drivers in those countries favour of a maximum BAC limit of 0.5 g/l; in countries with a 0.2 limit it is about half of the drivers (53%). In Cyprus as well only 52% drivers would appreciate a maximum limit of 0.5 g/l. Simply spoken, the more the current legal limit differs from 0.5 g/l, independent of whether it is higher or lower, the less do the drivers favour a maximum limit of 0.5 g/l. This result indicates, that the acceptance of legal regulation is strongly influenced by habituation and own experiences.

## **New drivers and new limits**

Eighty-two per cent of interviewed drivers are „very“ or „fairly“ in favour of having a BAC limit for novice drivers of 0.0 g/l (Question 28\_e); the countries most in favour are Estonia, Ireland, Poland, Slovenia and Croatia with a percentage in favour over 90%; while the countries where is found the least proportion of drivers in favour of this legislation is Cyprus (56%). Especially drivers of eastern European countries are in favour of such a measure (on average 91%) while only 70% of the southern European drivers agree to a 0.0 g/l limit for novice drivers.

It is important to note that there is no major difference of opinion between countries that already have a special limit for novice drivers (Austria, Greece, the Netherlands, Slovenia, Spain) and those who have not: the former agree “very“ or “fairly“ with this intervention in 81% of the cases while the latter agree with a similar percentage of 82%. One possible explanation might be the generally high acceptance of this measure. Compared to the SARTRE 2 results, the acceptance of the surveyed European car drivers of a 0.0 g/l limit for novice drivers rose by 13%-points.

## **Opinions about enforcement**

### **Number of alcohol controls**

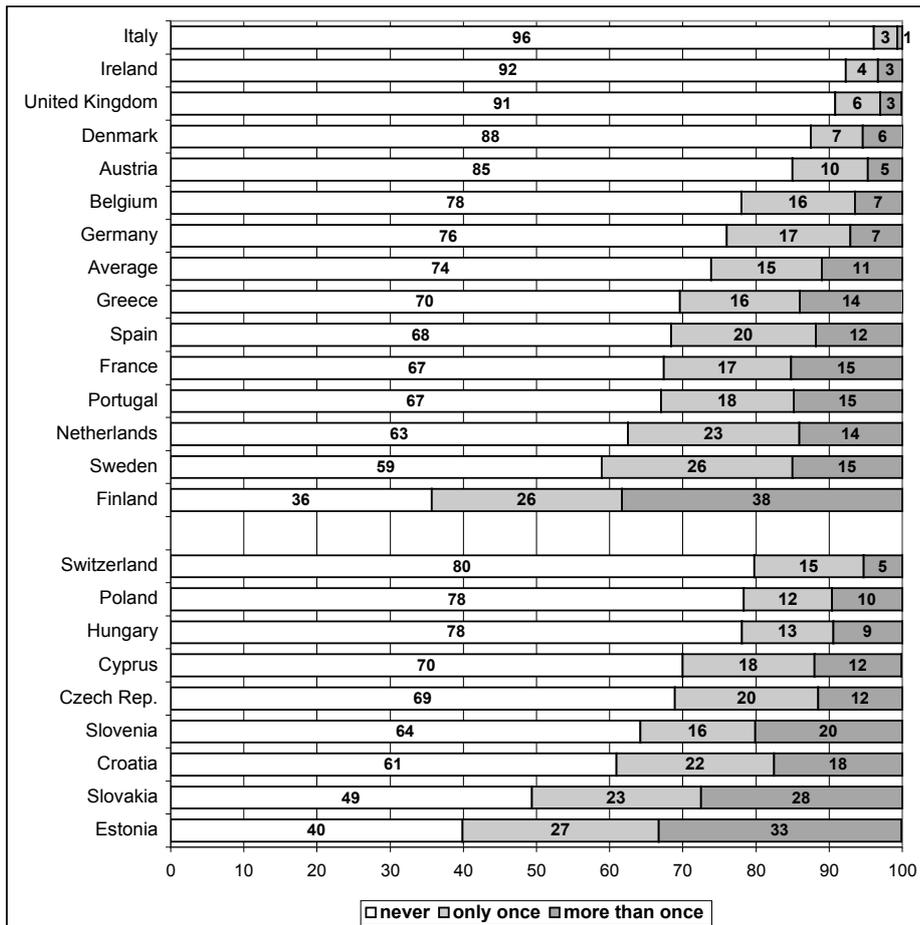
Overall more than two thirds of the interviewed drivers (71%) have not been checked for alcohol in the last 3 years, further 16% only once, and the remaining 13% more than once (Question 23).

These percentages bring up the idea that being checked for alcohol is more an exception than a systematic rule across Europe; the highest number of alcohol controls are found in Finland, Estonia and Slovakia with more than 50% of drivers checked at least once; in Italy, Ireland and the United Kingdom more than 90% of drivers declare they have not been checked in the last three years (figure 2.7).

Random breath testing seems to play a key role in the number of controls carried out in each country; if we make a comparison between the countries where the RBT is not allowed (Germany, Ireland, Italy, Poland, United Kingdom and Switzerland) with all the other countries where this legislation is in force, we will find in the former ones 86% of drivers that declare they have “not been checked“ in the last three years versus a 65% in the latter ones.

In accordance to the low rate of the reported alcohol checks, only about 2% of the total sample have been fined or punished in any other way for drink-driving during the past three years, while another 27% of the drivers that have been checked for alcohol was not penalised (Question 24).

**Figure 2.7: Frequency of alcohol checks over past 3 years (Q23), in %**



### The estimate chance to be checked for alcohol

In general it is confirmed that the expectation of the drivers to be checked for alcohol is quite feeble; 73% think they will be checked “never“ (29%) or “rarely“ (44%) (Question 25). In Italy, Hungary, Poland, Ireland more than 50% of the drivers are quite sure of not being checked for alcohol, while in Finland, Slovakia, Denmark and Slovenia drivers are aware they have pretty high chances of receiving an alcohol control (<10% of “never“).

This result gains even more importance if we have a closer look to the correlation between the drivers that have been checked for alcohol and the higher estimate of the likelihood to be checked ( $r = 0.37$ ), with the consequences on the general perceptions and opinions about control system and enforcement.

Also in this case we have a remarkable difference between countries where Random Breath Testing is allowed and those where it is not; in the first group of countries the interviewed drivers think they will never be checked in 22% of the cases, while in the countries where the RTB is not allowed the number is 46%, that is practically the double. This kind of legislation plays a key role on determining the experience and the perception of the enforcement strategy of the interviewed drivers.

Comparing the SARTRE 2 and SARTRE 3 data we can see an increased perception of chances to be checked in Austria, Belgium, Greece, Italy, Slovakia, Slovenia, Spain and Switzerland, while in Ireland, the Netherlands and Poland this perception has decreased (for each group a change of estimation of being checked „never“ by 5%-points or more).

## Opinions about measures to prevent drink-driving

### Alcohol-meter in the car

One third (32%) of the drivers are “very“ in favour and another 25% is “fairly“ in favour of having an alcohol-meter in the car that prevents them from driving if over the BAC limit (Question 30\_d). The variation across the countries is quite marked with more than 70 % of people in favour in Sweden, France, Portugal and Greece, while in Germany, Austria and Greece less than 30% of the drivers approve this technical support.

A comparison between SARTRE 2 and SARTRE 3 data shows that a higher number of drivers are in favour of alcohol meter in Finland, France, Ireland, the Netherlands, Poland, Sweden, Spain and the United Kingdom while in Switzerland and Slovenia a strong decrease of agreement towards this support could be found (for each group a change of 10%-points or more).

### Rehabilitation courses

In general, rehabilitation courses are seen quite positively by the interviewed drivers. 77% of them are “very“ or “fairly“ in favour of this kind of intervention (Question 32\_a). France, Sweden, Finland and Poland show higher level of approval toward these courses, while Slovakia and the Czech Republic do not seem to trust them that much. Generally, drivers of eastern European countries are those who show the lowest acceptance of rehabilitation measures: only two thirds (67%) are “very“ or “fairly“ in favour of such a measure, while in southern (82%), northern (84%) and western (80%) European countries the acceptance is almost equally high.

No major differences are found between countries that already have these courses (Austria, Belgium, Denmark, Germany, Hungary, the Netherlands, Portugal, Spain, and United Kingdom) and those who do not have them. In both groups about three quarters of the drivers are in favour of rehabilitation measures.

### Test for alcoholism for recidivist drivers

An alcoholism test for recidivists is approved “very“ or “fairly“ by 75% of the interviewed drivers (Question 32\_b); again France, Finland, Poland and Hungary are the countries where this intervention is supported more, while similarly to the former

intervention Slovakia and the Czech Republic show the lowest percentage of acceptance of having a test for alcoholism for drivers caught more than once. There is not much difference in the four groups of countries: in tendency, as for rehabilitation courses eastern European drivers are those who are least in favour of alcoholism tests (71%), while in southern (80%), northern (79%) and western countries (76%) the percentages are slightly higher. However, the acceptance of alcoholism tests is rather heterogeneous across the countries.

## Summary and conclusions

Regarding the drinking (and driving) habits there is – as to be expected from the previous SARTRE studies – a North-South axis: generally southern European car drivers drink alcohol more frequently than northern and also eastern Europeans. On the other hand, in southern countries the share of abstainers, i.e. people who never drink alcohol is also higher. Accordingly, driving after having drunk alcohol, especially so much that one thinks he is over the legal limit, is more an exception than a rule. Again, driving after alcohol consumption is more widespread in southern Europe.

The reported results indicate that European car drivers are quite aware of the problem of drinking and driving, as there is a high consensus for alcohol as being a cause for car accidents across all European countries.

In all countries surveyed there is a very wide agreement that penalties for drink-driving offences should be more severe. Accordingly, the majority of drivers share the opinion that people should not be allowed to decide for themselves how much they can drink before driving. However, drivers from southern European countries are more opposed to a general ban of alcohol before driving, while drivers from eastern countries are more in favour.

Generally, European car drivers show a rather careful estimation of how much alcohol they can drink to not exceed the legal limit. However, there is a tendency, that drivers of countries with a higher BAC limit guess that they can drink more alcohol than those with a lower limit. Especially in countries where drinking is frequent, the optimism about the allowed quantity is exaggerated. The admission to have exceeded these optimistic limits is frequent, and police controls continue to be the lowest. These astonishing differences pose urgent problems of co-ordination at a European level.

An European Union wide introduction of a maximum alcohol limit of 0.5 g/l is favoured by the majority of drivers, however, the more the legal limit of a country differs from 0.5 –either higher or lower – the less favoured is a maximum BAC of 0.5 g/l. This reflects that the acceptance of legal measures seems to be strongly influenced by habituation effects, meaning that as a new legislation is introduced, the acceptance will grow as time passes. Also the suggestion of a 0.0 BAC limit for novice drivers receives very strong support from car drivers across all countries.

Enforcement activity, i.e. alcohol checks, seem to be rare all over Europe although there is high awareness of the drink-driving problem in European car drivers. The vast majority of drivers have not been checked for alcohol during the last three years and accordingly the likelihood of being checked for alcohol is estimated to be very low. However, in those countries that allow random breath testing drivers estimate the probability to be checked higher (as indeed it is) which indicates that random alcohol checks might be a good mean of deterrence and of injury prevention. The perception

that alcohol is often not a primary target of enforcement is also underlined by the fact that for most of the participating countries there is no official data available of the number of drivers checked for alcohol (see chapter 12).

Regarding different measures to prevent drink-driving and to reduce alcohol-related accidents there is also strong support of European car drivers. However, some interesting differences could be displayed: while the majority of European drivers supports the possibility of rehabilitation measures for alcohol offenders and alcoholism tests for recidivists, the situation is more heterogeneous regarding the use of alcohol-meters in cars: while in some countries this technical measure is supported by more than two thirds of the drivers, in other countries the vast majority of drivers objects to alcohol-meters.

Conclusively, although the reported survey results on drinking and driving may be quite optimistic, we may not forget that drinking and driving is still a major cause for fatal road traffic accidents in Europe. According to estimations of the European Commission, about 10,000 people, a quarter of all European Union road deaths, are killed every year in accidents where at least one driver had consumed too much alcohol (European Commission, 2001). Consequently, the EC among other things recommends the European Union wide introduction of a maximum BAC limit of 0.5 g/l, of a maximum BAC of 0.2 g/l for novice drivers, professional drivers and riders of two wheel motor vehicles as well as the introduction of random breath testing. Finally, the Commission recommends more efficient alcohol enforcement. Although a part of the participating countries has already made some important steps in order to achieve the recommendations and to better address the drink-driving problem, it becomes obvious that there is still a lot of work to be done, especially regarding the harmonisation of legal measures, such as BAC limits and random breath testing, as well as regarding the increase of enforcement. However, European car drivers seem to be quite aware that these steps are important, which represents a solid ground to develop further activities to combat drinking and driving all over Europe, not only regarding the „old“ member states but also with respect to the new countries ready to join the European Union in 2004.

## References

European Commission (2001). Still too much drinking and driving in the European Union. Press release IP/01/70.

# Chapter 3

## Attitudes to speed and speeding issues

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### Introduction

Driving speed (or more specifically ‘driving too fast for the conditions’) is widely recognised as being one of the main contributory factors in traffic accidents (Treat, 1980; Taylor, 1999). Additionally a large number of studies have examined the accident risk factor associated with driving speed (Taylor et al., 2000). Taylor et al. (2002) found that a 1 mph increase in speed was associated, on average, with a 5 per cent increase in accident involvement - although this relationship did vary depending on a number of factors such as the type of road, accident severity and traffic density.

There are many factors that influence the speed at which a driver chooses to drive (Quimby et al., 1999a, 1999b), while surveys of drivers caught speeding (Simon et al., 1991, Kanellaidis et al., 1995) also reveal a variety of reasons that can be either temporary (e.g. “I’m in a hurry”; “I didn’t know the speed limit”) or more permanent (e.g. “I’m more skilled than other drivers so can drive faster and still be safe”; “This car is designed to be safe when driven fast”). The type of vehicle driven, the posted speed limit and the perceived likelihood of enforcement will also be important in determining a driver’s choice of speed in addition to a number of psycho-social factors that have been found to influence speed (e.g. enjoyment of driving fast and speeding because of pressure of work). Additionally, factors such as whether the driver is accompanied or not and the driver’s relationship with the passenger (e.g. peer group friend or elderly relative) and the purpose of the journey have been shown to influence driving speed.

Many of these various factors can be considered under the umbrella term of ‘attitudes’ - so that a driver’s attitudes to issues such as speed, risk, speed limits, enforcement and perceptions of their own and other’s driving behaviour are important in determining their behaviour and how safely they drive.

The survey contained a number of questions that obtained information on different aspects of speed and speeding. These included:

- Drivers’ perceptions of their speed and safety compared to other drivers;
- How often they and other drivers exceeded the speed limit;
- How ‘often driving too fast’ contributed to accidents;
- Speed related self-reported behaviours, such as driving through amber traffic signals and overtaking when they could ‘just make it’;
- Existing speed limits and enforcement activity;
- Their enjoyment of speed, and
- Accident involvement.

The survey provided information on drivers’ attitudes to both ‘speed’ (irrespective of the speed limit) and ‘speeding’ (where speed is related to exceeding the speed limit).

A number of these questions were also included in earlier SARTRE surveys so that it was possible (for some countries) to see how things had changed in the intervening period; see chapter 1 for more details of previous surveys (e.g. dates and number of countries involved) and chapter 11 for a more detailed analysis of changes over the three surveys.

The SARTRE 3 survey was conducted in 14 countries that were member of the European Union (Luxemburg was the only member that did not take part), 7 ‘candidate’ countries (i.e. countries hoping to join the European Union in the future), Switzerland and Croatia. When presenting the results it was decided - for convenience when interpreting the findings results - to group the European Union and non-European Union countries. This meant that Switzerland was included amongst the non-European Union countries (although in terms of economics, politics and transport infrastructure it is perhaps more ‘similar’ to the other European Union countries); and Croatia was grouped with the other candidate countries although it has yet to formally ‘apply’ to join.

## Drivers’ perceptions of their speed behaviour and safety

Among the many factors that influence driving speed are the perception of how other drivers behave with respect to speed limits and how speed relates to safety. Figure 3.1 shows the proportion of drivers in each country who responded that they drove ‘faster’ (either ‘a little faster’ or ‘much faster’) than other drivers (Question 8) together with the proportion of drivers who considered that they drove more ‘dangerously’ (either ‘much more’ or ‘a bit more’) than other drivers (Question 6). The countries are ordered firstly by whether or not they are members of the European Union and secondly by the speed score for that country. The figures are all rounded to the nearest whole number; a sample average for European Union countries is provided.

**Figure 3.1: Drivers who report driving faster and more dangerously than other drivers**

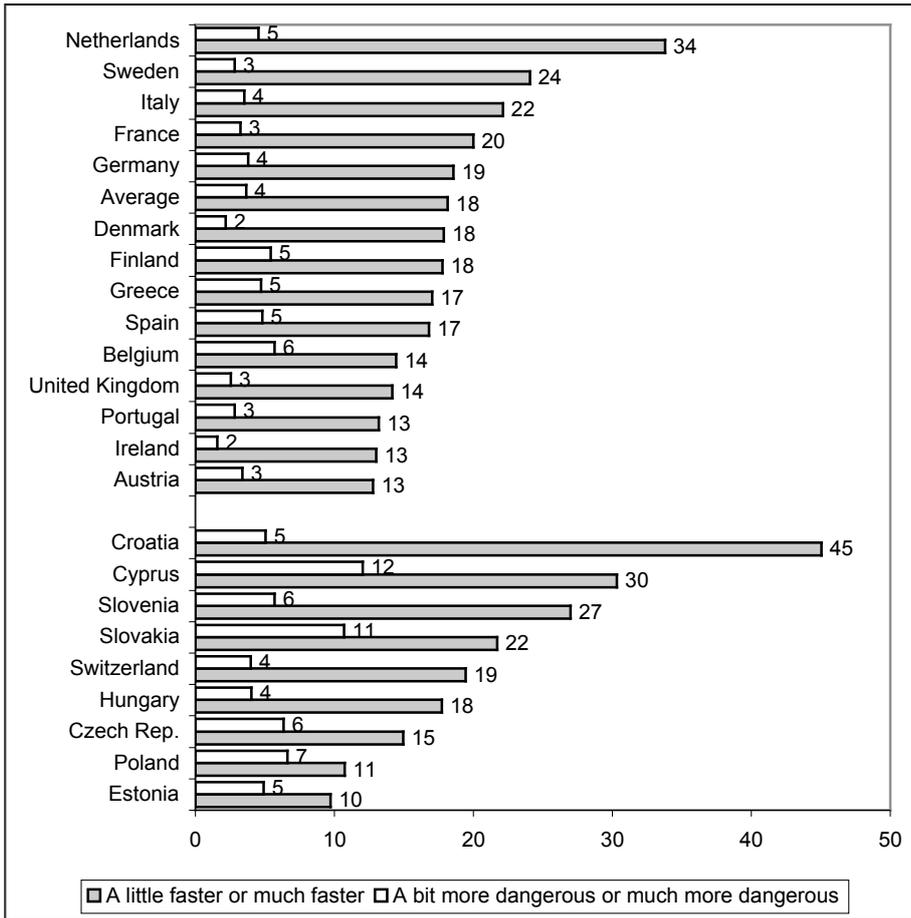


Figure 3.1 shows that drivers are significantly more likely to report that they drive faster than other drivers compared to driving more dangerously. While nearly one-fifth (18%) of drivers in European Union countries responded that they drove faster than average, less than one in twenty (4%) reported that they were more dangerous than other drivers. This shows that in general drivers do not appreciate that speed is associated with risk where their driving is concerned. While this was true for all countries (but to very different extents) the results also showed that there were major differences between countries in drivers' perception of their own speed. While more than one-quarter of drivers in Croatia (45%) Netherlands (34%), Cyprus (30%) and Slovenia (27%) reported driving faster than other drivers only around 10% did so in Estonia (10%), Poland (11%) and Portugal, Ireland and Austria (all 13%). In general drivers in applicant countries were more likely to report being faster and more dangerously than drivers in European Union countries.

## Self reported speeding behaviour

In addition to the question about their own speed compared to other drivers, they were also asked how frequently they exceeded the speed limit on different types of road (Question 9). The results are given in Table 3.1.

**Table 3.1: Drivers reporting they exceed the speed limit, either ‘often’, ‘very often’ or ‘always’, on different types of road**

In %	Motorway	Main roads between towns	Country roads	Built-up areas
Austria	19	11	11	6
Belgium	27	17	14	12
Denmark	46	34	14	4
Finland	17	11	10	6
France	22	14	10	7
Germany	20	15	17	7
Greece	40	23	19	6
Ireland	10	7	4	3
Italy	24	26	15	12
Netherlands	31	22	14	7
Portugal	32	19	15	11
Spain	37	21	13	11
Sweden	35	27	14	5
United Kingdom	26	13	8	4
<i>Average</i>	28	19	13	7
Croatia	25	18	21	6
Cyprus	28	21	18	12
Czech Rep	14	12	7	6
Estonia	13	25	20	12
Hungary	16	21	17	12
Poland	12	13	11	7
Slovakia	16	18	11	8
Slovenia	26	16	10	6
Switzerland	32	21	18	4

Table 3.1 shows that there are very sizeable differences in self reported ‘speeding’ behaviour for different types of road. While 28% of drivers in European Union countries report driving faster than the speed limit (either ‘often’, ‘very often’, or ‘always’) on ‘Motorways’, only 19% did so on ‘Main roads between towns’ and 13% reported doing so on ‘Country Roads’. There appears to be a widespread recognition that driving speeds should be low in built-up (residential) areas since ‘only’ 7% of drivers in the European Union countries reported exceeding speed limits in such areas in contrast to 28% who reported exceeding the speed limit on motorways. Very similar

‘average’ results were found for the non-European Union countries, although the table again shows considerable variability between individual countries.

However, the table also show that there are very marked differences between individual countries. For example, for motorways a sizeable proportion of drivers in Denmark (46%), Greece (40%), Spain (37%) and Sweden (35%) reported speeding on motorways in contrast to drivers in Ireland (10%), Poland (12%), Estonia (13%) and the Czech Republic (14%). Differences between individual countries were less pronounced for ‘slower’ roads, with 12% of drivers in each of Belgium, Italy, Cyprus, Estonia and Hungary speeding in Built-up areas, while the corresponding figure was 3% for Ireland and 4% for each of Denmark, the United Kingdom and Switzerland.

## Perceptions of other driver’s speeding behaviour

A driver’s general speed behaviour and how quickly they drive compared to the speed limit (i.e. “speeding”) is likely to be strongly influenced by how they view other drivers’ behaviour. Figure 3.2 shows the proportion of drivers in each country who considered that other drivers exceeded the speed limit (either ‘often’, ‘very often’ or ‘always’ – Question 7).

**Figure 3.2: Other drivers exceeding the speed limit often, very often or always**

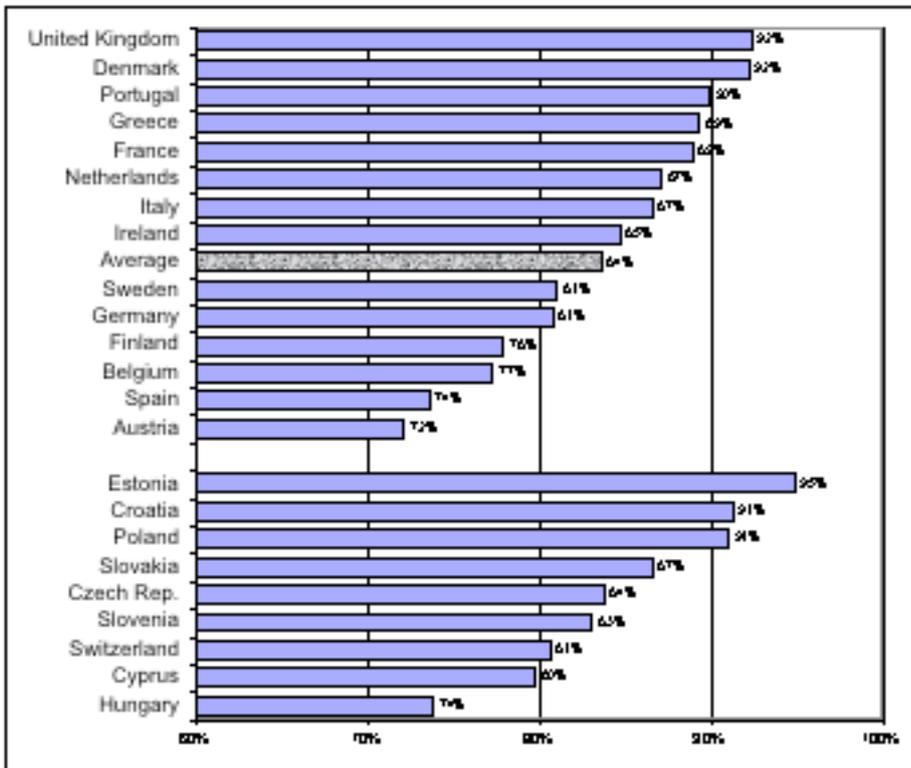
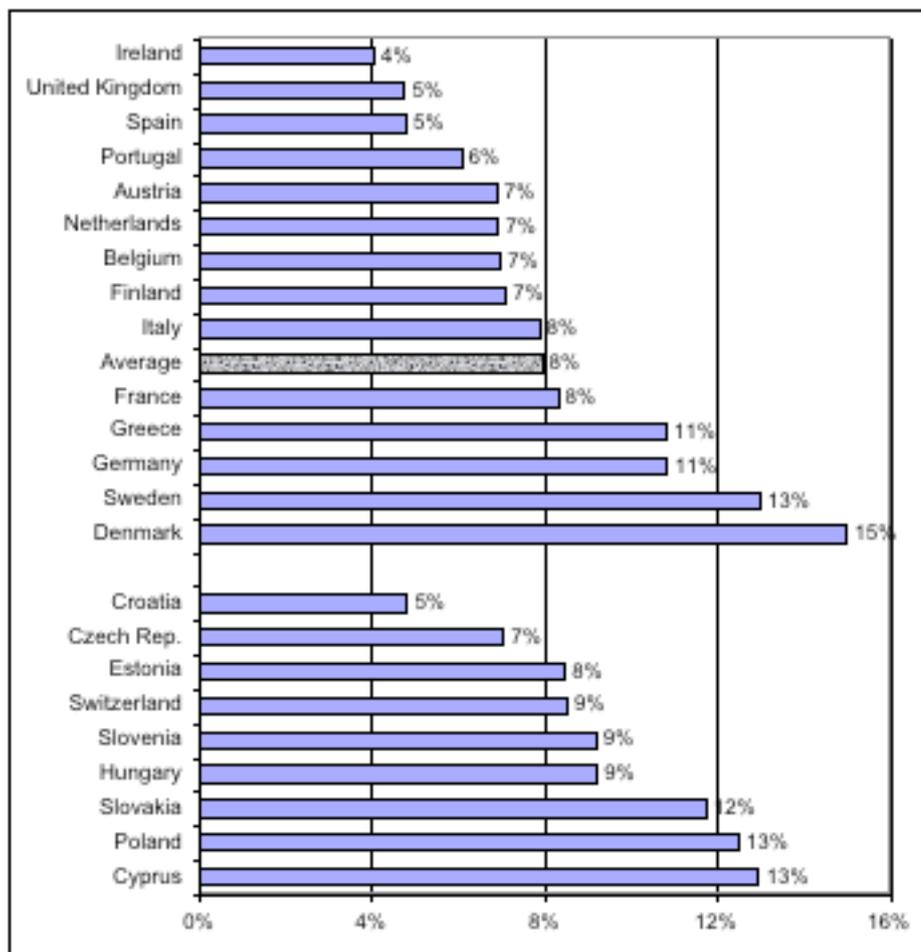


Figure 3.2 shows a sizeable majority of drivers in all countries think that other drivers frequently exceed speed limits (either ‘often’, ‘very often’ or ‘always’) - with an European Union average of 84%. In fact even in those countries with a low ‘score’ nearly three-quarters of drivers thought that other drivers were guilty of frequently speeding. However, these results probably reflect a general feeling that they are better (or ‘safer’) drivers than other people. It should also be remembered that a significant number of drivers reported driving ‘faster’ than average - while at the same time not speeding themselves to any great extent, except when driving on motorways, which demonstrates a marked degree of ambiguity in their responses.

## Enjoyment of driving fast

Figure 3.3: Drivers’ enjoyment of driving fast, very



A number of research studies have demonstrated that demographic and psychological factors can influence speed choice. For example, there are differences in the speed of different ages and gender (with younger male drivers typically driving

faster, Maycock et al., 1990) and psychological traits (e.g. ‘sensation seeking’, Quimby et al., 1997) have also been found to influence the choice of driving speed. In this survey such psychological factors were explored by a single question (Question 29b) which asked drivers how much they ‘enjoyed driving fast’ and Figure 3.3 gives the proportion of drivers in each country who responded ‘very’ to this question.

Figure 3.3 shows that overall nearly one in ten drivers reported that they ‘enjoyed’ driving fast very much – the average for European Union countries being 8 per cent. Drivers in Denmark (15%) were most likely to respond that they enjoyed fast driving (Sweden, Cyprus and Poland all scored 13%) in contrast to drivers in Ireland (4%) and the UK, Spain and Croatia where only 5% of drivers reported that they enjoyed driving quickly.

Figure 3.4 shows how the responses to this question have changed since the second SARTRE survey.

**Figure 3.4: Changes between surveys for enjoyment of driving fast**

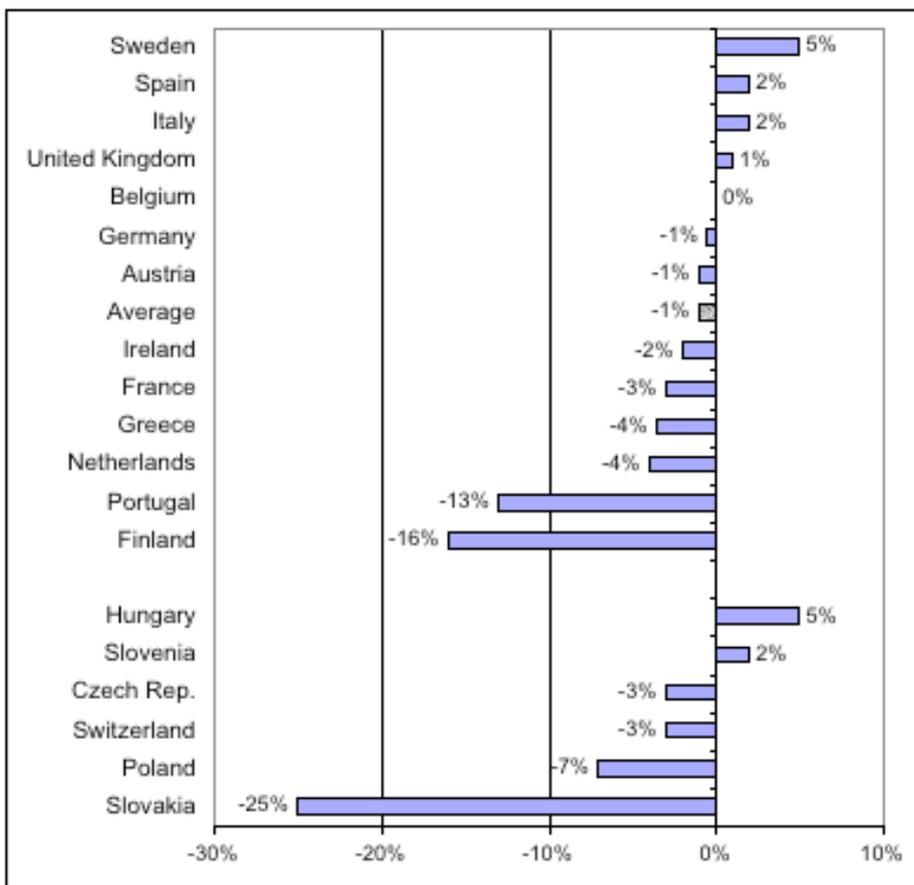


Figure 3.4 shows there has been a change of more than 5 percentage points in only 4 countries. The drivers in Slovakia (25 percentage points), Finland (16 percentage points), Portugal (13 percentage points) and Poland (7 percentage points) have all shifted towards responding that fewer of them enjoy driving fast, perhaps reflecting an

increased perception of enforcement activity (and risk of being punished) or a general shifting of attitudes towards road risk.

## Reported behaviours related to speed

Driving speeds (and speeding) are not necessarily, of themselves, always dangerous. More important is when drivers choose to drive 'too fast for the conditions' (which can be much less than the posted speed limit) which can result in them getting into difficulties. The questionnaire included two questions about (self-reported) behaviours that might be associated with excessive speed. These asked how frequently they 'drove through amber traffic light' and how often they 'overtake when they thought they could just make it' (Questions 13c and 13d).

Figure 3.5 gives the proportion of drivers in each country that reported that they drove through amber traffic lights (either 'often', 'very often' or 'always').

**Figure 3.5: Frequency of driving through amber lights often, very often or always**

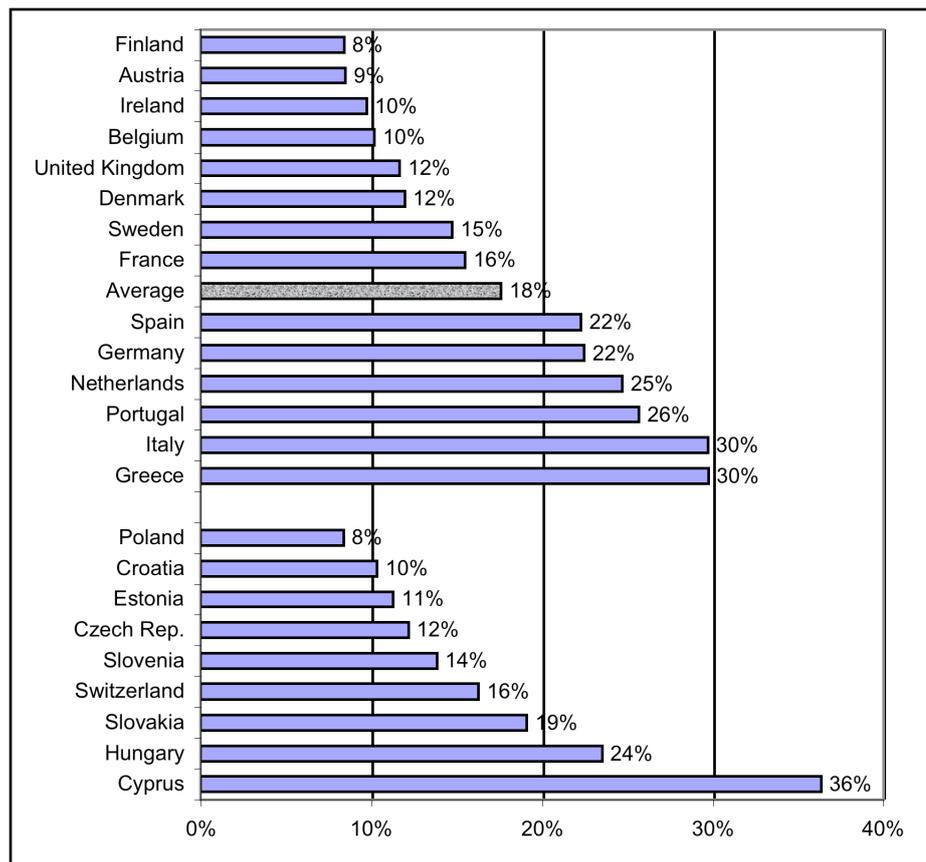


Figure 3.5 shows that a significant proportion admits to driving through traffic signals when they are amber (either 'often' 'very often' or 'always') and they are

supposed to stop. This behaviour is particularly common in Cyprus (36%), Italy and Greece (both 30%) in contrast to Finland, Poland (both 8%) and Austria (9%) where less than one-in-ten drivers reported such behaviour.

Figure 3.6 gives the proportion of drivers in each country that responded that they frequently overtake when 'they can just make it' (either 'often', 'very often' or 'always').

**Figure 3.6: Frequency of overtaking when they can 'just make it' often, very often or always**

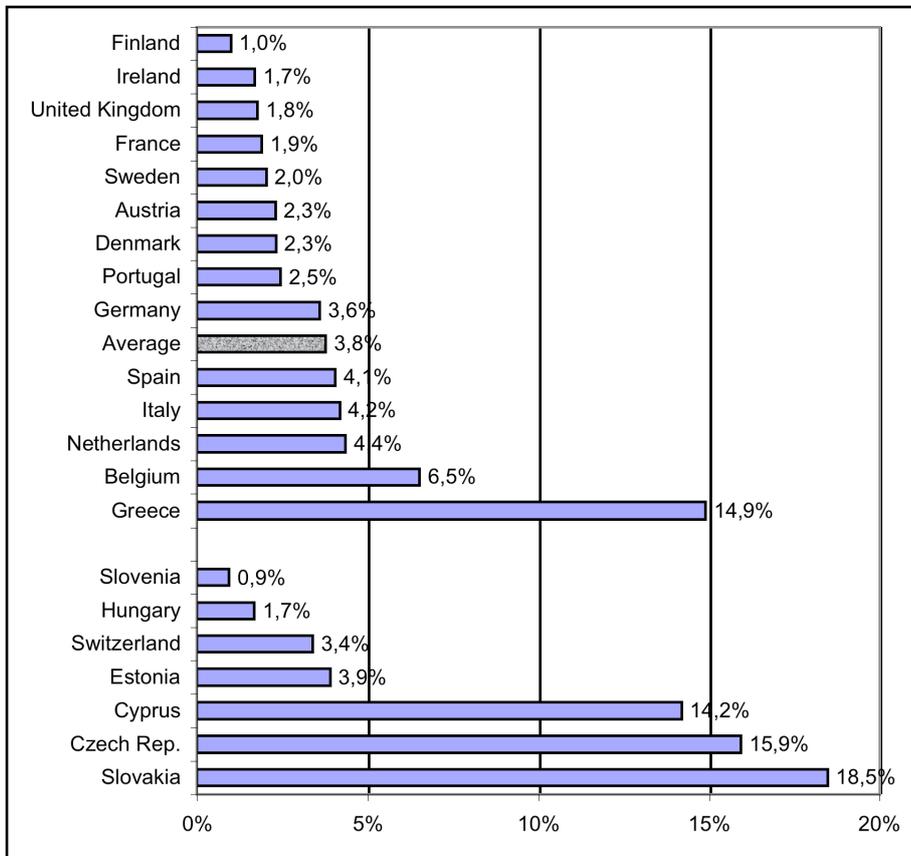


Figure 3.6 shows that dangerous overtaking is admitted to much less frequently than driving through amber lights [results from Croatia and Poland are excluded from the chart owing to differences in translation of the question]. The figure shows that less than 5 per cent of the drivers in 16 of the 23 countries taking part in the survey actually reported such behaviour.

## Attitudes to speed and speed limits

Drivers' attitudes to issues such as speed, speed limits and enforcement are likely to be influenced by their perception of the role speed plays in causing road accidents. The

survey included a series of questions about a variety of possible accident contributory factors – including ‘driving too fast’. Figure 3.7 gives the proportion of drivers in each country that responded that this factor was a contributory factor either ‘often’, ‘very often’ or ‘always’.

**Figure 3.7: ‘Driving too fast’ seen as a cause of accidents**

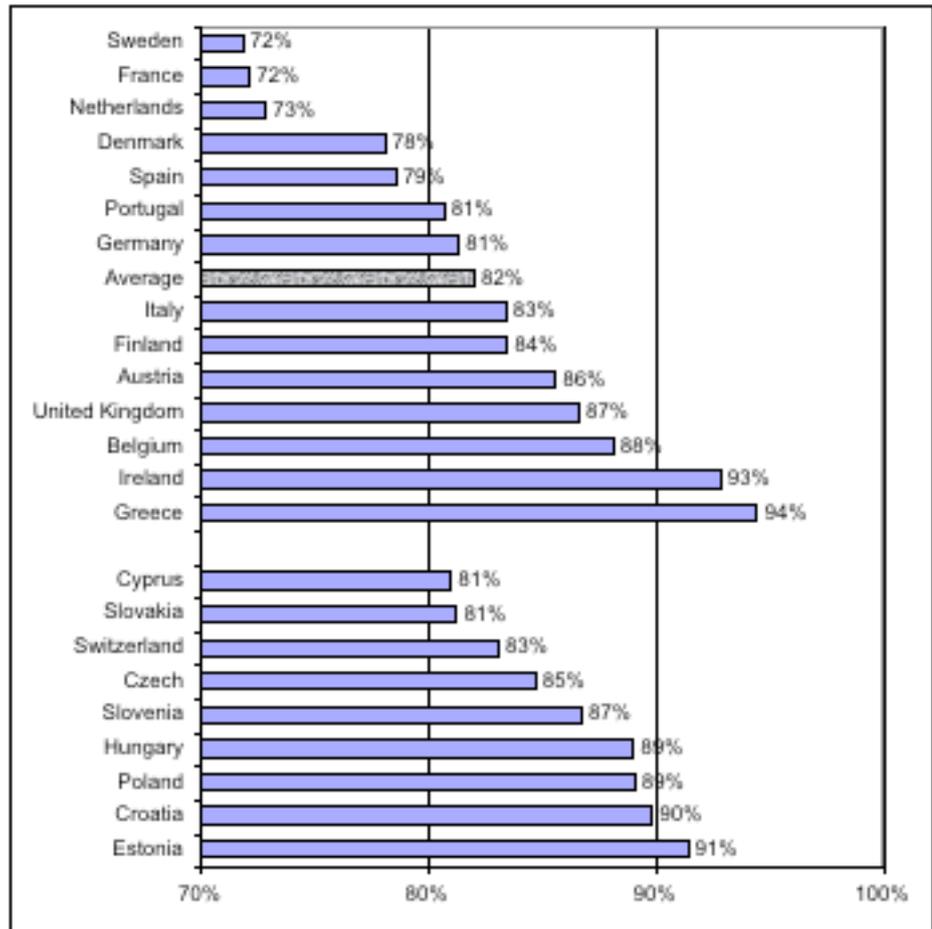


Figure 3.7 shows ‘driving too fast’ is very widely recognised as being a contributory factor in accidents. Even in those countries with a relatively low score for this question (such as Sweden, France and the Netherlands) nearly three quarters of the drivers recognised it as being a major cause of accidents. However, the results obtained for other questions suggest that drivers do not think the risks associated with speed apply to themselves – or that they are not prepared to change their behaviour to take account of the risk – since they often report driving faster than other drivers and exceeding speed limits.

## Attitudes to countermeasures

Table 3.2 gives the proportion of drivers in each country who support two speed related safety countermeasures. One is that vehicle manufacturers should not be allowed to stress the speed (or acceleration) of their cars in advertisements, which is often designed to make speed glamorous (and frequently 'sexy'). The other involved requiring manufacturers to fit speed 'limiters' to vehicles that would restrict their maximum speed, for example to the legally permitted maximum speed; although the vehicle could still break the speed limit on roads with a lower limit.

**Table 3.2: Support for speed related countermeasures**

In %	Advertising restrictions (either 'agree' or 'strongly agree')	Speed Limiters (either 'very' or 'fairly' agree with)
Austria	44	45
Belgium	51	64
Denmark	22	42
Finland	59	63
France	68	74
Germany	37	38
Greece	47	59
Ireland	61	77
Italy	65	70
Netherlands	36	51
Portugal	45	64
Spain	54	62
Sweden	24	46
United Kingdom	54	64
<i>Average</i>	<i>48</i>	<i>59</i>
Croatia	47	42
Cyprus	56	60
Czech Rep	31	35
Estonia	20	45
Hungary	25	36
Poland	38	49
Slovakia	26	36
Slovenia	47	54
Switzerland	39	38

Table 3.2 shows that there would be considerable support for each of these measures with fitting speed limiters being supported by well over half (59%) of drivers in European Union countries and approaching half (44%) of the drivers in other countries. There was less support for restricting 'speed' related publicity – perhaps because this was seen as being a less effective measure and the affection that many drivers have for fast (and 'sporty') cars.

Again the survey identified marked differences between individual countries. Support for advertising restrictions ranged from a high of 68 and 65 %, perhaps surprisingly, for France and Italy respectively and a low of 20 and 22% respectively for Estonia and Denmark. Similarly support for speed limiters varied from a high score in Ireland (77%) and France (74%) to a low of in the Czech Republic (35%) and Hungary and Slovakia (both 36%).

Table 3.3 shows how support for these two countermeasures has changed from earlier surveys.

**Table 3.3: Changes in support for different countermeasures from earlier surveys**

	Advertising restrictions (either 'agree' or 'strongly agree')		Speed Limiters (either 'very' or 'fairly' agree with)	
	Diff SARTRE 2	Diff SARTRE 1	Diff SARTRE 2	Diff SARTRE 1
	Austria	1%	-5%	0%
Belgium	4%	3%	3%	12%
Finland	17%	-	10%	-
France	7%	8%	8%	15%
Germany	4%	2%	-3%	0%
Greece	-4%	-	4%	-
Ireland	12%	8%	17%	15%
Italy	1%	29%	8%	23%
Netherlands	1%	5%	-2%	5%
Portugal	19%	9%	19%	15%
Spain	4%	15%	6%	14%
Sweden	2%	0%	16%	11%
United Kingdom	9%	7%	6%	9%
Czech Rep	16%	8%	10%	6%
Hungary	8%	8%	-2%	16%
Poland	22%	-	15%	-
Slovakia	6%	-4%	-3%	-5%
Slovenia	12%	-	5%	-
Switzerland	8%	0%	2%	9%

Table 3.3 shows that there are very different results for individual countries. In general support for such countermeasures has increased over time.

Table 3.4 shows the degree of support in each country for three more advanced speed management measures. The first ('speed limiting devices', Question 30c) would identify the speed limit for each stretch of road (either by the use of GPS satellite systems that identify the vehicles location or 'smart' speed limit signs that inform the vehicle about changes in the speed limit) and restrict the vehicle to that speed. The second system would employ a recording system ('black-box', Question 31c) fitted to each vehicle that would record vehicle speed and could be used by the police to prosecute 'speeders' or, perhaps be used to help prosecute drivers involved in accidents.

The ‘electronic identification’ (or ‘tagging’, Question 31c) of vehicles could also be used by the police to help enforce limits by making it easier to identify vehicles.

**Table 3.4: Support for speed management measures in the vehicle (either ‘very’ or ‘fairly’ much in favour)**

In %	Speed Limiting devices	Black Box	Electronic Identification
Austria	54	47	26
Belgium	62	58	49
Denmark	40	47	45
Finland	64	64	49
France	70	67	54
Germany	54	50	31
Greece	77	67	50
Ireland	81	77	69
Italy	70	72	51
Netherlands	41	52	38
Portugal	73	79	53
Spain	63	57	44
Sweden	44	54	31
United Kingdom	68	75	70
<i>Average</i>	<i>62</i>	<i>62</i>	<i>47</i>
Croatia	63	64	50
Cyprus	78	70	54
Czech Rep	45	53	48
Estonia	47	56	64
Hungary	50	55	58
Poland	57	76	75
Slovakia	75	55	66
Slovenia	64	61	50
Switzerland	46	45	30

The table again shows that there is very strong support amongst the driving population for countermeasures that could be used to target speeding. This should encourage the police and safety practitioners that enforcement of speed laws will be viewed positively by the public – in the same way that drinking and driving enforcement is now very widely supported.

## Experience and expectation of speed enforcement

Driver’s attitudes to speed related issues are likely to have been influenced by their experience of police, or speed camera, enforcement. For example, if they have been ‘caught’ speeding they may be less supportive of speed limits or police enforcement

activity than if they have never been punished for speeding. However, it is possible that a driver's *expectation* of being caught speeding may be as important (if not more so) than their actual *experience*.

Figure 3.8 gives the proportion of drivers in each country who reported that they have been detected and punished for speeding in the previous 3 years (Question 12) plus the drivers' expectation of having their speed checked on a typical journey (Question 11) either 'often', 'very often' or 'always'.

**Figure 3.8: Drivers penalised for speeding in last 3 years and expectation of having speed checked, often, very often or always**

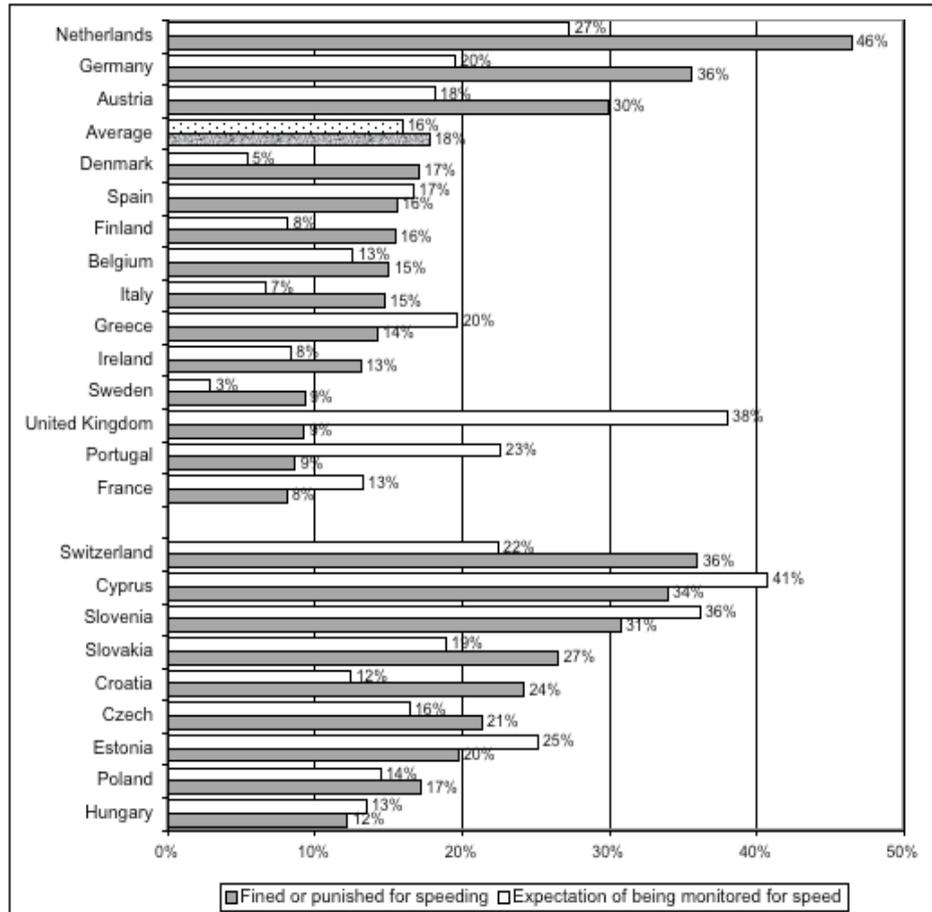


Figure 3.8 reveals that a sizeable proportion of drivers reported being caught and punished for speeding in the previous three years, especially in the Netherlands, Germany and Austria. Nearly one-fifth of drivers in European Union countries (18%) and even more than this proportion in applicant countries had been punished for speeding over this period. As might be expected there are considerable differences in drivers' experience of speed enforcement between individual countries. Amongst the European Union countries drivers in the Netherlands (46%), Germany (36%) and Austria (30%) had been penalised for speeding. In contrast to less than one in ten of the drivers in France (8%), Portugal, the United Kingdom and Sweden (all 9%). For non-

European Union countries around one-third of drivers in Switzerland (36%), Cyprus (32%) and Slovenia (31%) had been detected speeding in contrast to Hungary (12%) and Poland (17%) where fewer drivers had been similarly punished.

Figure 3.8 also presents the information on drivers' expectations of being 'monitored' (either 'often', 'very often' or 'always') for speeding on typical journeys. The perception of enforcement activity for speeding appears to be particularly high in Cyprus (41%), the United Kingdom (38%) and Slovenia (36%) in contrast to much lower expectations in Sweden (3%) and Denmark (5%).

The figure also shows that in many countries there are very marked differences between drivers actual experience and their expectation of being detected speeding. In some countries, such as the Netherlands, Germany Switzerland and Austria the drivers' experience of being caught speeding (and punished) is markedly higher than their expectation; in contrast to countries such as the United Kingdom and Portugal where the drivers' expectation is markedly higher than their actual experience.

## Attitudes towards enforcement

One important factor that will influence a driver's driving speed (apart from their personal experience of enforcement and expectation of being detected if they exceed the limit) will be whether they think the posted speed limit – if they are aware of this by observing the speed limit signs - is sensible. For example they may consider the speed limit on motorways to be too low, or even that the speed limit in residential areas (or near schools) to be too high. Table 3.5 gives the proportion of drivers in each country who think the speed limit should be higher on 4 different types of road (Question 10).

Table 3.5 shows that generally there is considerably more support for higher limits on motorways than on other types of road. For example, while approaching half (44%) of drivers in European Union countries support higher limits only around one-in-ten did so for roads in built-up areas (7%) and country roads (11%). Again there were very considerable differences in the attitudes of drivers in different countries. This will influence how drivers are likely to view enforcement activity on different types of road. While there will be general support for speed enforcement on lower speed roads that is unlikely to be the case on higher speed roads.

In addition to widespread support for more 'safety targeted' speed limits (see Table 3.5 which shows the relatively low numbers of drivers favouring 'higher' limits on roads other than motorways), the survey revealed considerable general support for police enforcement of traffic laws, for example three-quarters of the drivers were in support (either 'in favour' or 'strongly in favour') of having more enforcement – see chapter 8 for information about individual countries.

**Table 3.5: Drivers preferring higher speed limits on different types of road**

In %	Motorways	Main roads	Country roads	Built-up
Austria	38	15	9	7
Belgium	39	14	8	9
Denmark	62	39	5	4
Finland	25	15	5	6
France	33	12	4	7
Germany	35	18	15	7
Greece	47	21	16	3
Ireland	34	14	3	6
Italy	40	24	10	10
Netherlands	53	23	8	6
Portugal	48	18	11	5
Spain	53	27	15	12
Sweden	54	39	40	5
United Kingdom	43	11	4	2
<i>Average</i>	<i>44</i>	<i>21</i>	<i>11</i>	<i>7</i>
Croatia	33	22	30	13
Cyprus	42	22	14	8
Czech Rep	42	27	13	20
Estonia	26	47	18	12
Hungary	69	16	53	3
Poland	30	15	12	9
Slovakia	49	31	20	9
Slovenia	40	18	12	15
Switzerland	53	25	17	5

This high level of support for general enforcement was also found with respect to speed enforcement. Figure 3.9 gives the proportion of drivers in each country that supported having more severe penalties for speeding offences.

Figure 3.9 shows that there is very widespread support for having harsher penalties for drivers detected speeding. However the strength of this support does vary considerably between countries with it being especially strong in Finland and Portugal (both 80%) and the Czech Republic (78%) while it is markedly lower in Sweden (39%) and Switzerland (40%).

However, while the results presented in Figure 3.9 suggest there is considerable support within the driving 'public' for penalising speeding it should be recognised that in surveys of this type people often give socially acceptable responses that might bias the findings. Of relevance here are the responses to the question about whether drivers warned other drivers about the speed 'traps' (Question 13e). Figure 3.10 shows the proportion of drivers in each country who report that they warn other drivers either 'often', 'very often' or 'always'.

Figure 3.9: Drivers supporting more severe penalties for speeding

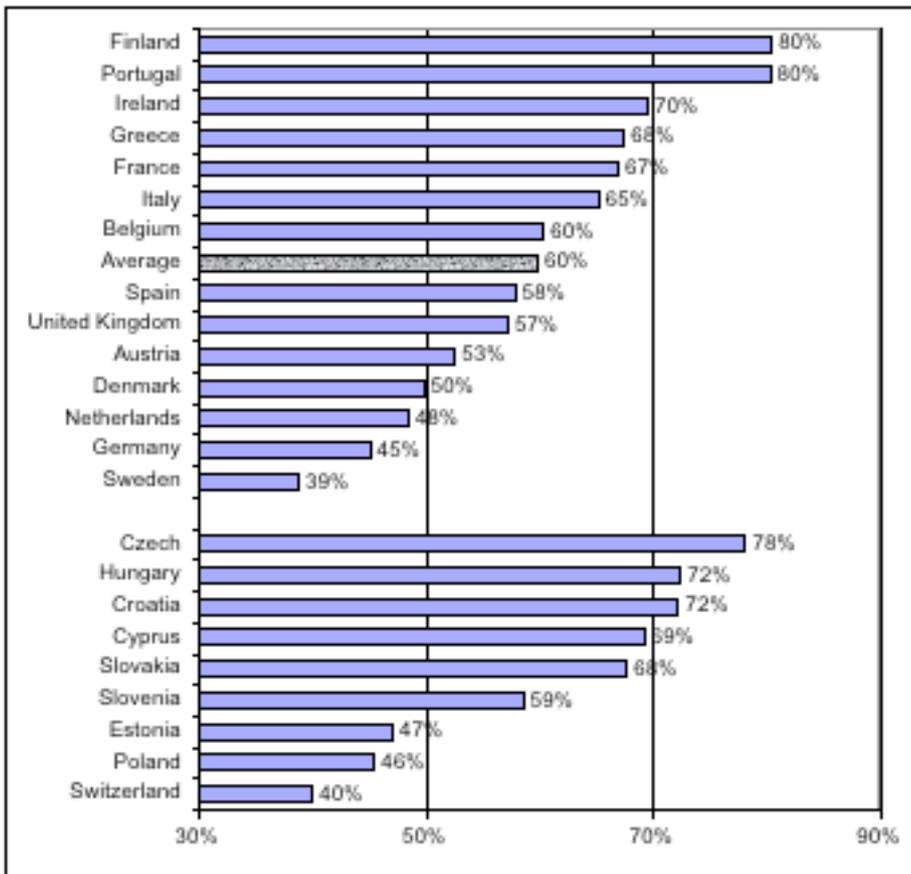
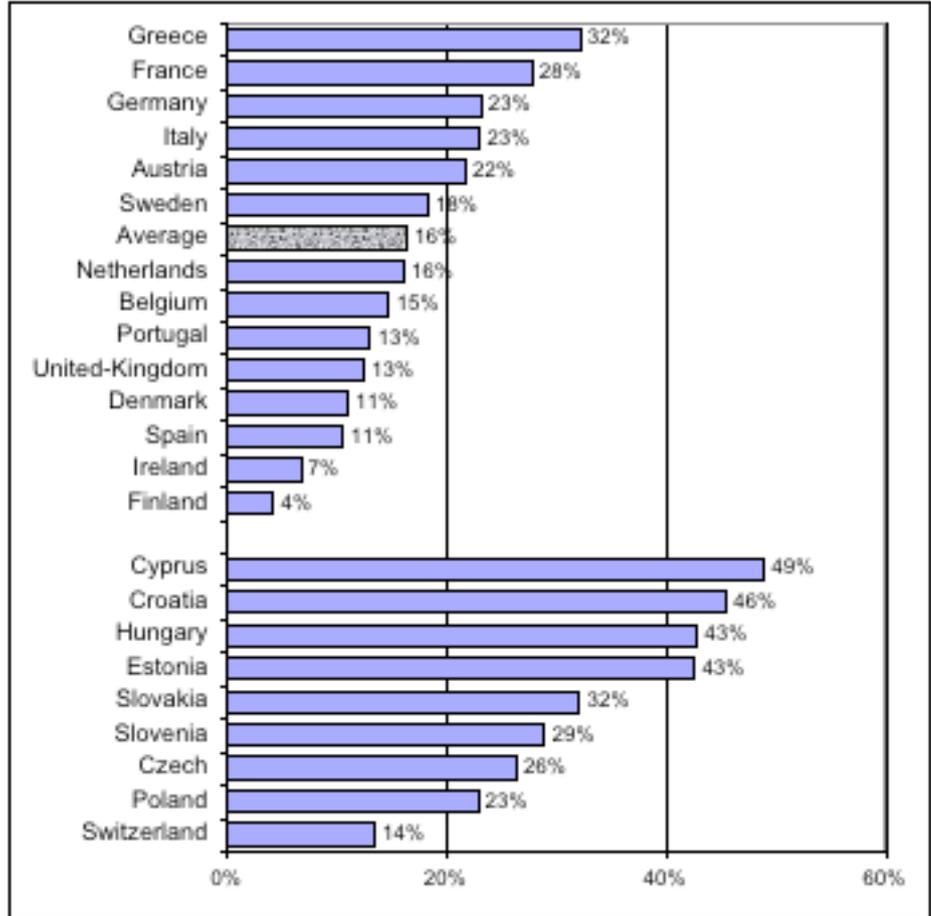


Figure 3.10 shows that the proportion of drivers who warn about speed traps – suggesting that they do not approve of such police enforcement activity - tends to be markedly higher in applicant countries than in European Union countries. In European Union countries the practice was high in Greece (32%) and France (28%) and relatively low in Finland (4%) and Ireland (7%). In non-European Union countries the proportions were particularly high in Cyprus, Croatia, Hungary and Estonia, with Switzerland being close to the European Union average.

**Figure 3.10: Car drivers who signal other drivers to warn them of a police speed trap ahead (often, very often or always)**



### Attitudes to non-police enforcement

Table 3.6 shows the proportion of drivers in each country who support (either ‘very’ or ‘fairly’ much) different types of speed enforcement activity. It shows the degree of support for the use of speed cameras and enforcement conducted by public or private authorities.

Table 3.6 shows that although there is very marked differences between drivers in individual countries there is general support for the use of speed cameras (supported by 66% of drivers in European Union countries and 65% in non-European Union countries) and enforcement by local authorities (59% for European Union countries), although there is markedly less support (20% in European Union countries) for private authorities conducting speeding enforcement.

**Table 3.6: Support for different speed management measures  
(‘very’ or ‘fairly’ much)**

In %	Automated Cameras	Public Authorities	Private Authorities
Austria	54	55	18
Belgium	79	71	25
Denmark	55	31	9
Finland	83	91	29
France	61	65	18
Germany	51	44	13
Greece	60	60	18
Ireland	87	54	22
Italy	64	77	15
Netherlands	71	66	28
Portugal	83	80	31
Spain	52	53	17
Sweden	51	25	20
United Kingdom	78	57	15
<i>Average</i>	<i>66</i>	<i>59</i>	<i>20</i>
Croatia	73	38	11
Cyprus	63	50	32
Czech Rep	65	39	20
Estonia	59	86	15
Hungary	69	30	10
Poland	80	35	15
Slovakia	72	47	21
Slovenia	68	33	14
Switzerland	41	40	11

## Speed and accident involvement

The survey obtained information on drivers’ accident involvement in the previous three years for both damage only and injury accidents. This made it possible to examine how driver’s speed behaviour related to accident experience. Figure 3.11 gives the proportion of drivers in each country who reported driving faster than other drivers and who had been involved in injury accidents.

**Figure 3.11: Drivers reporting they drive faster than average and accident involvement in last 3 years**

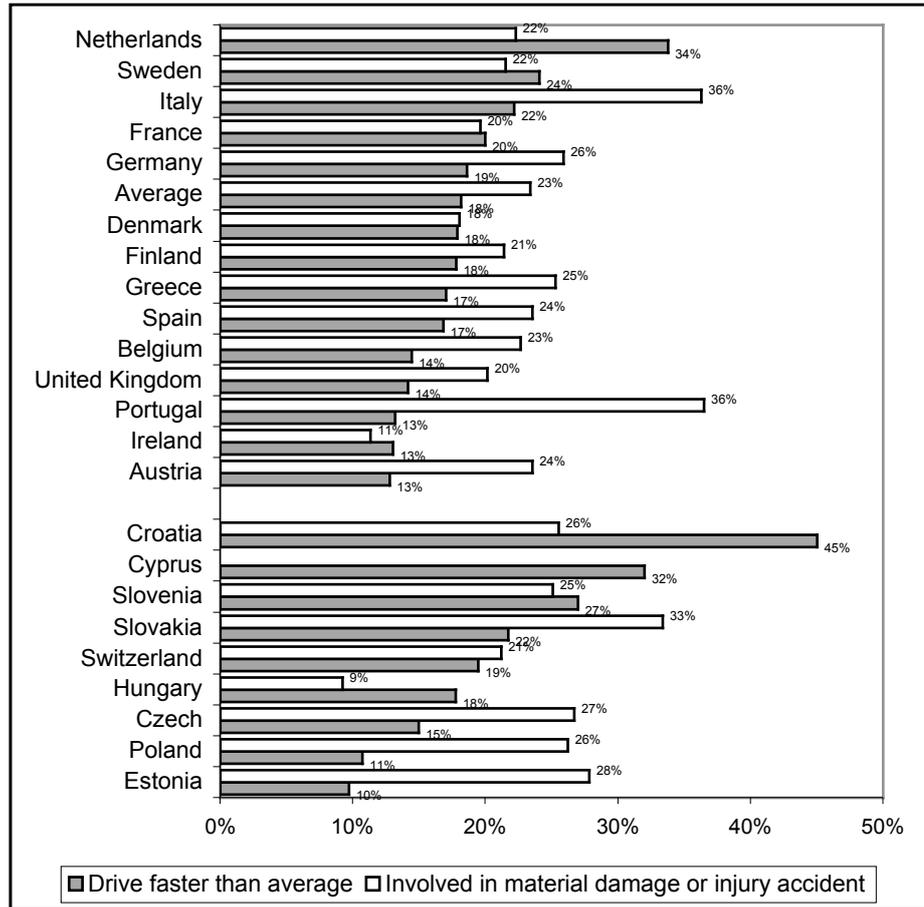


Figure 3.11 shows that the speed-accident relationship is very variable from country to country (Pearson correlation co-efficient = .206, significance level = .345). However, it should be realised that the speed behaviour is ‘self-reported’ (and thus subject to a very wide variety of ‘error’) and that collecting accident data in this way is also problematic (data is missing for Cyprus). This figure is presented to indicate the problems of trying to relate behaviour and accident involvement using such ‘simple’ analysis techniques. More complex multivariate analysis of such issues will be reported elsewhere.

## Discussion

Investigation of drivers' attitude towards speed and speeding revealed very marked differences between countries – both European Union and non-European Union. It is worth mentioning that no marked difference between European Union and non-European Union countries was observed. Analysis of the various answers did not lead to any specific pattern of groups of countries with common driver attitude towards speed

and speeding. However, several interesting specific conclusions for all countries were drawn, which can be useful for the future design of road safety policies and measures.

A basic finding of the comparison of drivers' attitude change since 1996 is that European drivers in 2002 present a clearly better understanding of the role of speeding in road accidents and are markedly more keen for all types of road safety measures focussing in decreasing speeding. This finding is aligned with the trend found in most types of questions of the SARTRE 3 survey.

As far as driver perception of its speed behaviour and safety, it is worth mentioning that in general drivers do not appreciate that speed is associated with risk where their driving is concerned. For example, while 18% of European Union drivers, compared to 22% of non-European Union drivers, report driving faster than average, only 4% report being more dangerous. Additionally, as far as self reported speeding behaviour is concerned, it was found that drivers report exceeding speed limit more on faster roads (28% for Motorways and 7% for built-up areas), and this is reflected also in their desire for higher limits. There appears to be a widespread recognition that speed should be low in built-up areas. Analysis of the survey results revealed that there are very pronounced differences between countries surveyed in terms of self-reported speeding and driving behaviour.

In agreement with their attitude in 1996, European drivers think that other drivers exceed speed limits most of the times. For example, while in no country do a majority of drivers admit to regularly breaking the speed limit, at least 70% of drivers in each country believe that 'other drivers' exceed the speed limit "often", "very often" or "always". This perception of other driver's speeding behaviour is likely to strongly influence a driver's general speed behaviour.

Nearly one out of ten drivers reported that they enjoy driving fast. A clear decreasing trend in the enjoyment of driving fast since the 1996 survey for both European Union and non-European Union countries was observed. However, it is worth mentioning that despite drivers' perception of their speed behaviour, European drivers recognise that 'driving too fast' is a very important contributory factor in accidents. For example, more than 70% of the driving population in each country surveyed stated that driving too fast is recognised as a contributory factor to accidents

Furthermore, as far as reported behaviour related to speed is concerned, a significant proportion of European drivers were observed admitting to driving through traffic signals when they are amber. However, dangerous overtaking is admitted to much less frequently (with an average for European Union countries of 4%, about half of that found for non-European Union countries) than driving through amber lights (with an average for European Union countries of 18% and around 16% for non-European Union countries, although this latter figure is somewhat 'distorted' by the very high score obtained in Cyprus).

A widespread support for the installation of speed limiting devices and "black boxes" (which would record speed and could be used to prosecute speeders) in vehicles was identified. Additionally, this support for road safety countermeasures such as speed limiters and advertising restrictions appears to be increasing over time. However, it is worth mentioning that while there is strong support – over 50% on average for European Union countries – for the introduction of speed limiters as a road safety countermeasure, the level of support varies widely by country.

As far as experience and expectation of speed enforcement is concerned, analysis of survey results revealed that nearly one out of five European Union drivers have been penalised for speeding in the last 3 years. However, there are major differences between countries both in terms of the perceived likelihood of being monitored for speed and in the actual experience of being “fined, or punished” for speed related offences. The correlation between the perceptions of speed enforcement and actual experience is not strong; with some countries reporting a high perceived likelihood of being monitored but where a low percentage of the driving population actually admitted to having incurred speed related sanctions (and vice-versa).

While there is a high level of general support for increased speed enforcement and harsher penalties, the level of support varies considerably (between 39% and 80%) between countries. Furthermore, the survey showed a high degree of support for automated camera speed detection and for enforcement by public authorities but much less support for enforcement by private organisations. It is finally worth mentioning that a not negligible percentage (around 16%) of drivers - with important variation between European countries - warn other drivers about speed ‘traps’ ahead.

As a general concluding remark it can be argued that a clear contradictory behaviour of European drivers was identified as far as their own and other drivers’ speed is concerned. Even though, European drivers show safer attitude towards speed than six years ago, a lot still to change in their perception of risk of speeding and their speeding behaviour.

## Recommendations

The improvement (since 1996) of European drivers opinion concerning the role of speeding for road safety reveals that current efforts (campaigns, enforcement, signing, etc.) should continue as they do bring results. However, European drivers (both surveys) believe that the risk of their own speeding is low (it is only other drivers' concern) and consequently road safety campaigns should be redesigned, focusing on passing the message to the European drivers that exceeding speed limits is also their own concern.

Self reported speeding is higher on faster roads (outside built-up area) and consequently, any speeding related action (campaigns, enforcement, etc.) should primarily focus on drivers on these faster roads. Additionally, widespread recognition for the need of lower speeds in built-up areas indicates that less effort should be put in this direction.

The introduction of specific speeding countermeasures, like speed limiters and advertising restrictions, has a high degree of acceptance and consequently, decision makers should exploit the opportunity to further promote the introduction of such speeding countermeasures.

Even though almost one out of five European Union drivers have been recently penalised for speeding, the correlation between experience and expectation of speed enforcement is not yet strong in all countries. Consequently, intensification of speed enforcement is considered as a priority road safety measure in several European countries and specific higher targets should be set and implemented. In countries, with low degree of acceptance of speed enforcement, information campaigns should precede and accompany the enforcement intensification.

It is finally recommended that road safety campaigns focusing on inappropriate speeding should be specially designed for each country (or even for each region), as the self-reported speeding behaviour presents important differences among the European countries. Consequently, uniform European-wide campaigns on inappropriate speeding should not be put in the priorities agenda, as they cannot address properly the particularities of speeding in each country.

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# Chapter 4

## Seat belts

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### Introduction

The effectiveness of seat belts is well documented. A recent study identified the following three main findings (ICF Consulting, 2003): Firstly, non-users are more likely to get into crashes. Specifically, non-belted drivers have 35% more crashes than belted drivers, independent of the severity of injuries suffered by the vehicle's occupants. Secondly, there is a reduction of approximately 50% in serious injuries and fatalities when seat belts are used. Seat belts are most effective in frontal, rear and roll-over collisions, and especially in low speed accidents (Evans, 1990). Thirdly, efforts to increase seat belt use typically yield higher benefit-to-cost ratios than other safety initiatives such as the enforcement of laws relating to speeding and drunk driving. Unsurprisingly, all countries involved in this study have implemented laws requiring seat belt use for all seats and sanctions for non-compliance.

The principal results of SARTRE 3 regarding seat belts are presented below. More specifically, the survey results cover the following areas:

- Frequency of seat belt installations
- Seat belt use in different environments
- Use of child restraint/seat belt use of children
- Attitudes towards seat belt wearing
- Enforcement of seat belt laws.

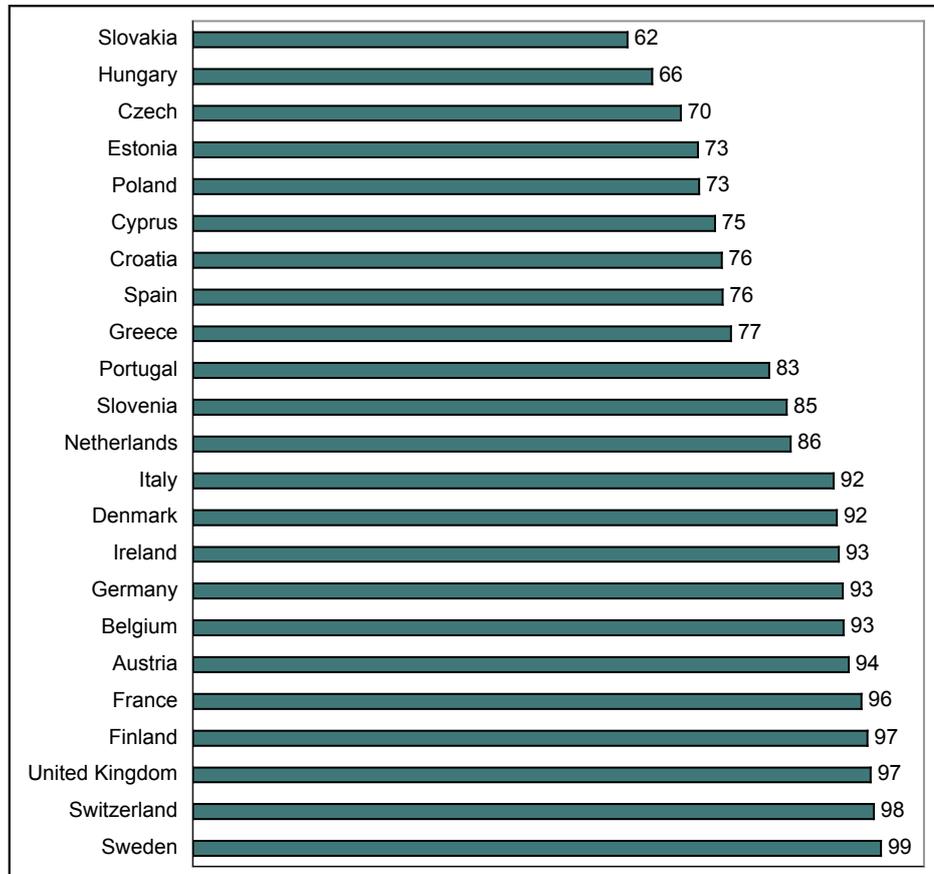
The results are compared with the corresponding results of SARTRE 2 where relevant. Only substantial changes (i.e. more than 10 percentage units) between SARTRE 2 and 3 are indicated.

## Frequency of seat belt installations

The proportion of cars having seat belts installed in the front seats was higher than 97% in every country, except Slovakia (91%). However, Fig. 4.1 shows that the percentage of cars having seat belts installed in all seats ranged from 62 to 99 by country.

In comparison with SARTRE 2 the percentage of cars having seat belts installed in all seats increased substantially in Ireland, Italy, the Netherlands, Slovenia, Portugal, Greece, Spain, Poland, the Czech Republic, Hungary and Slovakia. Many of those countries were quite late in implementing legislation requiring seat belt fitment for all seats.

**Figure 4.1: Proportion of cars having seat belts installed in all seats, %<sup>7</sup>**



## Seat belt use in different environments

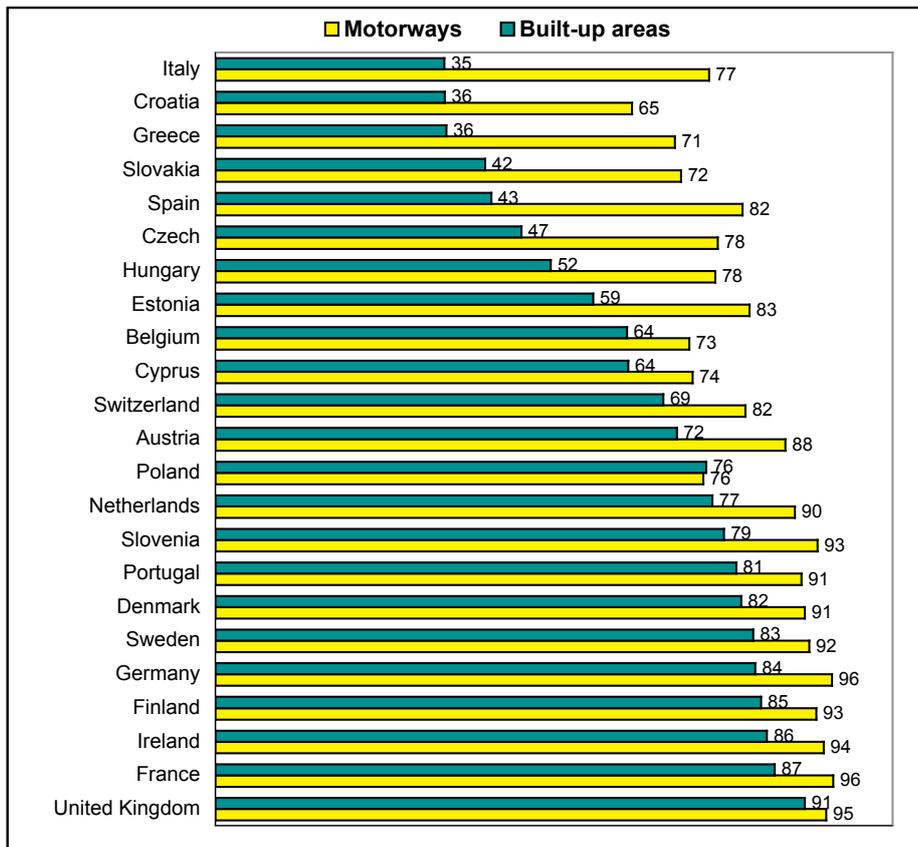
Drivers' seat belt use was studied in four environments - (a) in built-up areas, (b) on main roads between towns, (c) on country roads and (d) on motorways. The overall

<sup>7</sup> "Don't know" answers were excluded from the analyses.

results showed that seat belt use was highest on motorways (84%), followed by main roads (79%), country roads (74%) and built-up areas (67%). Only Poland – showing an exceptionally low percentage for motorways – did not follow this pattern, perhaps because of the relatively limited length of motorways.

The main results for built-up areas and motorways are given in Fig. 4.2. The seat belt use differed considerably in built-up areas. The highest (more than 80%) percentage of "always" answers was for the United Kingdom, followed by France, Ireland, Finland, Germany, Sweden, Denmark and Portugal. In contrast, Italy, Croatia and Greece had the lowest rates (less than 40%). Comparison of the results of the SARTRE 2 and SARTRE 3 surveys showed that the percentage of "always" answers had increased substantially in Greece, Ireland, Italy, the Netherlands and Slovenia, while it had dropped in Hungary, Slovakia and Switzerland.

**Figure 4.2: Drivers wearing a seat belt when making a journey on motorways and in built-up areas, always in %<sup>8</sup>**

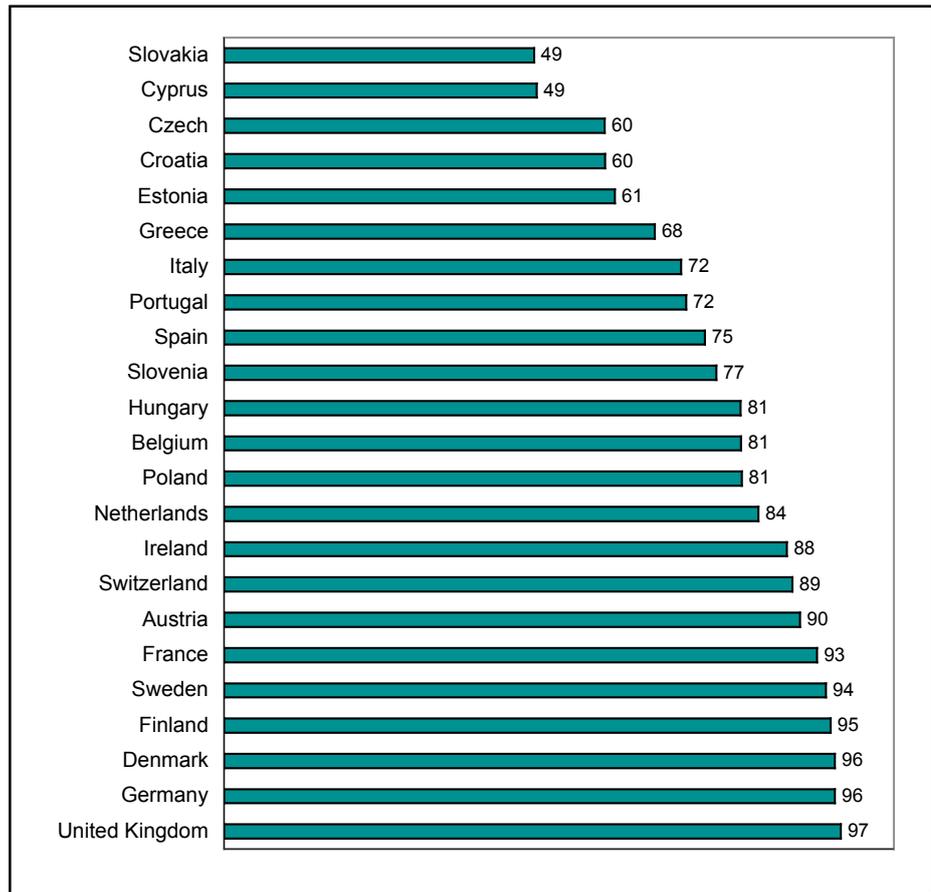


The use of seat belts varied less by country for motorways than for built-up areas. The proportion of "always" answers was 90% or more in 10 countries and the lowest percentage was 65. In comparison with the SARTRE 2 results, the increase was substantial in Greece, Ireland and Italy.

<sup>8</sup> "Don't know" and "no seat belts fitted" answers were excluded from the analyses.

It was also possible to compare the survey results with the results of observation studies for some countries where wearing rates based on observation were available (i.e. our contextual data showed the results for 15 countries for built-up areas and 11 countries for motorways). However, these two indicators of wearing rate are slightly different, i.e. the results given in Fig. 4.2 indicate the percentages of "always" answers given by drivers, while the contextual data showed observed seat belt wearing rates, usually for the year 2001. Nevertheless, the proportions of "always" answers were 1-3 percent units higher than the observed wearing rates on average. Furthermore, the correlation coefficient calculated by country was 0.85 for built-up areas and 0.71 for motorways. These coefficients suggest that those two methods of data collection provided quite similar results for built-up areas but somewhat different ones for motorways.

**Figure 4.3: Drivers making children wear a seat belt or using an appropriate restraint, always in %<sup>9</sup>**



In addition to seat belt use by the driver, the survey explored the use of appropriate child restraints. The non-specific question did not indicate any particular environment. The main findings showed that the usage rate ranged from 49% to 97% (Fig. 4.3). The

<sup>9</sup> "Don't know" and "never carry child(ren)" answers were excluded from the analyses.

rate of appropriate restraint correlated quite strongly (0.76) with the mean seat belt wearing rate (i.e. percentages of “always” answers to the child restraint question and to the mean of four seat belt questions).

Most countries involved in SARTRE 3 have implemented laws requiring sanctions for not using child restraint systems for transport of children. However, there is no such law in Croatia, Greece and Slovakia, in which countries the usage rate was quite low.

## Attitudes towards seat belt wearing

Four statements measured drivers’ attitudes toward seat belt issues:

- In most accidents seat belts reduce the risk of serious injury for drivers and passengers
- If you drive carefully seat belts aren't really necessary
- There is a risk of being trapped by the belt in case of an emergency
- When I'm not wearing my belt I feel less comfortable; as though something was missing

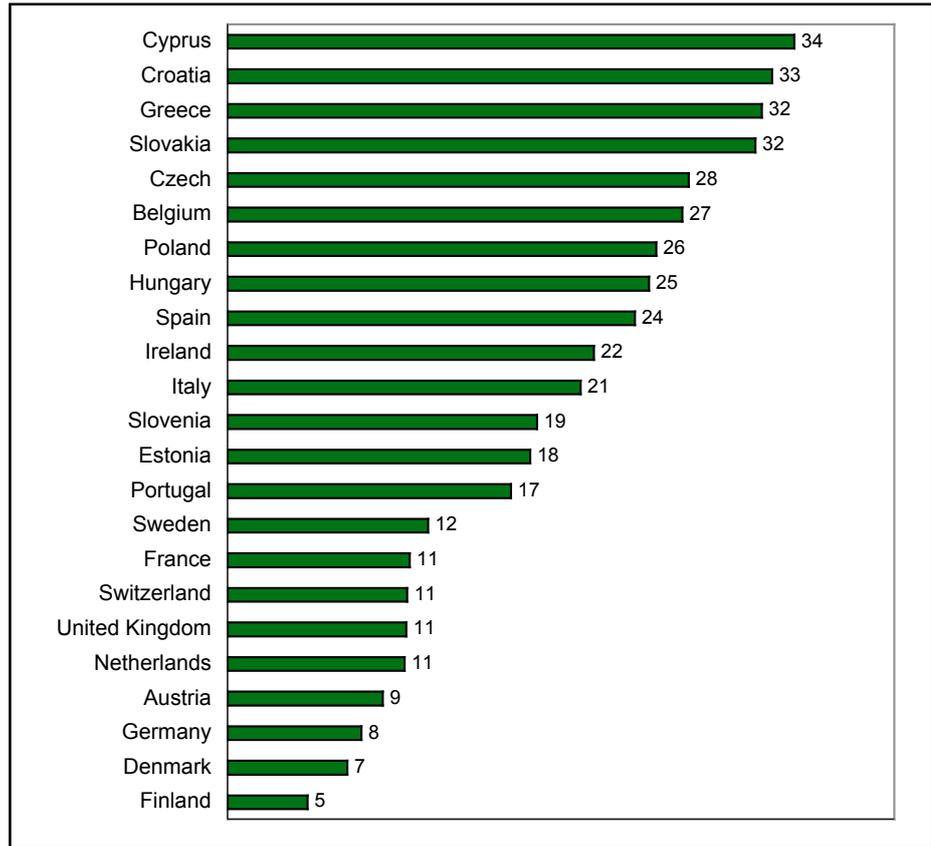
As in SARTRE 2, the vast majority of drivers in each country agreed that seat belts reduce the risk of serious injury in most accidents. The lowest rate was for the Czech Republic (87%), followed by Spain (88%), Slovakia (88%), Hungary (89%), Croatia (89%), Cyprus (89%) and Belgium (89%). More than 90% of drivers in other countries agreed with the statement. These results suggest that most drivers understand the effectiveness of the belts in general.

However, there were substantial differences between countries when assessing whether seat belts were really necessary when driving carefully. Fig. 4.4 shows percentages of drivers agreeing (very much or fairly much).

More than 30% of the drivers in Croatia, Cyprus, Greece and Slovakia agreed with the statement. In contrast, drivers in Finland, followed by Denmark, Germany and Austria most infrequently (less than 10%) agreed with the statement.

Compared to SARTRE 2, the mean rate of agreement decreased from 24% to 19%. Specifically, the percentage of drivers agreeing decreased substantially in Germany, Portugal, Italy, Poland and Slovenia.

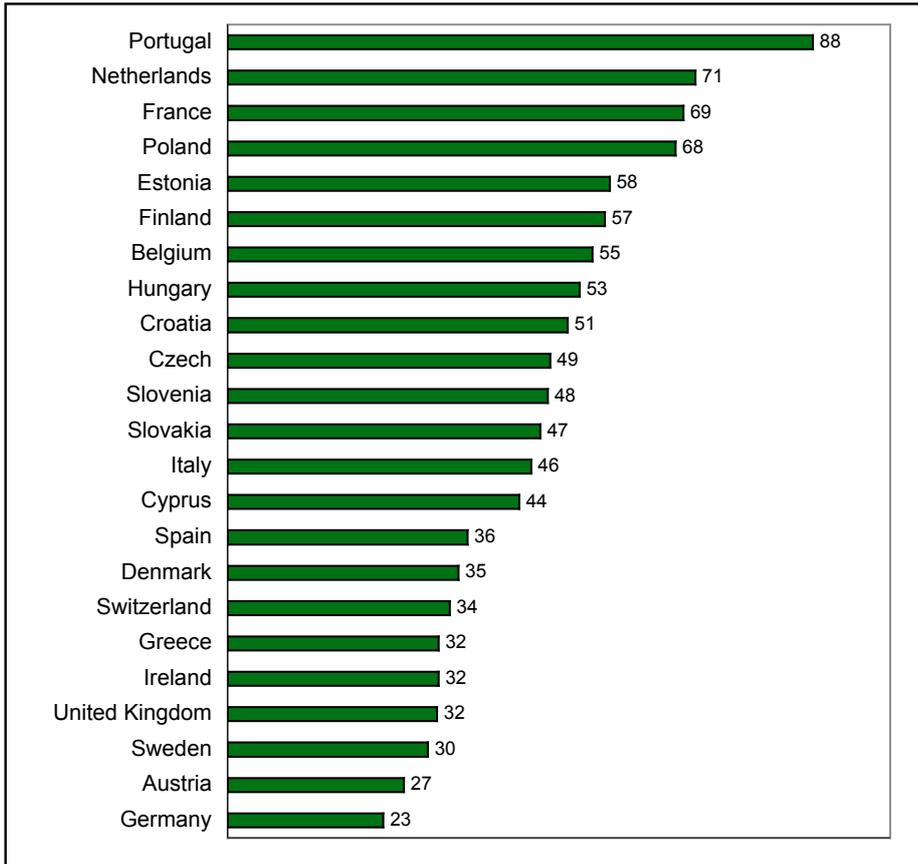
**Figure 4.4: Drivers agreeing that seat belts are not really necessary if one drives carefully, in %<sup>10</sup>**



In addition to underestimating the benefits of wearing seat belts, quite a lot of drivers emphasised the risk of being trapped by the belt in case of emergency. The results given in Fig. 4.5 showed that more than 60% of drivers in Portugal, the Netherlands, France and Poland agreed with the statement, while less than 30% of drivers in Germany and Austria agreed. In comparison with SARTRE 2, the percentage decreased substantially in Sweden, the United Kingdom, Ireland and Slovenia, and fortunately no substantial increase occurred.

<sup>10</sup> "Don't know" and "no seat belts fitted/not asked" answers were excluded from the analyses.

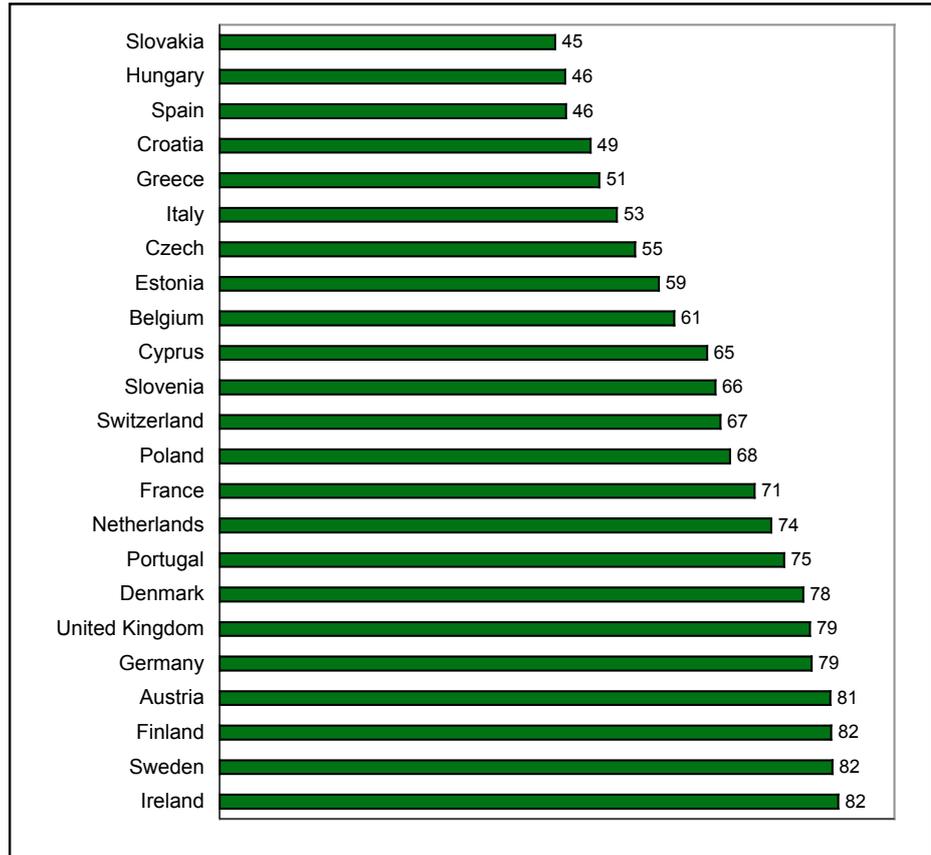
**Figure 4.5: Drivers agreeing that there is a risk of being trapped by the belt in case of emergency, in %<sup>11</sup>**



More than 80% of drivers in Ireland, Sweden, Finland and Austria agreed with the statement that they feel less comfortable if not wearing seat belts (Fig. 4.6). The percentage was considerably lower in many other countries: less than 50% of drivers in Slovakia, Hungary, Spain and Croatia agreed with the statement. Each substantial change between SARTRE 2 and SARTRE 3 was positive in terms of traffic safety. Specifically, the percentage increased in Greece, Italy, the Czech Republic, France, the Netherlands, Portugal, Austria and Ireland.

<sup>11</sup> "Don't know" and "no seat belts fitted/not asked" answers were excluded from the analyses.

**Figure 4.6. Drivers agreeing that they feel less comfortable, as though something is missing, when not wearing a seat belt, in %<sup>12</sup>**



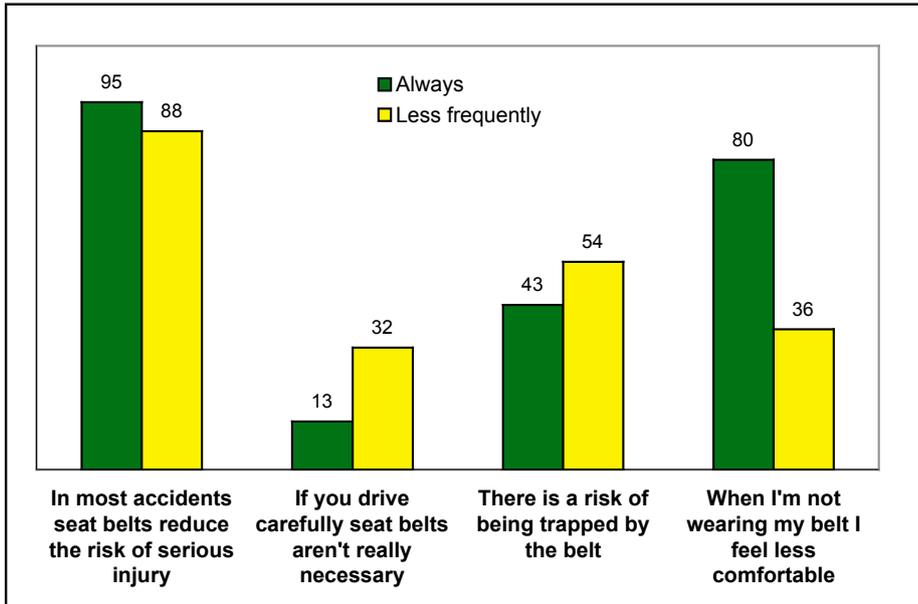
## Effects of seat belt wearing on attitudes

Effects of seat belt wearing on attitudes were studied by cross-tabulating drivers agreeing (very much or fairly much vs. not much or not at all) with a given statement and seat belt wearing frequency (always vs. less frequently). Because the results did not vary much by environment, the results only for built-up areas are given in Fig. 4.7.

Somewhat regardless of seat belt wearing, drivers assessed that seat belts reduce the risk of serious injury and that there is a risk of being trapped by the belt. In contrast, drivers always using the seat belt tended (more so than less-frequent wearers) to disagree that careful driving makes it unnecessary, and were more likely to feel uncomfortable if they were not wearing it.

<sup>12</sup> "Don't know" and "no seat belts fitted/not asked" answers were excluded from the analyses.

**Figure 4.7: Drivers agreeing with a given statement, according to seat belt wearing frequency in built-up areas, in %<sup>13</sup>**



## Enforcement of seat belts law

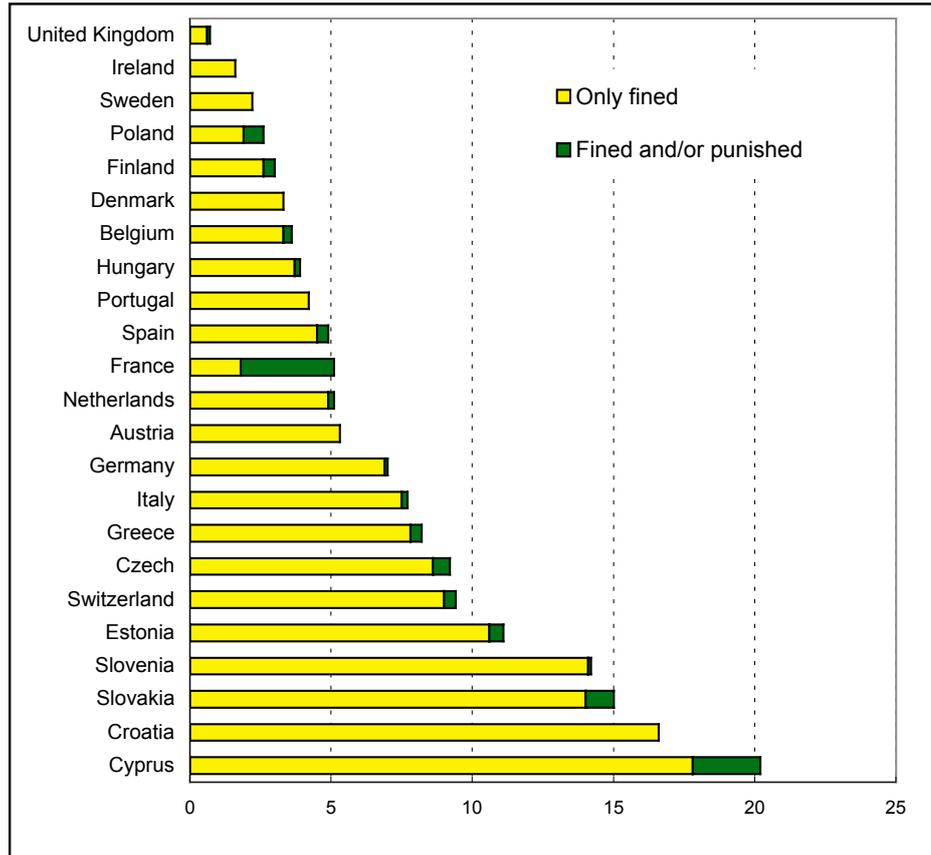
The percentages of drivers who were fined or punished in some way for not wearing seat belts in the last 3 years were less than 10% in each country, except in Cyprus, Croatia, Slovakia, Slovenia and Estonia (Fig. 4.8). The drivers were usually only fined. The majority of French drivers who were punished for not wearing seat belts indicated some additional punishments. It is assumed that these additional punishments are related to other associated offences.

Compared to the results of SARTRE 2, the results showed quite a similar trend: the most substantial change was for Slovakia where the percentage of only-fined drivers increased from 7% to 14%.

As expected, the proportion of drivers who were fined or punished for not wearing a seat belt was low for many countries where the wearing rate was high, e.g. the United Kingdom, Ireland and Sweden. However, comparison of the wearing rates and the frequency of punishment suggests that non-users are punished relatively infrequently in Italy, Greece, Croatia, Hungary, Spain, Slovakia, Belgium and the Czech Republic.

<sup>13</sup> "Don't know" and "no seat belts fitted/not asked" answers were excluded from the analyses.

**Figure 4.8. Drivers fined or otherwise punished for not wearing a seat belt in the last 3 years, in %<sup>14</sup>**



## Discussion

This chapter presented the main results of SARTRE 3 dealing with seat belts. The results showed that the proportion of cars having seat belts installed in all seats was relatively high (85%) on average. Compared to the results of SARTRE 2, this proportion had increased substantially in many countries, especially in those with previously lower proportions. This is encouraging because it is impossible to attain high usage rates if cars do not have seat belts fitted to all seats. However, the proportion was still too low in many countries (e.g. Slovakia, Hungary, the Czech Republic, Estonia, Poland, Croatia, Spain, Cyprus and Greece) and therefore those countries are encouraged to consider belt installations for older cars or fast replacement of the oldest cars with newer ones.

The main problem in dealing with seat belts still seemed to be the low usage rate. Our survey explored only drivers' belt wearing but it is assumed that the results indicate more general trends. The results showed that wearing rates were too low especially in

<sup>14</sup> "Don't know" and "no seat belts fitted/not asked" answers were excluded from the analyses.

built-up areas. This was the case especially in Italy, Croatia, Greece, Slovakia, Spain and the Czech Republic. In addition, the highest wearing rate in built-up areas was only 91%, which is too far from 100%.

Although the usage rate has increased in many countries, this is not a desirable result because seat belts are one of the most effective traffic safety measures, especially in low speed accidents (Evans, 1990). Given that this problem has existed for a long time, the results suggest that countries with low usage rates should design a particular programme for rapid improvement in this issue. First of all, presumably efficient enforcement of seat belt wearing in built-up areas would be needed. Countries with relatively high wearing rates are encouraged to find innovative ways of improving them further. For example, insurance premiums could be lower for drivers who commit themselves always to use the seat belt, and compensation paid by insurance companies could be limited if the driver had not used the belt in a crash.

Our survey also explored child restraint systems. In line with the seat belt use of drivers, the use of child restraint systems was too infrequent in many countries, especially in Slovakia, Cyprus, the Czech Republic, Croatia, Estonia and Greece. The most urgent measure in this area is to implement a law requiring sanctions for not using child restraint systems for transport of children in Croatia, Greece and Slovakia.

Overall, attitudes towards seat belts were positive. For example, a great majority of drivers in each country agreed that in most accidents seat belts reduce the risk of serious injury for drivers and passengers. In addition, the results showed that this attitude does not depend on the frequency of belt use. This finding suggests that drivers accept seat belts very well. However, too many drivers underestimate the necessity of wearing belts if one drives carefully and overestimate the risk of being trapped by the belt in case of emergency. These findings suggest that better education and information campaigns should be launched to improve understanding of the substantial benefits of seat belt wearing.

The percentages of drivers who were fined or punished in some way for not wearing seat belts in the last 3 years were less than 10% in 18 countries (out of 23 countries). This finding suggests in general that – although there are sanctions for not using seat belts in every country involved in the survey – the enforcement is not very intense. This is the case especially in countries with relatively low wearing rates and infrequent punishment for not wearing seat belts (i.e. Italy, Greece, Croatia, Hungary, Spain, Slovakia, Belgium and the Czech Republic). Consequently, it is recommended that enforcement of the use of seat belts and appropriate child restraint systems is enhanced. Given the good acceptance of seat belts, it is assumed that drivers on the whole support this measure. In future, enforcement could also be more automatic when required technical solutions are available. Turbell et al. (1997) list several promising and technically feasible systems that should be tested. These include the starter-interlock, external visual signals, internal light and sound warnings, interactions with comfort and audio systems, throttle pedal feedback, maximum gear level, and maximum speed.

## Conclusions

In summary, the following measures are recommended to better exploit the many benefits of seat belts:

- Countries with a relatively low proportion of cars having seat belts installed in all seats are encouraged to consider belt installations for older cars or fast replacement of the oldest cars with newer ones.
- Usage rates are too low in many countries, especially in built-up areas. Consequently, more efficient enforcement of seat belt wearing laws is needed.
- Countries with no law requiring sanctions for not using child restraint systems should implement such a law urgently. In addition, the use of child restraint systems should be enforced more effectively.
- Countries with relatively high wearing rates are encouraged to find innovative ways to increase the rates further. This might include lowered insurance premiums for drivers who commit themselves always to use a seat belt and limited compensation by insurance companies for drivers who not use the belt in a crash, for example.
- Education and information campaigns for improved understanding of the benefits of seat belt wearing are necessary because too many drivers underestimate the benefits of wearing belts if one drives carefully and overestimate the risk of being trapped by the belt in case of emergency.
- The applicability and driver acceptance of various belt reminders and intervening systems should be investigated as a first step to the introduction of an European Union regulation for appropriate systems in the future.

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# Chapter 5

## Reported behaviour

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### Introduction

Driving is an individual activity practised in cooperation with other road users. A driver therefore should perform his task in the way that satisfies his needs, and at the same time enables others to satisfy their needs. Thus, driving is a kind of social skill, an empathy, an ability to communicate and cooperate, and also to accept and respect a given norm of behaviour.

Effectiveness of a norm depends to a certain extent on its internalisation. Identification with a norm is not only a rational process, but also emotional – a driver learns to tolerate and respect others. It is connected with assessment and comparison of own behaviour with other drivers' behaviour – overestimation of own skills and behaviour compared with others is often an obstacle to internalisation of norms and improvement of own behaviour by a driver.

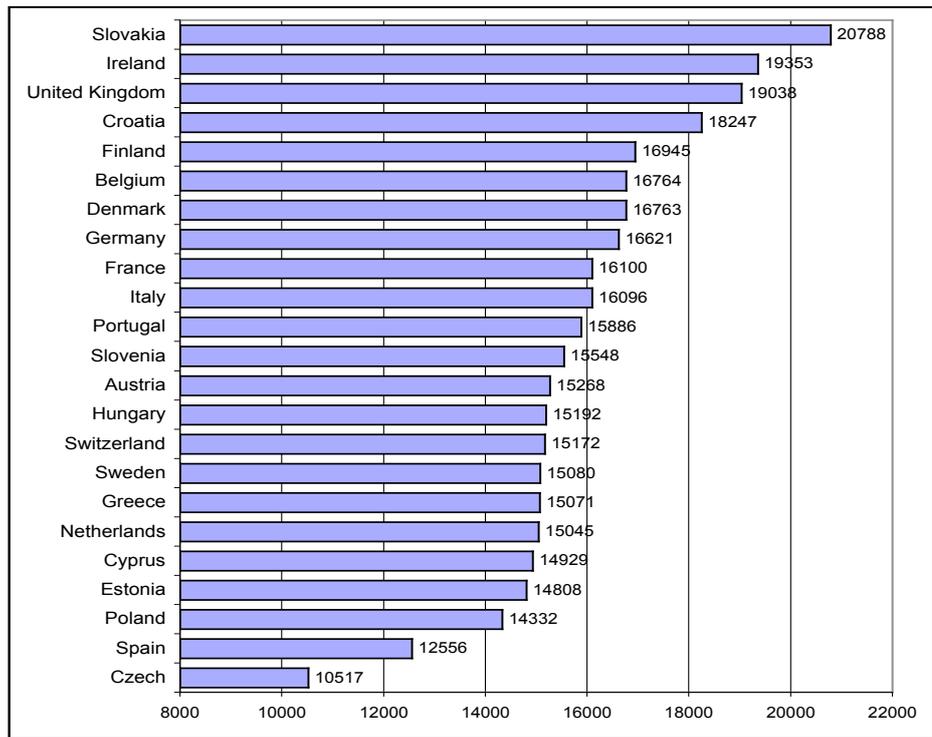
In this chapter, the principal survey results concerning self-reported behaviour and attitudes to other drivers, together with accident risk, are presented. It includes findings about exposure, accident involvement, various aspects of driving style, comparison with other drivers and aggressive behaviour.

### Exposure

Respondents were asked how many kilometres they had driven in the last 12 months. Although the answers might not be perfectly accurate, because many drivers could make an incorrect estimation and some of them may, (to certain extent deliberately), overestimate their performance, this information is relevant as even the subjective estimation of own exposure is related to driving style of an individual and might be an indicator of attitudes (Bakalář, 1985).

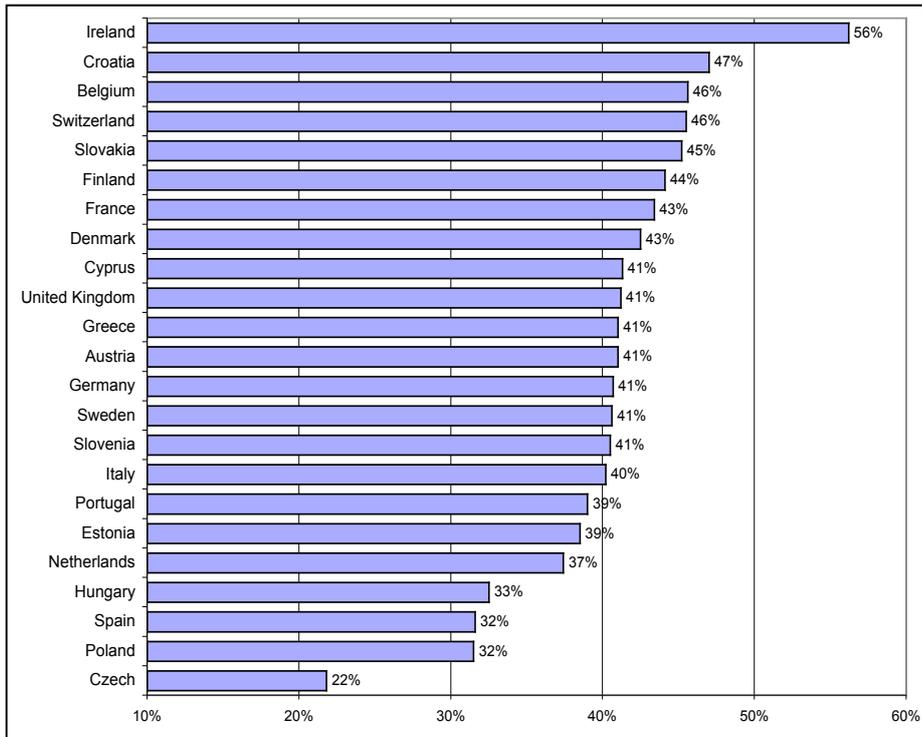
The average yearly performance differs substantially by country (see figure 5.1). The lowest average we can see in the Czech Republic (about 10 517 km/person/year), and in Portugal and Spain; the highest (over 18 000 km) is in Croatia, United Kingdom, Ireland, and Slovakia.

**Figure 5.1: Average kilometres driven per year by a driver**



For more detailed and evident information, the answers were divided into 6 categories (up to 5 000 km, 5 – 10 000 km, 10 – 15 000 km, 15 – 20 000 km, 20 – 30 000 km, 30 000 and more). The most considerable differences between countries are within the first category – from 10.5% of drivers (Germany) to 48.1% (the Czech Republic). A high proportion, (over 30%) of drivers with low exposure can be found in Estonia, Hungary, Poland, and Spain.

Hungary, Poland, Spain, and the Czech Republic have the smallest proportion of drivers that had driven more than 15 000 km in the last 12 months, the highest in Ireland, Croatia, Belgium, Switzerland, and Slovakia (see figure 5.2).

**Figure 5.2: More than 15 000 kilometres driven in the last 12 months**

## Personal accident involvement

Another factor influencing driver behaviour is the experienced accident. Drivers were asked about their involvement in accidents, (both where someone was injured and damage only accidents), during the last 3 years.

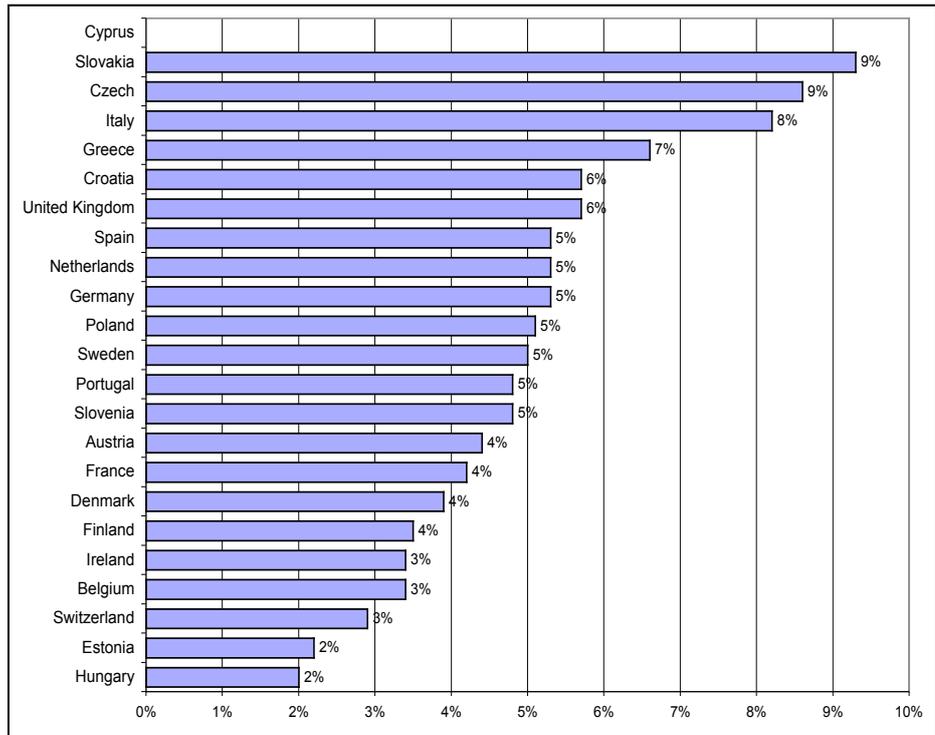
### Injury accidents

The results show that a considerable proportion of respondents have been involved – as drivers - in at least one injury accident during the previous 3 years. The highest proportion of drivers involved in an accident is in the Czech Republic (8,7%); Slovakia (9,3%), Italy (8,2%), and Greece (6,6%) have frequent involvement (Cyprus is missing). These countries also have more frequent involvement than others in 2 or more accidents.

On the other hand, a small proportion of drivers involved in an injury accident are in Hungary (2,0%), Estonia (2,2%), Ireland (3,4%), Switzerland (2,9%), and Belgium (3,4%) (See figure 5.3).

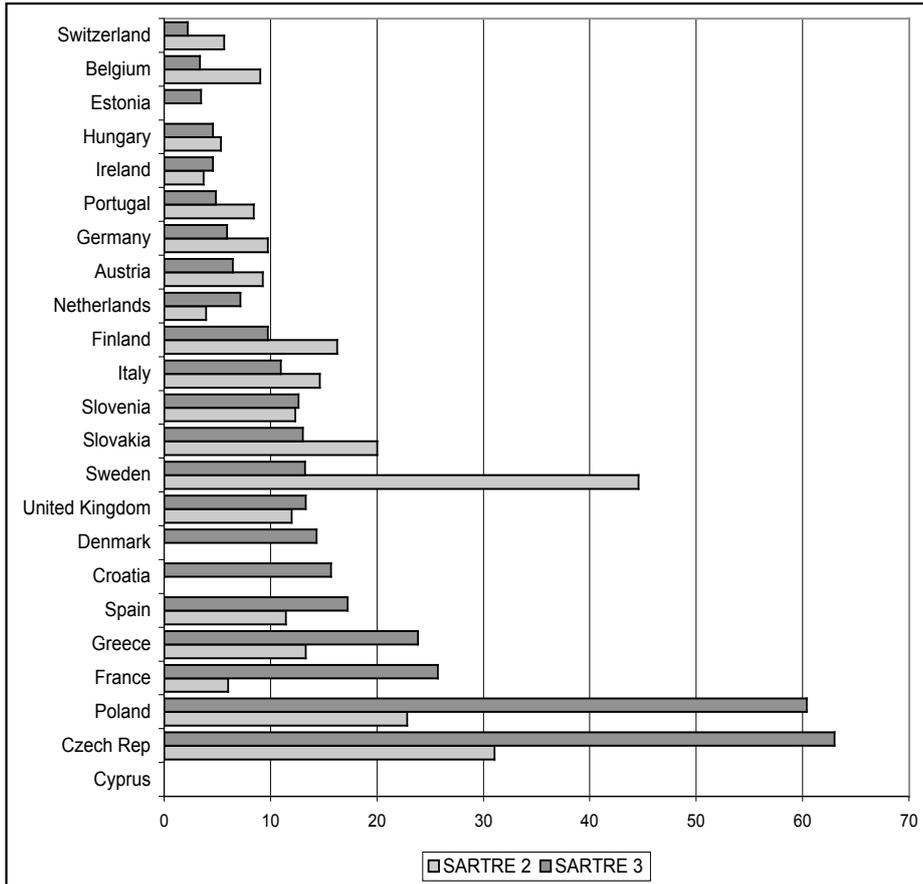
While between SARTRE 1 and SARTRE 2 the proportion of drivers involved in injury accident decreased in all countries, now the characteristic is almost the same as in SARTRE 2 in most countries. However, the findings look different in relation to exposure.

**Figure 5.3: Involvement in at least one accident with injury in the last 3 years**



In relation to exposure, the highest injury accident risk is again in the Czech Republic, Poland, France and Greece; in these countries we can observe the most considerable increase of risk compared to SARTRE 2. The lowest risk appears in Hungary, Estonia, Belgium, and Switzerland (see figure 5.4). It should be remembered that these results are based on reported information (mean injury accidents / exposure) and do not correspond perfectly to accident statistics.

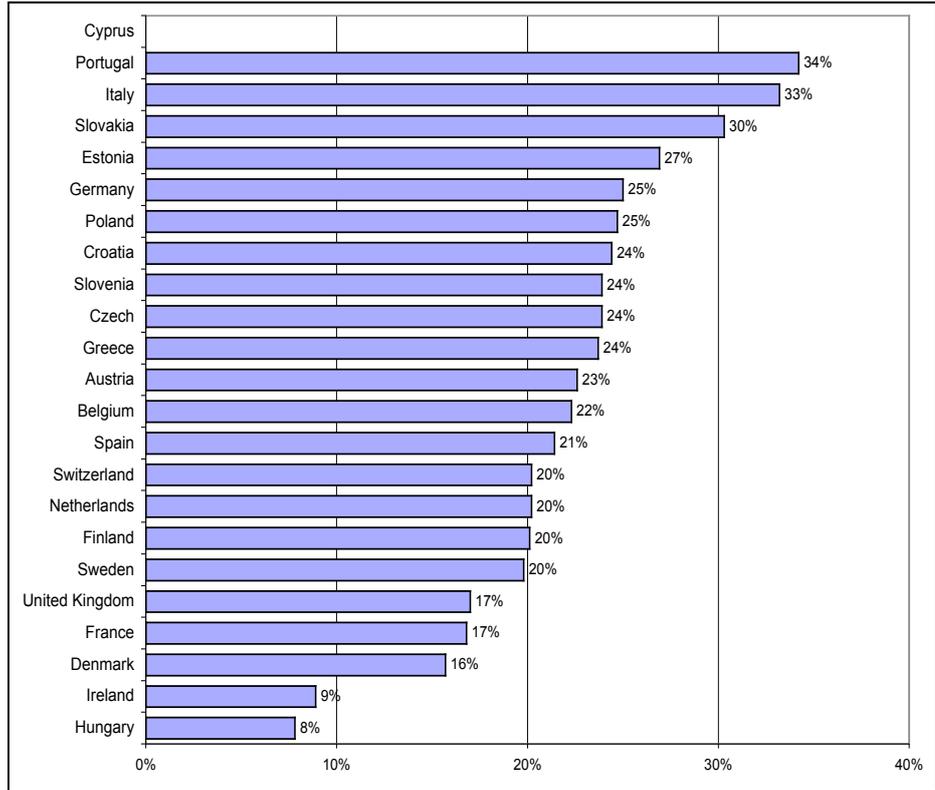
**Figure 5.4: Accident risk: accident/driven kilometres on the last 12 months, SARTRE 2 and SARTRE 3, in 10<sup>6</sup> acc. / veh-km**



### Damage only accidents

Involvement in damage only accidents is more frequent. More than 30% of drivers have been involved at least once in damage only accidents in Slovakia, Portugal and Italy (Cyprus missing); less than 10% in Hungary and Ireland (see figure 5.5).

**Figure 5.5: Involvement in at least one damage only accident in the last 3 years**



## Personal driving style

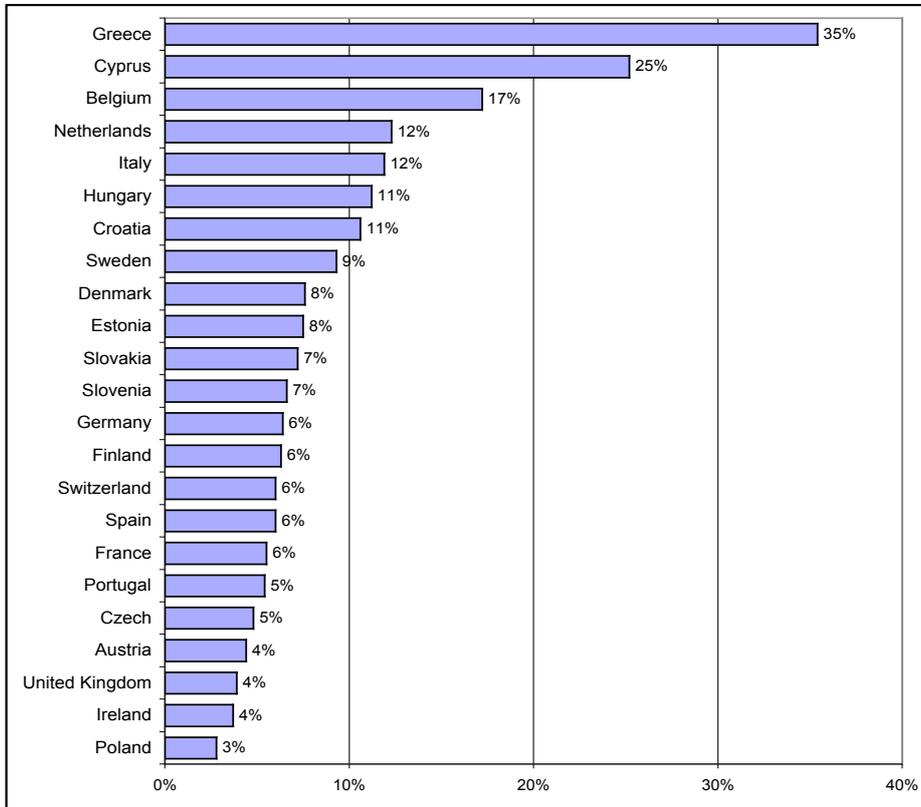
Another important factor influencing traffic safety both directly and through nurturing driver's attitudes to road safety is the driving style of an individual driver. We must consider that the behaviour itself is influenced substantially by traffic conditions in respective countries – by legislation, road design, density of traffic and other circumstances and certain behaviour or attitudes, (overtaking, pleasure of fast driving...), can be a neutralisation of stress or other negative experiences rising from the traffic setting; high frequency of potentially dangerous behaviour therefore might indicate the necessity of relevant modifications of traffic conditions.

Beside speed and alcohol issues treated in particular chapters, another aspects of driving behaviour were inquired into. Drivers were asked how frequently they follow the vehicle in front of them too closely, give way to pedestrians on crossings, overtake when they can just make it, drive through an amber light, use the telephone while driving, and how much they enjoy fast driving.

## Following the vehicle in front too closely

The proportion of drivers stating that they follow the vehicle in front “often”, “very often” or “always” was the highest in Greece (35%), Cyprus (25%) and Belgium (17%), and the lowest (less than 4%) in Austria, United Kingdom, Ireland and Poland (see figure 5.6). Compared to SARTRE 2 results, the frequency of this behaviour substantially increased in Greece (from 21 to 35%) and Belgium (from 8 to 17%). In other countries the values are about the same.

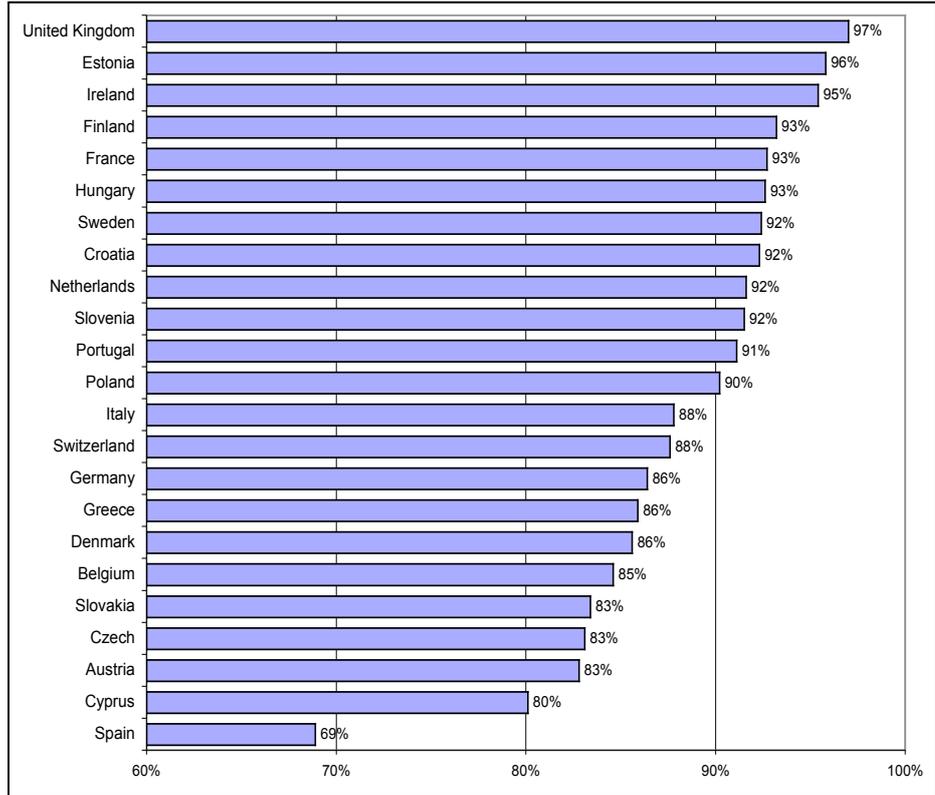
**Figure 5.6: Following vehicle in front too closely often, very often or always**



## Giving way to a pedestrian at pedestrian crossing

The frequency of giving way to pedestrians depends, to a certain extent, upon the legislation within each country. The proportion of drivers giving way to a pedestrian “often”, “very often” or “always” was the highest in United Kingdom (97%), Estonia (96%), and Ireland (95%), the lowest in Cyprus (80%) and Spain (69%), where the situation seems to be caused by lack of enforcement (see figure 5.7). In almost all countries this proportion increased compared to SARTRE 2; the most considerable improvement can be observed in Sweden (from 79 to 92%), Switzerland (from 75 to 88%) and the Czech Republic (from 73 to 83%).

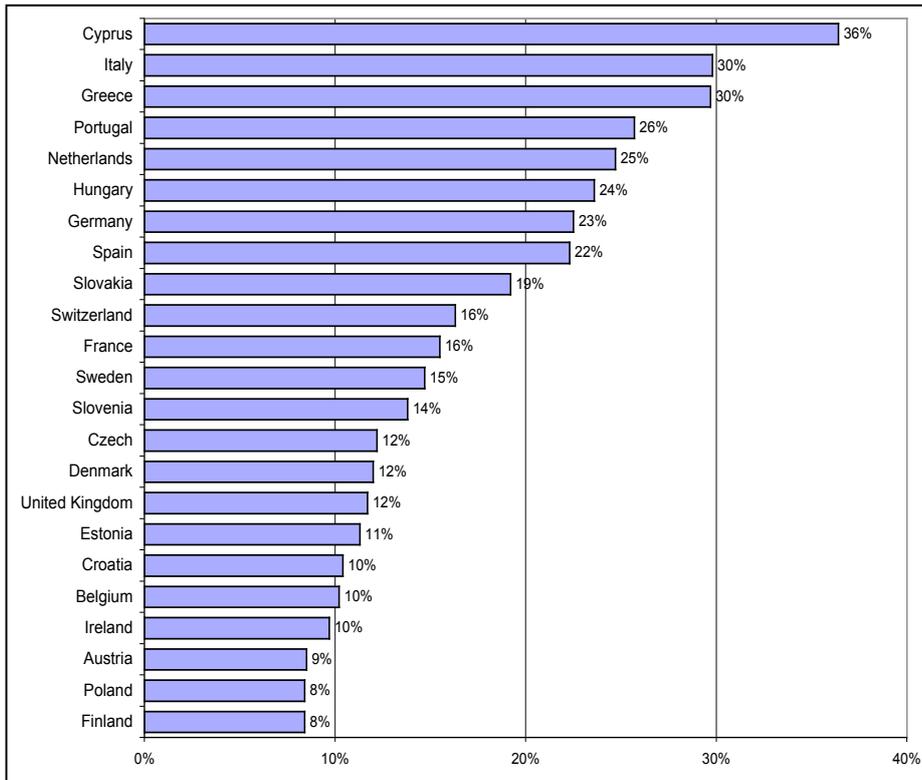
**Figure 5.7: Giving way to a pedestrian on crossings often, very often or always**



### Driving through a traffic light that is amber

As in the previous case, we must consider the impact of legislation. The differences between countries are more substantial. Frequency of answers “often”, “very often” or “always” varies from 36% in Cyprus to 8% in Finland and Poland (see figure 5.8). Considerable increase from SARTRE 2 was in Hungary (from 14 to 24%) and Slovenia (from 3 to 14%), decrease in Sweden (from 20 to 15%), Ireland (from 14 to 10%), Finland (from 14 to 8%) and Poland (from 11 to 8%).

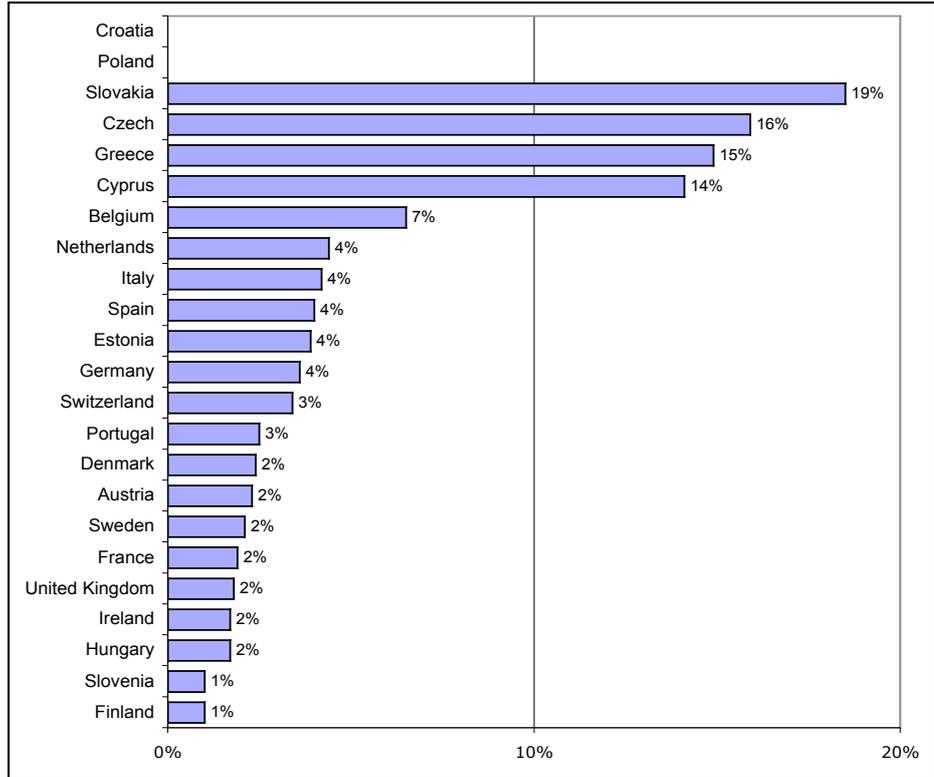
**Figure 5.8: Driving through amber lights often, very often or always**



## Dangerous overtaking

The countries where the proportion of drivers that “often”, “very often” and “always” “overtake when they think they can just make it” is the highest\* Slovakia (19%), the Czech Republic (16%), Greece (15%) and Cyprus (14%) (See figure 5.9), with an increase of 6% in Greece compared to SARTRE 2.

**Figure 5.9: Overtaking when can just make it often, very often or always**



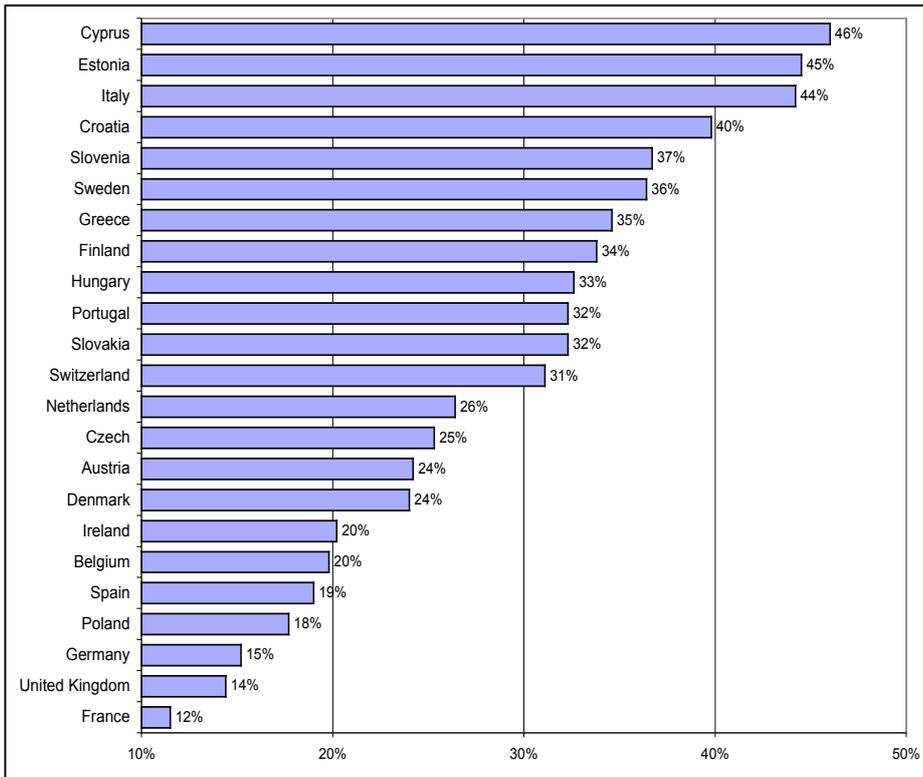
*\*In Poland and Croatia incorrect translation of the question*

### Use of telephone while driving

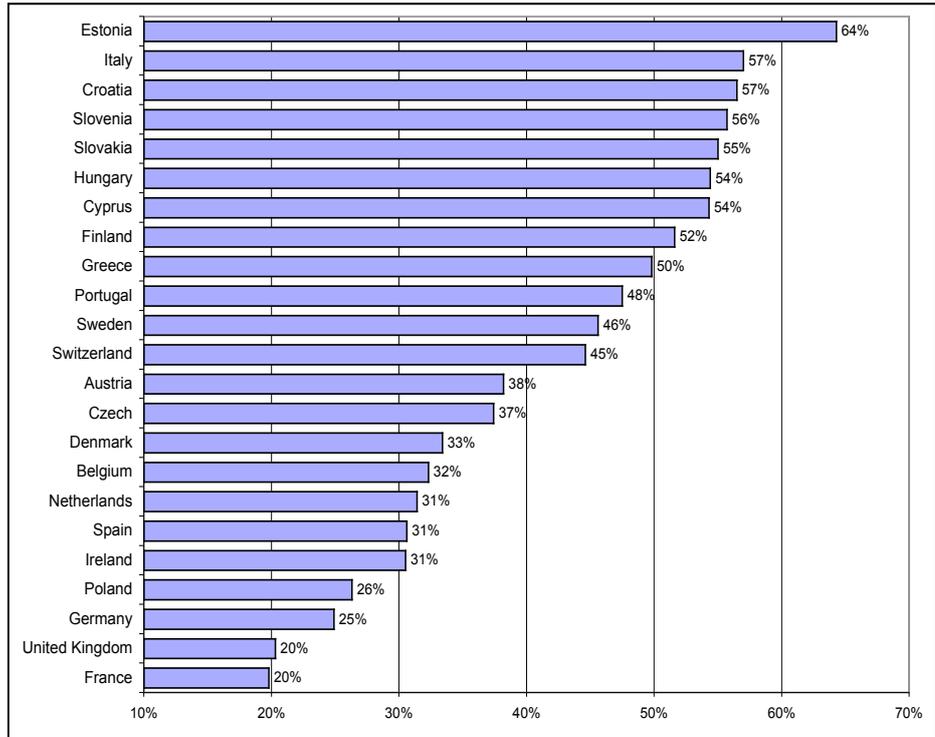
Another potentially dangerous behaviour is using a mobile phone while driving. Drivers themselves do not regard it as very dangerous, if the hand-free phone is used – only 21% of drivers stated that using mobile phone while driving is often, very often or always the cause of road accident (in case of the hand held mobile phone it is 54%). Nevertheless, a telephone call, even if hand free is used, can impair a driver’s concentration in the performance of the driving task, and, as the figures 5.10 and 5.11 show, this problem concerns a significant proportion of the driving population.

The highest percentage of drivers that make at least one telephone call while driving on an average day (over 40%), is in Estonia, Cyprus, Italy and Croatia, the least (less than 20%) in Spain, Poland, Germany, United Kingdom and France. The order is the same for answering of a telephone call, only the percentage is higher – from 20% of drivers in France to 64% of drivers in Estonia answer at least one telephone call while driving on an average day.

**Figure 5.10: Making at least one telephone call while driving**

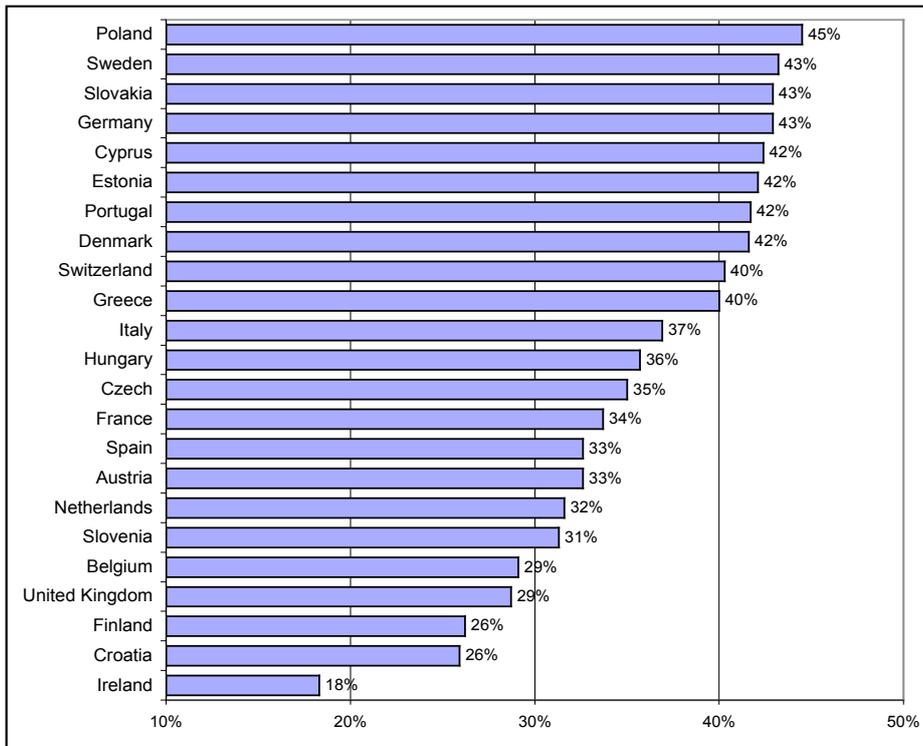


**Figure 5.11: Answering at least one telephone call while driving**



### Enjoying fast driving

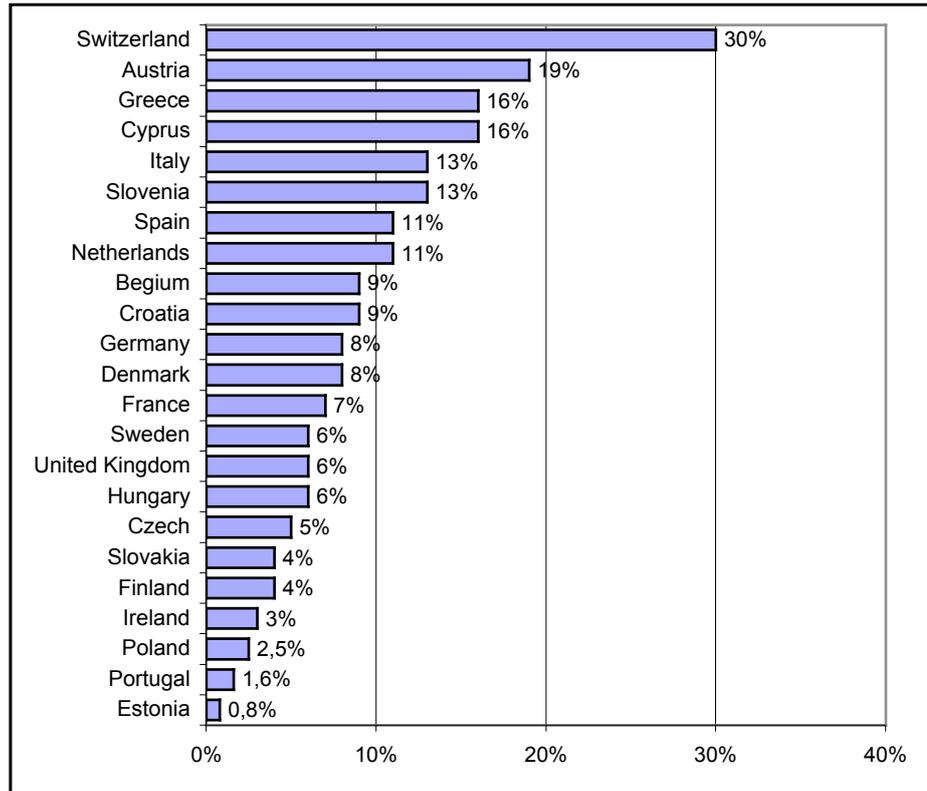
The respondents were asked to indicate their agreement with the statement “I enjoy driving fast ” on the scale “very”, “fairly”, “not much”, “not at all”. The proportion of answers “very” and “fairly” is the highest in Poland (45%); it is also over 40% in Cyprus, Denmark, Estonia, Germany, Greece, Portugal, Slovakia, Sweden and Switzerland. It is less than 30% in Belgium, United Kingdom, Finland, Croatia and Ireland.

**Figure 5.12: Agree with “I enjoy fast driving” (very or fairly)**

## Driving in tunnels

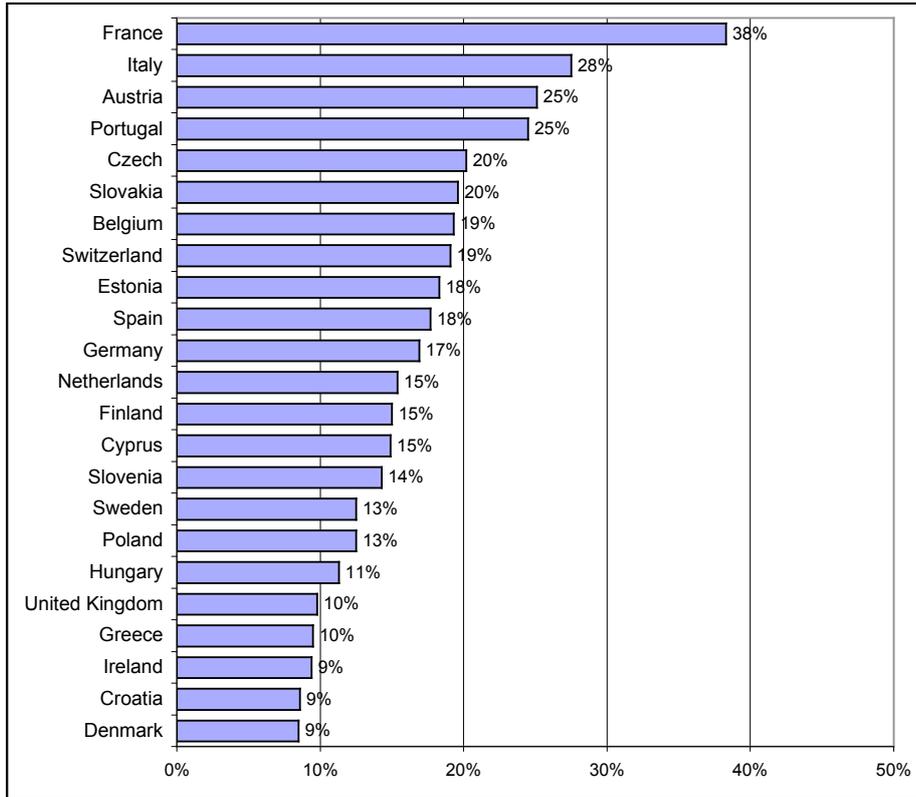
The experiences with driving in long tunnels differed considerably depending on traffic layout of each country. The highest proportion of drivers that drive through a long tunnel often, very often or always is in Switzerland (30%), Austria (19%), Greece (16%) and Cyprus (16%). Only negligible experiences with driving in tunnels were observed in Ireland (3%), Poland (2,5%), Portugal (1,6%) and Estonia (0,8%).

**Figure 5.13: Driving through a long tunnel often, very often or always**



Considering the countries that are concerned the most, drivers from Greece and Cyprus feel relatively safe in tunnels, while drivers from Switzerland and Austria more often stated that they are very or fairly frightened when driving through such a tunnel. Missing the group of drivers that never go through a long tunnel, the highest proportion of drivers that feel very or fairly frightened in tunnel is in France (38%), Italy (28%), Austria (25%) and Portugal (25%) (See figure 5.14).

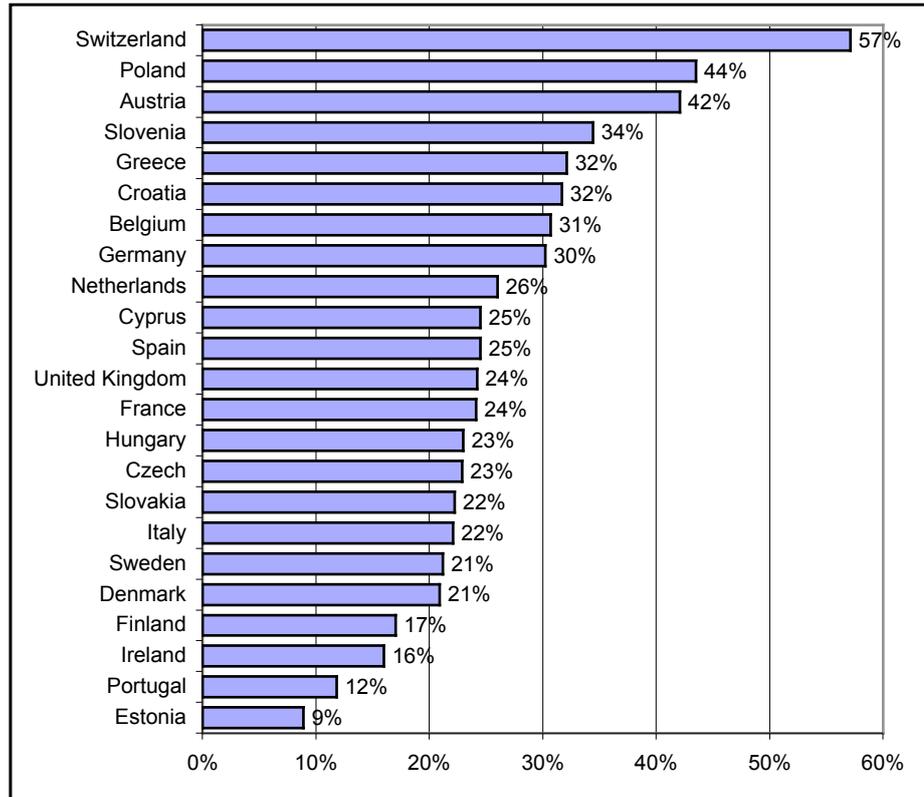
**Figure 5.14: Frightened when driving through a long tunnel\*  
very or fairly**



\* The drivers that never go through a long tunnel are not included

Drivers were asked how familiar they are with the safety measures applied in the event of serious incidents in tunnels. The results corresponded partly with the frequency of using the long tunnels in respective countries (see figures 5.13 and 5.15). The highest percentage of drivers that feel very or fairly familiar with the measures was in Switzerland (57%), Poland (44%) and Austria (42%).

**Figure 5.15: Familiar with the safety measures applied in the event of serious incidents in tunnels, very or fairly**



## Interactions with other drivers

A driver of a motor vehicle is in permanent contact with other drivers and more or less strong interactions are realized. This may be a source of conflict or negative emotions caused by other drivers' behaviour or by traffic circumstances. The responsibility for a driver's negative experience is then (without regard to real cause) often ascribed to others – a driver is annoyed by other drivers' behaviour, he feels that others are aggressive to him and sometimes he reacts with own aggressive behaviour. On the other hand, drivers are able to "unite" and cooperate against "the common enemy", mostly traffic police.

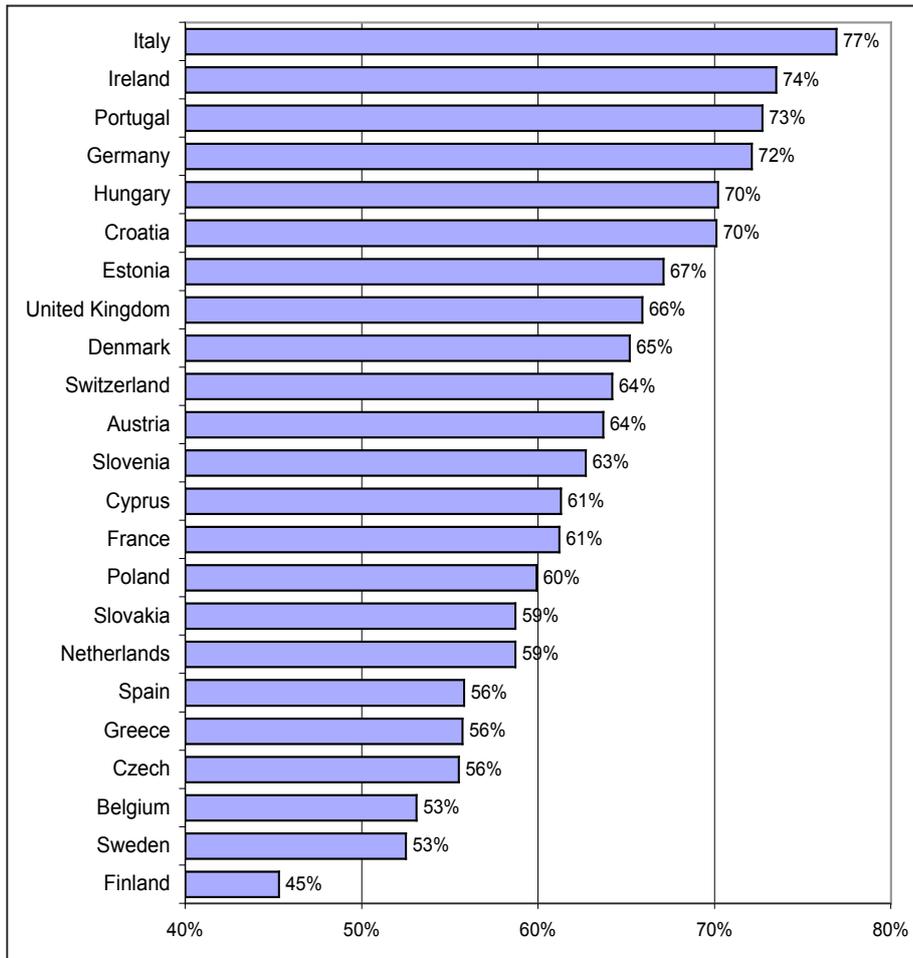
Another problem is subjective comparison of own behaviour or skills with "the others". The tendency towards overestimation of own qualities and leaving blame for offences and accidents to other drivers can create a psychical barrier to more objective and critical perception of own behaviour and suppress willingness to improve it.

## Comparison with other drivers

Similarly to SARTRE 2 results, drivers mostly projected dangerous behaviour to others. In all countries except Finland (45%), more than 50% of respondents considered

their own behaviour a bit less or a lot less dangerous than other drivers' behaviour (see figure 5.16). This tendency is even more evident in answers to the question "how often do other drivers break speed limits" (more in chapter 3.3. Speed) - over 70% said that the others do it often, very often or always.

**Figure 5.16: Think their own driving is less dangerous compared to other drivers, a bit or a lot**



## Perception of other drivers' behaviour

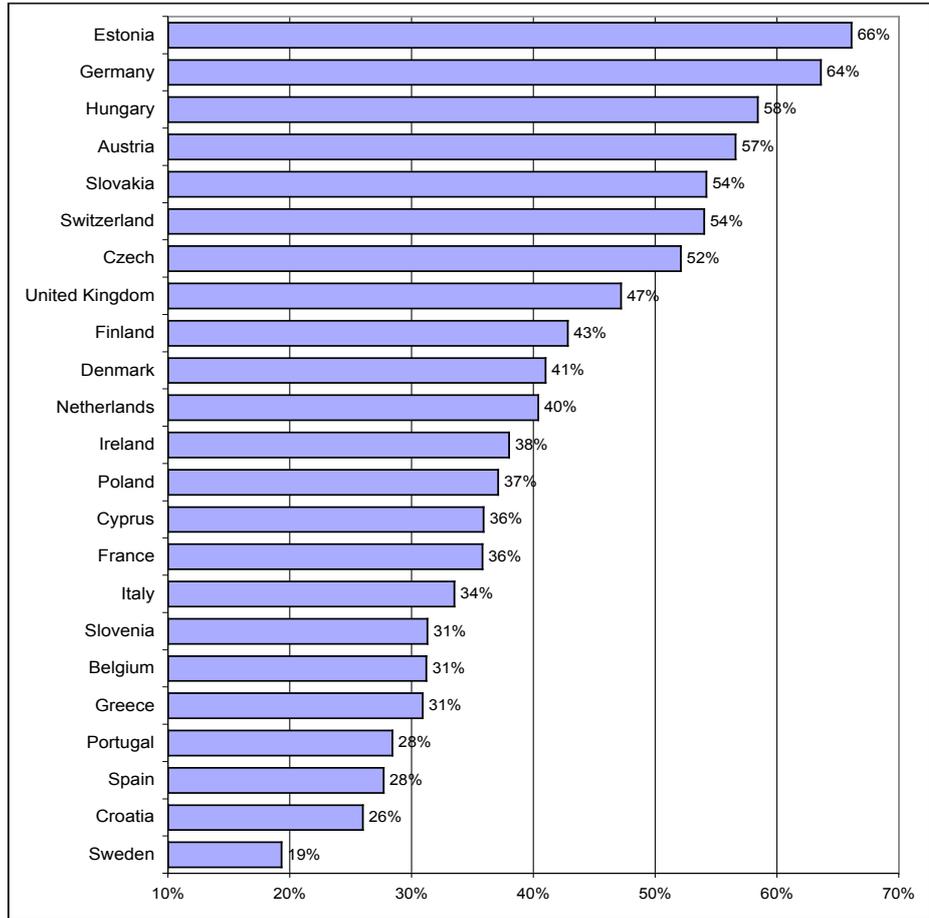
More than 55% of drivers in every country agree very or fairly much with the statement "I sometimes get very annoyed with other drivers". The highest proportion of agreeing drivers is in Portugal (91%), although Portugal has one of the lowest percentage of drivers that became an object of aggressive behaviour on the road in the last 12 months (see next paragraph); followed by France (87%), Poland (84%), and Cyprus (80%). The smallest proportion of agreeing drivers is in Ireland (58%), Spain (58%), Croatia (56%) and Sweden (55%).

## Aggressive behaviour

The answers to questions concerning experienced aggressive behaviour show significant differences between countries. There is, of course, the question of what is regarded as aggressive behaviour in individual countries – a kind of behaviour that is considered to be normal in one country might be regarded as highly aggressive in another.

Drivers from Spain, Croatia and Sweden least often experience aggressive behaviour directed towards them (see figure 5.17). The highest proportion of drivers having experience with aggressive behaviour directed towards them is in Estonia, Germany, Hungary and Austria.

**Figure 5.17: Experienced aggressive behaviour on the road directed towards them in the last 12 months**

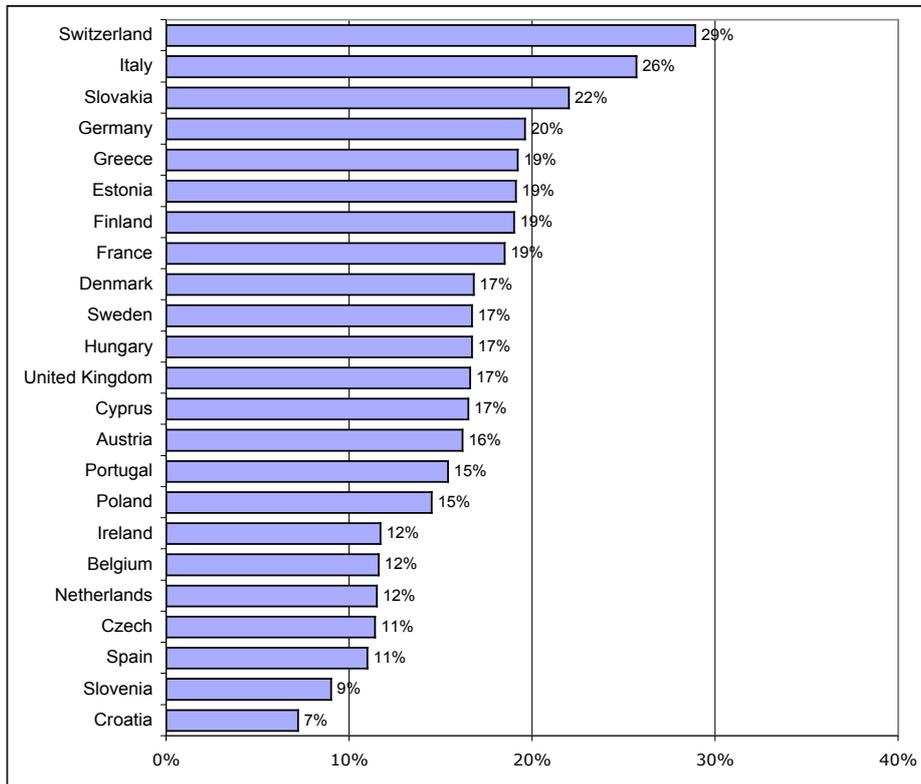


Their own aggressive behaviour towards another road user was most often stated by drivers from Switzerland, Italy, Slovakia and Germany, and least often stated by drivers from the Czech Republic, Spain, Slovenia and Croatia (see figure 5.18).

In all countries, the proportion of experienced aggression from other drivers is higher than own aggression towards other road users, but the divergence varies a lot. In

Estonia, Germany, Austria, the Czech Republic and Hungary it is over 40%. The most balanced ratios are in Belgium (19%), Cyprus (19%), Croatia (19%), France (17%), Spain (17%), Portugal (13%), Greece (12%), Italy (8%) and Sweden (2%).

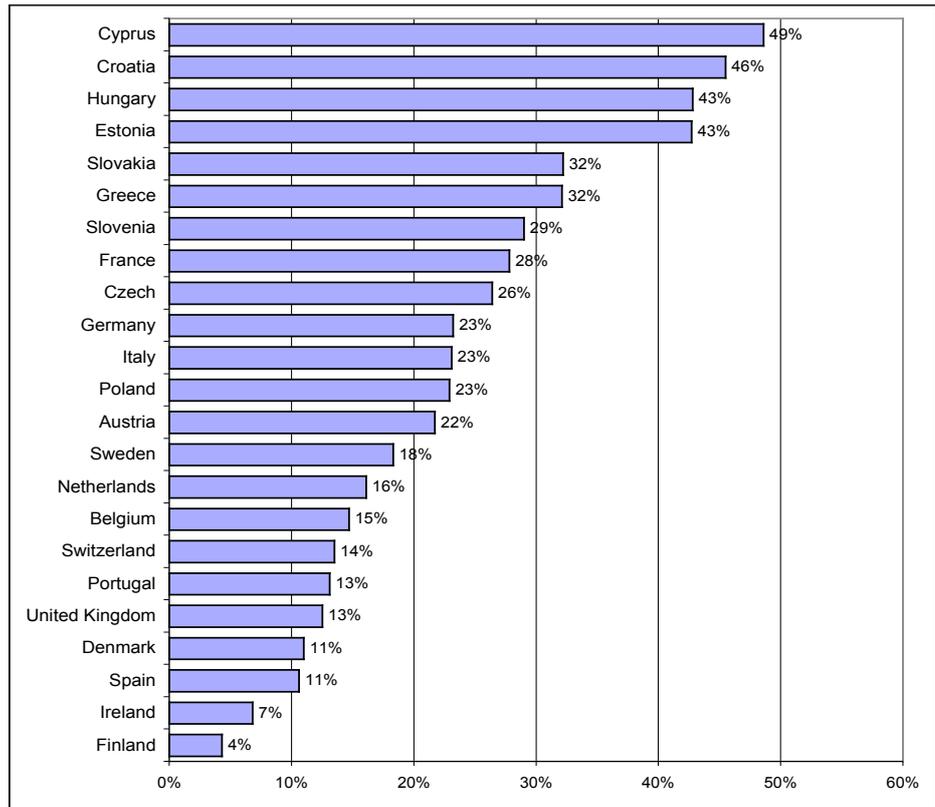
**Figure 5.18: Experienced aggressive behaviour on the road by themselves towards another road user in the last 12 months**



### Solidarity among drivers

Excepting mutual aggression and annoyance there is also considerable solidarity among drivers. The proportion of drivers that often, very often or always signal to others to warn them of a police speed trap ahead is the highest in Cyprus, Croatia, Hungary and Estonia (see figure 5.19). This behaviour is the least frequent in Denmark, Spain, Ireland and Finland.

**Figure 5.19: Signal other drivers to warn them of a police speed trap ahead, often, very often or always**



## Conclusions

The results of the survey presented in this chapter revealed considerable differences in self-reported behaviour as well as in attitudes to other drivers in different countries. In many countries we can find some typical driving habits and widely spread attitudes that might be a serious problem in road safety.

Although the driving habits are mostly formed by legislation and traffic setting and can be substantially improved by appropriate changes in these two areas, the degree of acceptance of new measures and therefore their effectiveness depends on drivers' attitudes. The attitudes described here are to a certain extent a part of particular social systems and their change is a long-term issue. We focused on comparison with other drivers and experiences with aggressive behaviour on the roads. The results show that the majority of drivers in most countries project dangerous behaviour to others and consider their own behaviour relatively safe, even though they frequently admit some kind of dangerous behaviour. It is evident that the feedback is missing and the said driver believes that his skills allow him to drive safely in spite of the fact that he doesn't respect the legal measures. On the other hand, he subjectively estimates the skills of other drivers as worse; finally, the others are dangerous, although they probably behave in the same way as him.

Similarly, the proportion of drivers that stated that they experienced aggression towards them is higher than the percentage of drivers that admitted their own aggression towards other drivers. In some cases the divergence is very high.

Such attitudes might be a serious obstacle to accepting and internalising norms and measures by individual drivers, because the tendency to overestimate own driving qualities and ascribing responsibility for risk in traffic to other drivers (pertinently to “circumstances”) is often so strong that driver is not able to recognise his own imperfections and try to change his behaviour and improve his skills.

There are possible solutions to this particular problem – the most important is a long-term effective influencing of public opinion in terms of traffic safety, so that the widely accepted attitudes and values will support safe behaviour of the driving population. Education of drivers is the next thing that can be improved in many cases, both education in basic driving courses and successive education in improvement courses. Information about good practice used in the countries that showed better results would be valuable for other countries.

Some dangerous driving habits are a problem in only several countries: following the vehicle in front too closely, giving way to pedestrians on crossings, frequent driving through amber lights and dangerous overtaking. Telephone use while driving concerns more or less most countries. Changes in legislation, enforcement and traffic setting should be efficient, again with utilization of experiences of more successful countries.

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# Chapter 6

## Demographics and lifestyle

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### Introduction

The present chapter reports the principal results of SARTRE 3 regarding demographic variables, such as gender and age, as well as variables that cover aspects of an individual's life situation and living conditions, more specifically occupation, income, personal situation, education, living area, and driving habits (amount of kilometres travelled per year). The impact of these variables on concerns about road accidents is considered, together with their possible influence on (reported) driving behaviour, the acceptance of countermeasures, and attitudes towards the causes of road accidents. Co-variations between the variables are assumed but are not analysed.

The data reported here provide an initial look at the data from all countries participating in the SARTRE project by using basic statistical methods. Thus the sample comprises 23 countries and a total number of 24,007 people.

In the following description, reports are made on the statistics of each of the traffic related questions for each of the demographic variables. Each section presents first (a) the people's concerns about road accidents, (b) their answers to the question whether they enjoy driving fast, (c) their attitudes towards efforts by the Governments to improve road safety measures, and finally (d) their beliefs about the actual causes of road accidents.

Section (c) deals, in particular, with three questions; these asked whether people would be in favour of or against their Governments devoting more effort to:

- Improving driver training
- Having greater enforcement of traffic laws
- Having more publicity campaigns dealing with road safety

Section (d) reports the style of answers for the 10 most often reported causes in answer to the question as to what actually causes road accidents. These were: driving

when tired, drinking and driving, following the car in front too closely, driving too fast, taking drugs and driving, poorly maintained roads, using mobile phones, bad weather conditions, poor brakes, and bald tyres. In the final section we compare people's concerns about road accidents, their answers to the question whether they enjoy driving fast, their attitudes towards road safety measures, and their beliefs about the causes of road accidents in the current European Union member states and the countries joining the European Union in 2004.

## Gender

When asked about their concerns over road accidents, a high percentage of both sexes reported that they were either "very" and/or "fairly" concerned (Males 84%, Females 89%). On average females were even more intensively concerned than males.

With respect to driving behaviour, males more often said that they enjoy driving fast than females (Males 40%, Females 30% as a summary of the categories "very" and "fairly"). Both sexes, however, show much higher agreement to this question in the categories "not much" (Males 39%, Females 40%) and "not at all" (Males 21%, Females 31%), i.e. there were more people who said they do not enjoy driving fast than those who said that they do.

**Figure 6.1: The Government should devote more effort to the following road safety measures, according to gender strongly in favour and in favour, in %**

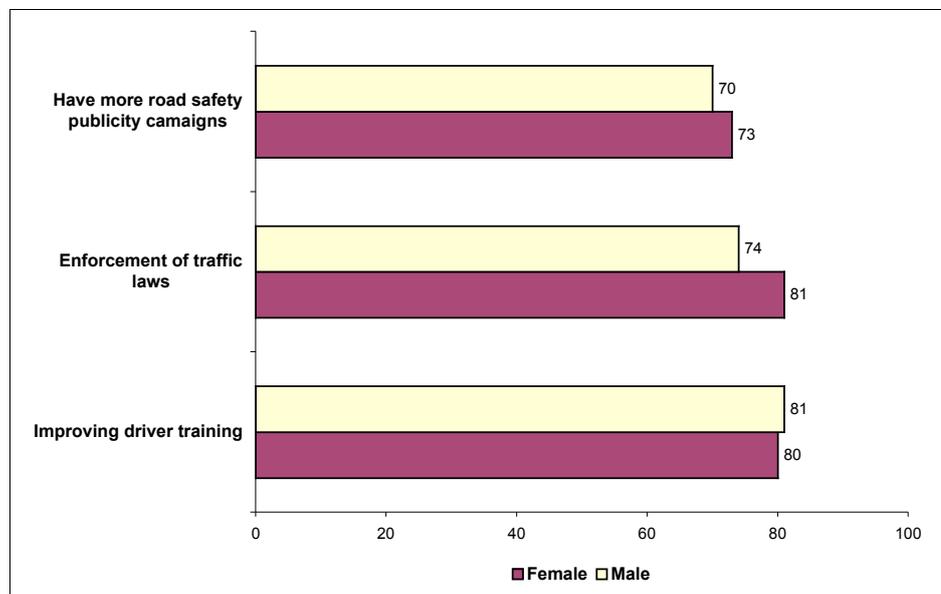
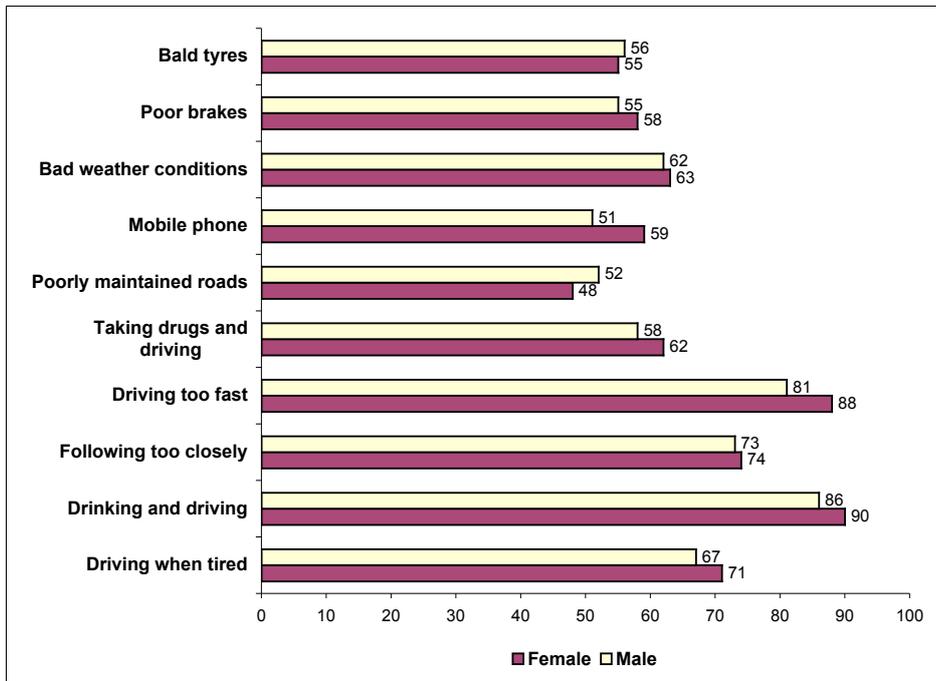


Figure 6.1 shows the consenting answers of males and females to the question as to whether the government should devote more effort to the improvement of driver training, the enforcement of traffic laws, and an increase in the number of publicity campaigns dealing with road safety. Basically, both sexes highly encouraged such efforts. Only a minor percentage was indifferent in their attitude or against such efforts. Males and females were almost equal in their attitude towards the improvement of

driver training. Females valued the enforcement of traffic laws slightly higher than males, and the same pattern was found for an increase of efforts with road safety campaigns.

Figure 6.2 presents answers by males and females to the question what actually causes road accidents. Both males and females consider driving too fast and drinking and driving to be the most often causes of road accidents, with females scoring even higher than males on these questions. In addition, males and females consider following a car in front too closely and taking drugs and driving to be major causes of road accidents. In contrast, technical failures of the car (such as bald tyres or poor brakes) are not seen as one of the major causes of accidents; the same is true of poorly maintained roads. More than 50% (“always”, “very often”, and “often”) of both males and females believe that using mobile phones could be a cause of road accidents.

**Figure 6.2: The following causes play a major role in road accidents, according to gender, always, very often, often, in %**



## Age

For the analysis of potential effects of demographic variables on the traffic related questions in this chapter we split the whole sample into three groups, (1) younger:  $\leq 24$  years, (2) middle-aged: 25-54 years, and (3) older:  $\geq 55$  years. Group 1 is thought to represent a large number of single people, who are supposed to represent “risky drivers”. Group 2 should represent people within a close relationship, which supposedly reduces risk-taking behaviour. Group 3 covers experienced drivers (also in terms of risk-awareness), partly retired, and therefore probably people who drive at a low risk level. More than 80% of the people in each group reported that they were “very” or

“fairly” concerned about road accidents (<=24 years: 83%, middle-aged: 86%, older: 88%). Within the “very” category, younger drivers were less concerned (38%) than middle-aged (43%). People aged 55 and over stated significantly more often that they were very concerned about accidents (50%).

A very high percentage of younger drivers said that they enjoy driving fast (53% as a summary of the categories “very” and “fairly”), followed by middle-aged (38%) and older drivers (21%), who report to enjoy driving fast least often. It has to be noted, that the difference is distinctively large.

About 80 % of the people from all age groups were “strongly in favour” or “in favour” of improving driver training, followed by agreement to efforts by the Government devoted to the enforcement of traffic laws and road safety campaigns (Figure 6.3). Older drivers do encourage these road safety measures more than younger drivers. They agree more often to the enforcement of traffic laws than the other age groups – especially in relation to the younger drivers (difference 14%).

**Figure 6.3: The Government should devote more effort to the following road safety measures, according to age strongly in favour and in favour, in %**

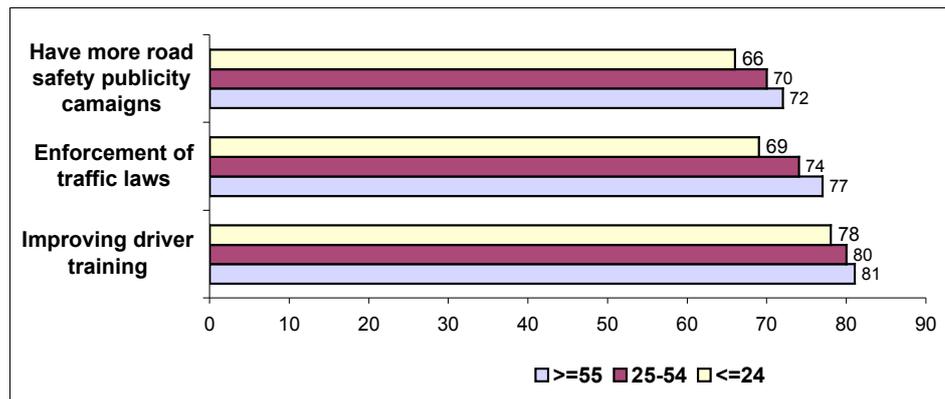
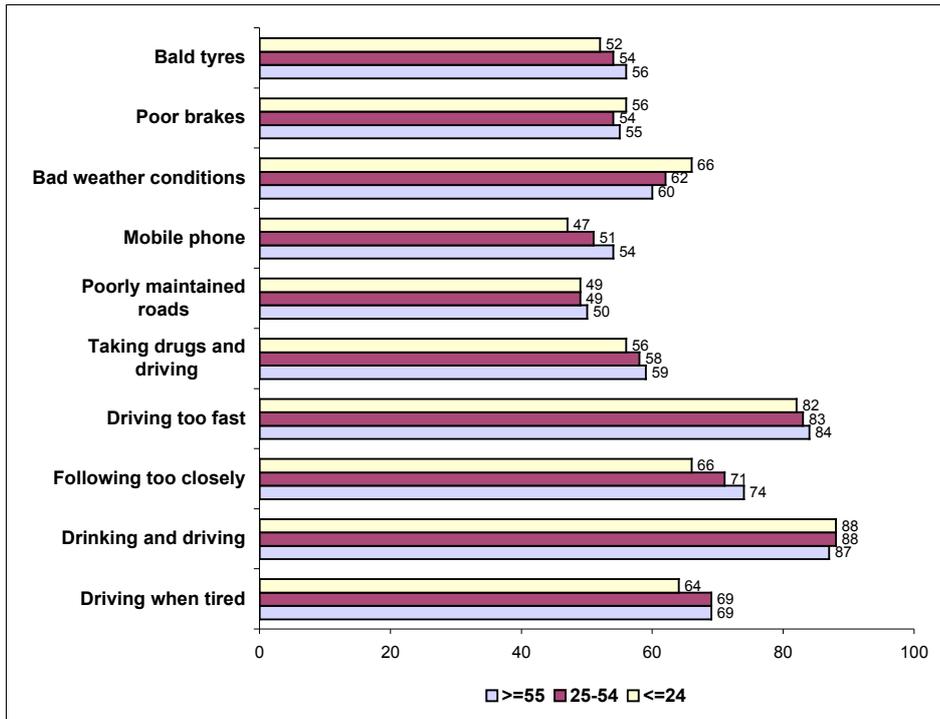


Figure 6.4 shows the factors people from the three age groups consider to be the most significant causes of road accidents. People from all age groups believe that drinking and driving, and driving when tired are very influential factors. There is no evidence of any one group feeling more strongly about one cause than the others. Furthermore, driving too fast, following the car in front too closely and bad weather conditions were also considered to be significant causes of road accidents by a high proportion of those questioned. Slightly more older drivers consider driving too fast and significantly more older drivers consider following too closely (12% more than younger drivers) to be major causes for accidents. At the same time slightly more younger drivers said, that bad weather conditions play a major role in accidents. Whereas taking drugs and driving is a less important cause for young or middle-aged drivers, many more older people considered this cause to be of major importance. Assuming that there is a difference between the age groups in usage of the mobile phone there could be also differences in estimating the accident risk. The results show that the older drivers are by far more inclined than the younger drivers to believe that mobile phones might play a role in causing accidents. Additionally the percentage of older people reporting that

bald tyres and poor brakes could play a major role in accidents is higher than the percentage of drivers in the other age groups.

**Figure 6.4: The following causes play a major role in road accidents, according to age, always, very often, often, in %**



## Occupation

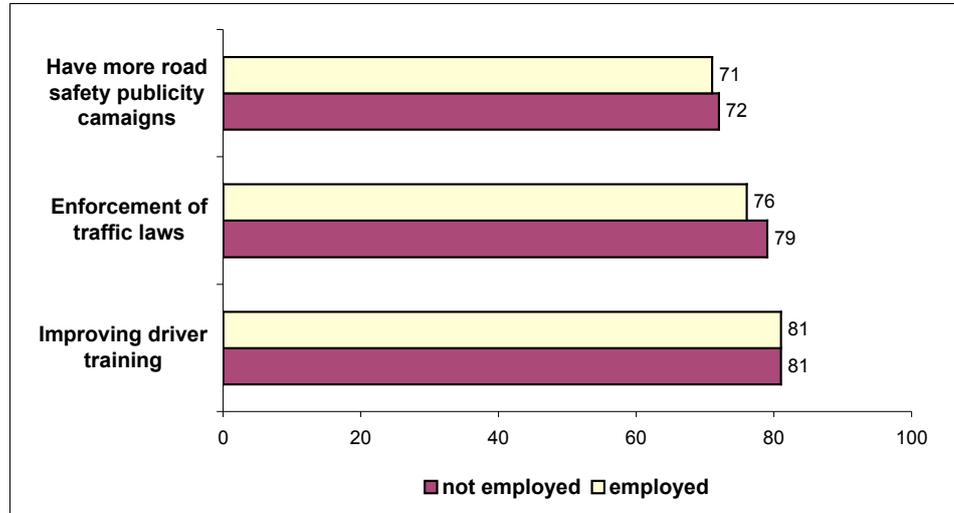
In the following we compared the attitudes of people who are employed with those of people without employment. The original SARTRE 3 categories - farmer/fisherman, professional lawyer/accountant, owner of business/shop, manual worker, white collar/office worker, middle management/trainee, and executive/top management fall into the “employed” (i.e. professionally active) group. Retired persons, housewives, students and the unemployed were put into the “without employment” (i.e. also not permanently employed or not professionally active) group.

It would appear whether or not a person is employed does not make a significant difference with regard to the question of how concerned one is about road accidents. Both groups reported that they were highly concerned about accidents (44% “very”, 42% “fairly” for the employed vs. 46% “very” and 40% “fairly” for those without employment).

With respect to driving behaviour, and in particular to the question of whether you enjoy driving fast, only a small percentage of both groups highly agreed (9% vs. 8% “very”). The most obvious difference is for the people who disagree to this question. 21% of the employed answered “not at all” whereas 34% of those without employment fall into this category.

Regarding the enforcement of traffic law people without employment were slightly more “in favour” of this road safety measure than were the employed (Figure 6.5). Both groups considered the improvement of driver training more important than the enforcement of traffic laws and road safety campaigns.

**Figure 6.5: The Government should devote more effort to the following road safety measures, according to employment situation (strongly in favour and in favour, in %)**



As was the case with other demographic variables, driving and drinking, driving too fast, and following the car in front too closely were among the factors considered the most significant in causing road accidents, regardless of the employment status of a person. There is only a small hint that people without employment deem these factors more important than do the employed. This pattern was also found for the other causes of road accidents, where the use of mobile phones was among the factors that were considered of minor importance.

## Income

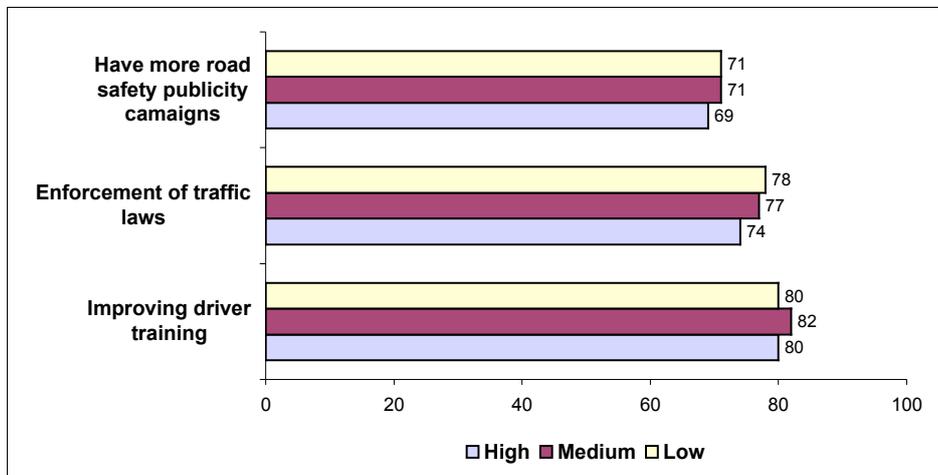
Income was split into three categories representing “high”, “medium”, and “low” levels of income. “High” represents SARTRE 3 income levels 6-8, “medium” represents levels 4-5, and “low” represents levels 1-3 according to the framework of the original questionnaire. The number of people who stated that they were very concerned about road accidents was almost equally distributed among the groups. However, within the highly concerned category, we found a higher percentage of people with a low income (47%), followed by people with medium income (45%) and high income (40%). More than 80% of all three groups answered that they were “very” or “fairly” concerned about road accidents (Low: 87%, Medium: 87%, High: 83%).

People with a high income were more inclined to state that they enjoy driving fast than people with medium or low incomes (Low: 32%, Medium: 36%, High: 41% as a summary of the answers for “very” and “fairly”). The difference is most obvious for the group who disagreed on this question. 30% of the low-income group answered “not at

all”, whereas the figure for the medium income group was 23% , and for the high income group only 20% .

People consider the efforts the Government should devote to improving driver training more important than the enforcement of traffic laws and road safety campaigns (Figure 6.6). This was the case for the low, medium and high-income groups. Between 70-80% of all three income groups encouraged the improvement of road safety measures (“strongly in favour” and “in favour”). Income was not found to be a significant factor with respect to the questions that deal with road safety measures.

**Figure 6.6: The Government should devote more effort to the following road safety measures according to income group (strongly in favour and in favour, in %)**



Up to 90% of all three income groups believe that drinking and driving is the most significant cause of road accidents (“often”, “very often”, and “always”). We found no difference between the income groups. In addition, driving too fast, following the car in front too closely, and driving when tired are also considered to be major causes of road accidents, but again this view was regardless of income level. Poorly maintained roads, poor brakes, and bald tyres were among the factors that received minor attention. For these variables, the high-income group considers them less important than the medium and low-income groups.

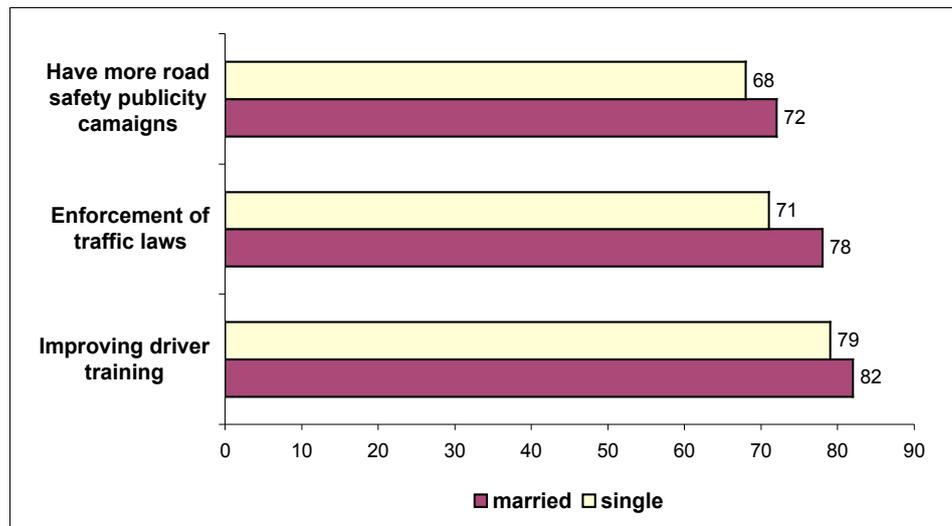
## Personal situation

Personal situation covers two conditions, (1) single, and (2) married. Only a minor percentage do not fall into either of these two categories (divorced and widowed people) and are therefore not considered in the analysis. “Married” includes people that stated that they were married or lived as married. Within the group that answered that they were “very” concerned about road accidents, the number of single people was 7% lower than in the married category (single: 39%, married: 46%). However, a high percentage of each group falls within the first two categories (“very” and “fairly” concerned). In summary, this is 82% of the singles, and 87% of the married.

Singles reported that they enjoy driving fast more often (12% “very”) than married people (7% “very”). In addition, we found a remarkably high percentage within the single group also for the second category, that is, those who answered “fairly” to the question of whether they enjoy driving fast. 36% of the singles fall into this category whereas the figure is 11% lower for the married (25% “fairly”). Furthermore, it is also interesting to note that for the “not at all” category, the percentage of singles was significantly lower (15%) than for the married group (27%). This pattern follows the one found for the different age groups, i.e. younger drivers more often reported that they enjoy driving fast and it seems reasonable to assume that the number of singles is highly correlated with the number of people from the age group  $\leq 24$  years.

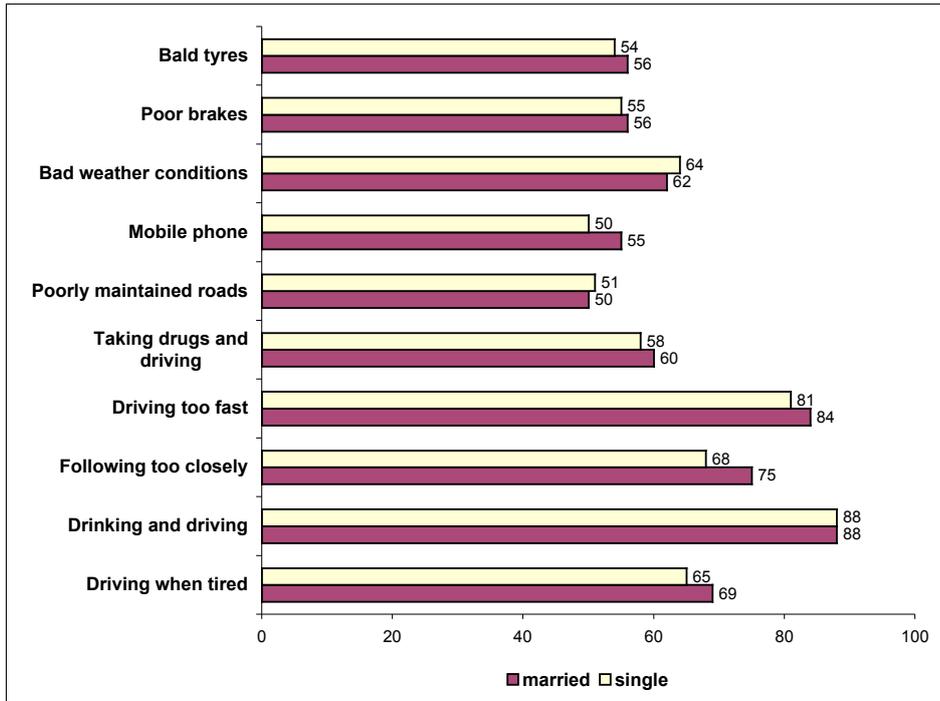
Basically, some 70-80% of the people from each group were “in favour” of devoting more efforts to road safety measures. The number of singles that were “strongly in favour” of improving driver training, having greater enforcement of traffic laws and more road safety campaigns was less than the percentage for married people (see Figure 6.7). Most obviously, 9% fewer singles were “strongly in favour” of the enforcement of traffic laws than married people.

**Figure 6.7: The Government should devote more effort to the following road safety measures according to personal situation (strongly in favour and in favour, in %)**



Most obviously, drinking and driving and driving too fast were thought to be the most common causes of road accidents, but no significant differences were found between single and married people. Furthermore, about 70% (“always”, “very often”, and “often”) of each group considered driving when tired and following the car in front too closely to be major causes of road accidents. Fewer singles than married believe that these factors are causes of accidents, though the percentage of agreement still remained more than 60% (see Figure 6.8). No distinct pattern can be found for the other possible causes of road accidents, in the way that one group is in favour of a cause over the other.

**Figure 6.8: The following causes play a major role in road accidents, according to personal situation, always, very often, often, in %**



## Education

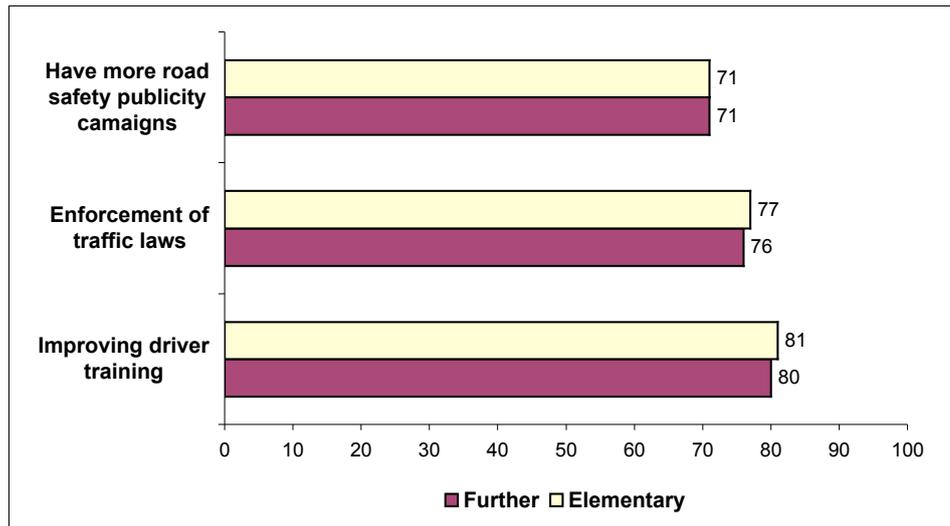
With respect to education, people with an elementary school education were compared with those who have received further education. Elementary level covers “primary” and “secondary” education levels from the original SARTRE 3 categories. Further education covers all people with a higher education level, up to the achievement of an academic degree.

Both groups reported that they were highly concerned about road accidents (87% elementary education and 84% further education for the categories “very” and “fairly”, in summary). However, we did not find any evidence for a significant difference in people’s concerns about road accidents with respect to their levels of education.

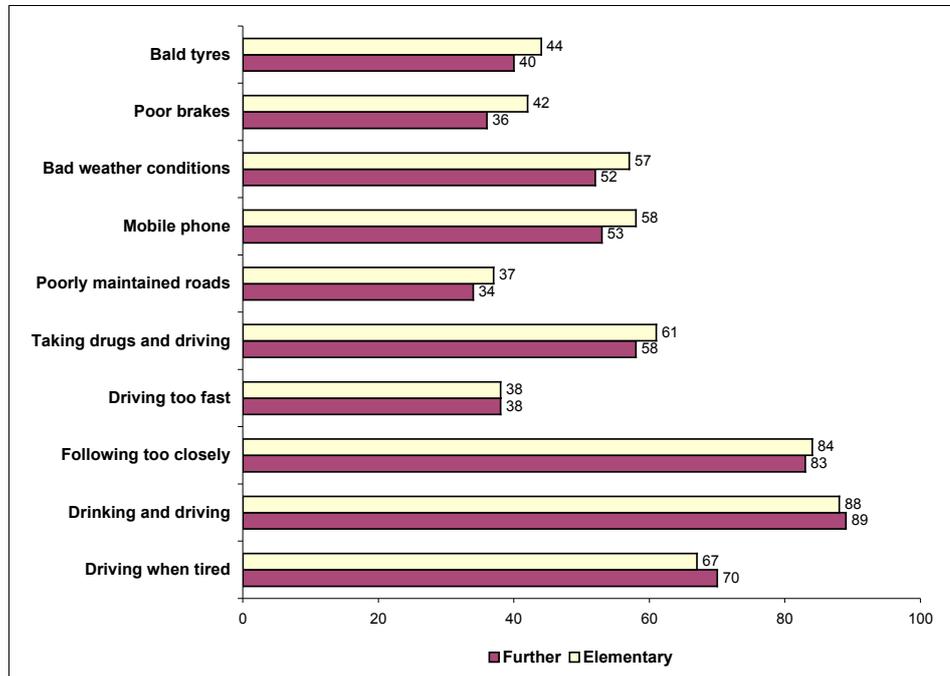
When asked whether they enjoy driving fast, 26% of those with an elementary education said they did not (“not at all”), whereas this figure was 23% for the people with further education. No clear distinction can be made between the groups for the agreement to this question (elementary education: 34%, further education: 37% in summary for “very” and “fairly”).

People from both education levels were strongly in favour of more efforts towards the improvement of driver training (elementary education: 81%, further education: 80%; in summary for “strongly in favour” and “in favour”). Having more enforcement of traffic laws was encouraged equally by both groups (see Figure 6.9). There was less agreement on the question of road safety campaigns, but nevertheless the results still show more than 70% for both education groups.

**Figure 6.9: The Government should devote more effort to the following road safety measures, according to level of education, strongly in favour and in favour, in %**



**Figure 6.10: The following causes play a major role in road accidents, according to level of education, always, very often, often, in %**



In contrast to other demographic variables that were considered in this chapter, education shows the most significant differences when people were asked about what they believed actually causes road accidents. Drinking and driving and following the car in front too closely were the most cited causes of road accidents for people from both

levels of education (Figure 6.12). A higher number of people with elementary education thought that “technical causes”, such as bald tyres or poor brakes, played a role in road accidents than the people with further education. In addition, people with elementary education consider possible causes such as poorly maintained roads, bad weather conditions, use of mobile phones, to be more significant than further educated people. Other causes of accidents like drinking and driving, following the car in front too closely, driving when tired and driving too fast are considered almost equally by both groups (see Figure 6.10).

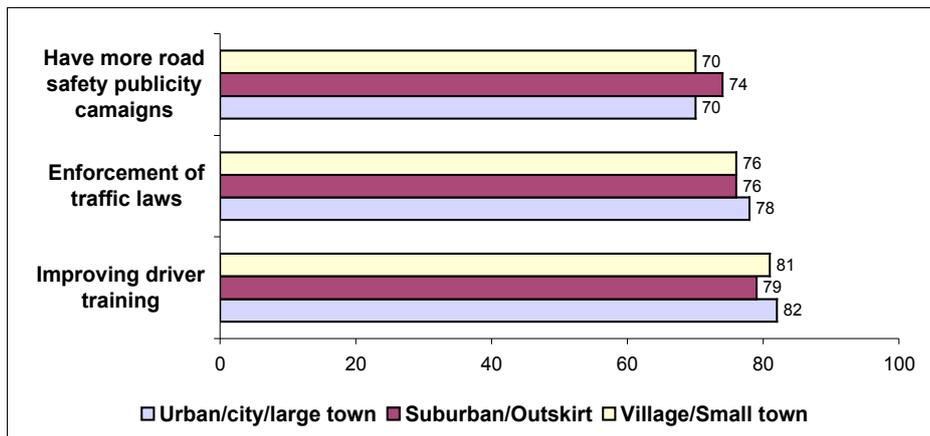
## Living area

“Rural/village” and “small town” from the original questionnaire were put together in one category named “village/small town” and considered along with people from “suburban/city outskirts” areas and “urban/city/large towns”. An almost equal pattern emerged when people from different living areas were asked about their concerns over road accidents. More than 80% from all areas reported that they were highly concerned about accidents (Village/Small town: 86%, Suburban/Outskirts: 85%, Urban city/Large town: 85% for “very” and “fairly” in summary). No distinction can be seen in the way that people from different living areas are concerned differently about road accidents.

People from urban environments and/or cities reported that they enjoyed driving fast slightly more than people from suburban areas or rural villages. The percentage of people that fall in the “very” category is, however, quite low (Village/Small town: 8%, Suburban/Outskirts: 8%, and Urban city/Large town: 10%). There is, however, no evidence that living area has significant effects on driving fast.

Between 70-80% of the people from all living areas were strongly in favour or in favour of devoting more efforts to road safety measures (Figure 6.11). Improving driver training was most strongly favoured, followed by the enforcement of traffic laws and road safety publicity campaigns. The distribution of people in favour and against was almost equal for each of the questions on road safety measures.

**Figure 6.11: The Government should devote more effort to the following road safety measures, according to living area strongly in favour and in favour, in %**



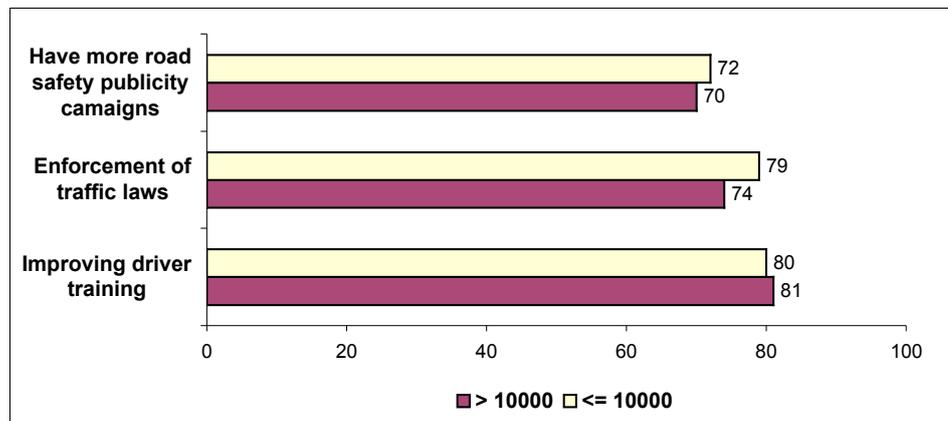
Drinking and driving, driving too fast, following the car in front too closely, and driving when tired were the most often cited causes of road accidents among all groups. There is a small difference between people from different living areas with respect to the question whether following too closely might be a cause of road accidents. 31% of the people from rural villages believe that this is “always” or “very often” a cause of road accidents, followed by 35% of the people from urban environments, and 39% from suburban areas.

## Kilometrage

We split the whole SARTRE 3 sample into two groups with respect to the amount of kilometres they reported that they drive each year, group 1:  $\leq 10000$  km/year, group 2:  $> 10000$  km/year. The rationale for this criterion was that this amount represents the median of reported kilometrage of the whole sample (23 countries). Both groups were equally concerned about road accidents ( $\leq 10000$ : 87%,  $> 10000$ : 86% for “very” and “fairly” in summary).

11% of the people from group 2, i.e. those who usually drive more than 10000 km/year, reported that they enjoy driving "very" fast, whereas only 6% of the people in group 1 answered positively in this category. Considering both the “very” and the “fairly” answers together, 29% of drivers from group 1 but 42% of drivers from group 2 fell into this category. We conclude that people who are used to driving often, enjoy driving fast more than people who drive only a limited amount of kilometres per year. Also, people who answered no to this question were 10% more within group 1 ( $\leq 10000$  km/year).

**Figure 6.12: The Government should devote more effort to the following road safety measures, according to yearly kilometres driven strongly in favour and in favour, in %**

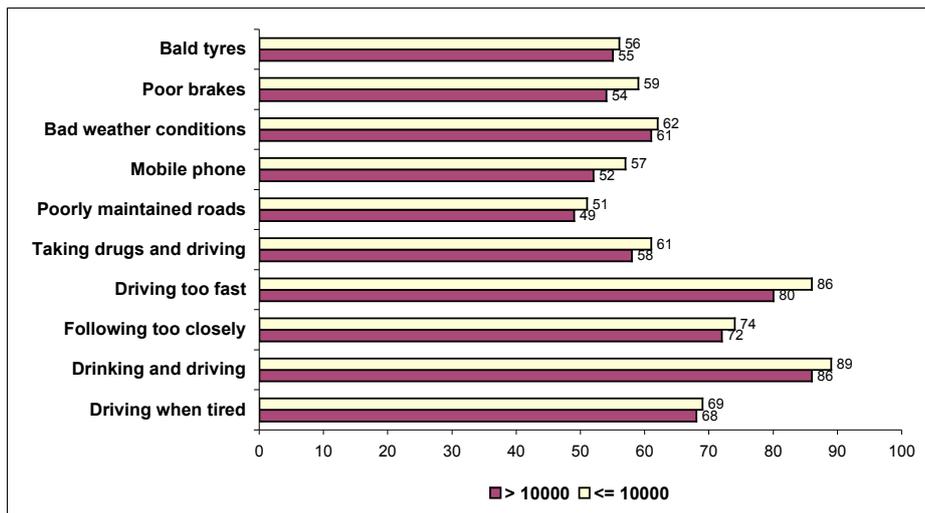


Up to 80% of the people from both groups were strongly in favour or in favour of road safety measures. Efforts devoted to the improvement of driver training were most encouraged, but no distinction can be made between drivers from group 1 and group 2 (Figure 6.12). With respect to the other governmental measures, group 2 drivers ( $> 10000$  km/year) were substantially (enforcement of traffic laws, difference 7%)

respectively slightly (increased efforts in the area of road safety publicity campaigns) less in favour than were group 1 drivers ( $\leq 10000$  km/year).

Drinking and driving along with driving too fast were the most often cited factors in people's beliefs about the causes of road accidents. Up to 85% of both groups ( $\leq 10000$  km/year and  $>10000$  km/year) reported this (Figure 6.13). In general, the number of drivers from group 1 who gave positive answers with regard to the causes of road accidents was higher than the number from group 2. For example, 57% ("always", "very often", and "often") of the people who drive little each year believe that the mobile phone is a cause of road accidents, whereas only 52% of the people who drive more than 10000 km per year believe this. This tendency towards a difference between drivers from group 1 and group 2 was found for all of the causes of road accidents mentioned.

**Figure 6.13: The following causes play a major role in road accidents, according to amount of yearly kilometres driven, always, very often, often, in %**



## Comparison between groups of countries

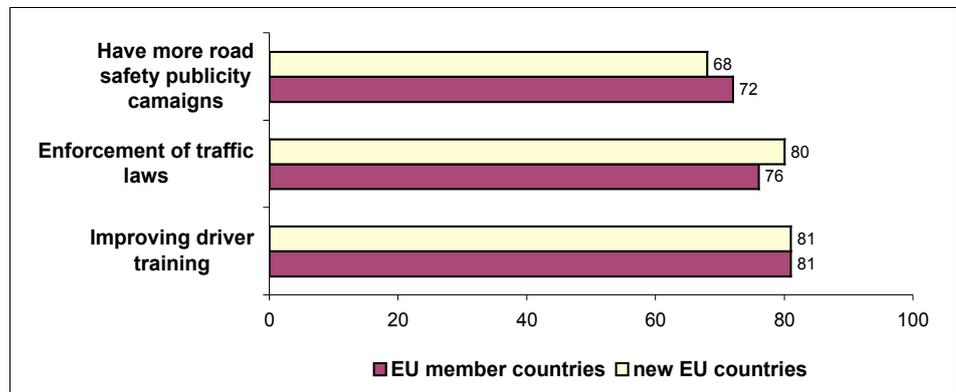
In this analyses we did not undertake a comparison of the countries individually but divided the countries taking part in the SARTRE 3 project into two groups. The first group consists of the current members of the European Union (European Union member countries), while the countries joining the European Union in 2004 (new European Union countries) form the second group. As a result of this, Switzerland and Croatia were not taken into consideration. The results are shown in figures according to the variables chosen above.

Regardless of the group, we found that the proportion of those who declared that they were highly concerned about road accidents was very high in both cases. More than 85% of the drivers from both the European Union member countries and the new European Union countries reported that they were "very concerned" or "fairly concerned" about road accidents.

In comparison with the drivers from European Union member countries, the proportion of those who reported that they enjoy driving fast is slightly higher in the new member countries (European Union member countries: 8%, new European Union countries: 10% for “very”, and 26% vs. 29% for “fairly”). There is, however, no evidence that belonging to the different groups would in itself have a significant effect on driving fast.

More than 80% of the respondents in all countries are strongly in favour of devoting more efforts to road safety measures (Figure 6.14). Most people are in favour of improvements in the training of drivers (81-81%); the stricter enforcement of traffic laws has the next greatest support (80-76%), and finally, more publicity campaigns directed at road safety receive the least support relatively (68-72%). It is important to note that in the group of countries joining the European Union in 2004, the support of the enforcement of traffic laws is 4% higher than among the European Union member countries. The reason for this is most probably that exceptional traffic offences are more often experienced in these countries. It was also found that the drivers in the countries joining in 2004 are approximately 4% less in favour of traffic safety campaigns. It may be that drivers in the European Union member countries are more used to regular media and communication campaigns, and are therefore more inclined to accept their effectiveness.

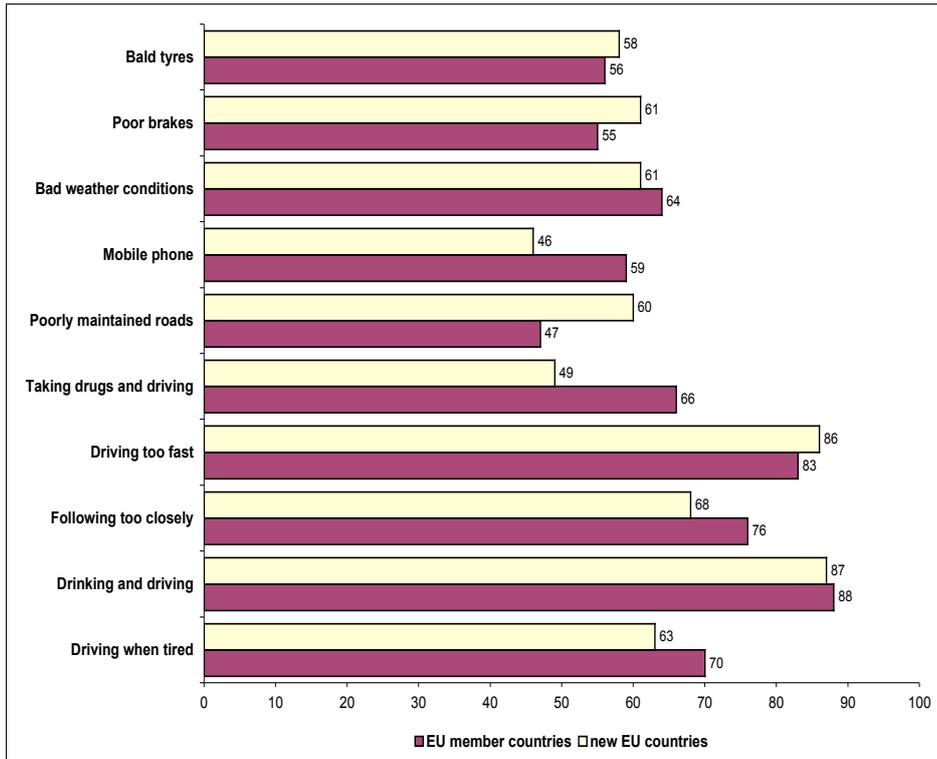
**Figure 6.14: The Government should devote more effort to the following road safety measures, according to situation in EU strongly in favour and in favour, in %**



Drinking and driving, driving too fast, following the car in front too closely and driving when tired are the causes of road accidents cited most often in both groups of countries (see Figure 6.15). However, a few smaller differences are worthy of note. In comparison with drivers in the countries joining in 2004, 9% more of the drivers in the European Union countries believed that following the car in front too closely is “always”, “very often” or “often” a cause leading to a road accident.

As for driving when tired, 7% more of the drivers in the European Union reported that they believed this was “always”, “very often” or “often” a cause leading to a road accident. The distribution of the answers given to the question about drinking and driving and driving too fast as causes of road accidents were the same in both groups of countries, although here the answers "rarely" and "sometimes" were chosen less frequently by drivers from the countries joining the European Union.

**Figure 6.15: The following causes play a major role in road accidents, according to situation in EU, always, very often and often, in %**



A more significant difference was detected in the attitude towards taking drugs and driving as a cause of road accidents. While in the European Union countries approximately 66% of the respondents believe that taking drugs and driving causes accidents, the rate is 49% among the answers of the drivers of the new member countries.

60% of the drivers of the countries joining in 2004, which are supposed to have a less developed infrastructure, reported poor road condition as a cause of accidents whereas only 47% of the drivers of the current European Union member countries thought that this cause played a major role in road accidents.

Using a mobile phone while driving is also regarded differently in the two groups of countries. 59% of the drivers in the European Union believe that using a phone while driving may cause an accident. This rate is only 46% in the countries joining in 2004. There is only a very slight difference in the distribution of answers given to the question regarding poor brakes, while there is practically no difference at all between the two groups in the answers to the questions regarding poor weather conditions and bald tyres.

## Discussion

The aim of the present chapter was to look at the possible influence of demographic variables, as well as variables that cover aspects of a person's life situation and living conditions on his/her concerns about road accidents, (reported) driving behaviour, the

acceptance of countermeasures, and attitudes towards causes of road accidents. What conclusions can be drawn from the present data?

In summary, the majority of people reported that they were highly concerned about road accidents. Those who fall into the categories “very” and “fairly” concerned accounted for an average of 70-80% of the groups for each of the demographic variables considered. We did not find a major impact of any of the demographic variables, but female drivers do tend to be more concerned about road accidents. The same applies to older people, people on low or medium incomes, those who are married, and people with no or only elementary education.

Male drivers more often reported that they enjoy driving fast than females, and so did younger drivers, people who are employed, those with a higher income, single people, people from urban environments, and frequent drivers.

When people were asked about efforts their Governments should devote to road safety measures, it was the area of improving driver training which received the most support. However, the enforcement of traffic laws and publicity campaigns directed towards road safety were also encouraged. Males and females value these efforts almost equally, although there is a slight tendency for females to be more in favour of law enforcement and road safety campaigns. This tendency was also found for older rather than younger drivers (especially concerning the enforcement of traffic laws), employed people, people on low or medium incomes, and married people. No clear pattern can be drawn between people from different education levels and between people from different living areas. However, those who reported that they drive more frequently seem to be less in favour of the enforcement of traffic laws.

People considered drinking and driving, driving too fast, following the car in front too closely, and driving when tired to be the most important of the causes of road accidents. Females were in general more sensitive to this question than males. Also, older people and people without permanent employment felt these causes were particularly significant. Those with low incomes as well as older drivers paid more attention to causes such as bald tyres, poor brakes, poorly maintained roads, and taking drugs and driving than people with medium or high incomes respectively the group of younger drivers. It could be possible, of course, that these groups are correlated. Single people considered driving too fast, following the car in front too closely and also the use of mobile phones of less importance than married drivers, the same is true for young drivers in relation to older drivers. Again, a correlation between these groups can not be precluded. However, no distinction was found concerning drivers of these groups with respect to the question of whether drinking and driving is a major cause of road accidents. A higher number of people with elementary education thought that “technical causes”, such as bald tyres or poor brakes played a role in road accidents, than the people with further education. No distinct patterns was found in the results for people from different living areas towards the causes of road accidents. Finally, we found that there was a tendency for people who reported that they drive more kilometres per year to be less concerned by the causes of road accidents in general than others.

We did not find any major differences between the European Union members and the countries joining in 2004 regarding the supposed causes leading to road accidents and governmental efforts. The countries joining the European Union were more in favour of stricter enforcement of traffic regulations than the current European Union members. In contrast, they were less in favour of road safety campaigns.

More people from the countries joining in 2004 considered the bad technical condition of the vehicle or poorly maintained roads to be a major cause of road accidents, whereas drivers' behaviour was less often seen as a cause of accidents. The most significant differences were found between the answers of the country groups in association with the issues of taking drugs and driving and following the car in front too closely. People from European Union member countries consider these causes to be more significant than their counterparts in the countries joining in 2004. There were no differences in the way the two groups reported on driving too fast as a cause of road accidents.

In conclusion, the present chapter found some tendencies for the influence of demographic variables as well as variables of an individual's living situation and conditions, along with some noteworthy results in particular which should receive attention in a more detailed analysis.

## Recommendations

From the analyses so far we recommend that the Governments should devote more effort to road safety measures, especially to the improvement of driver training. Young drivers, in particular single males, are those who should receive the most attention as they probably reflect the highest risk group with respect to road traffic. In addition, the use of mobile phones while driving and their role in road accidents needs further investigation. In light of the growing European Union it seems that people from countries joining in 2004 do not differ in their attitude towards road traffic. However, it does seem indispensable to further enlarge a network of experts from both European Union member countries and countries joining in 2004 in order make sure that both remain at an enlightened level with respect to road safety.

The data suggests that specific driver improvement training, road safety publicity campaigns or similar measures should be aimed at different demographic groups. The efficiency of any campaign or measure could possibly be increased by choosing the subject matter according to the social attitudes of the target group.

It is common knowledge that young people, and especially young single males, contribute significantly to the number of road accidents. The assumption that they tend to drive with excessive speed and to reject the idea that they may be the causes of traffic accidents is further supported. An in-depth analysis may give further hints on how to improve their traffic behaviour.

Other demographic groups with problematic traffic related social attitudes are also indicated and these should not be neglected, e.g. people with high annual income are prone to driving fast, as are drivers with a high annual kilometrage. In addition, the latter group tends to be less concerned by the causes of traffic accidents in general than drivers with a low annual kilometrage, a fact which supports the development of specific strategies that target drivers with high exposure (for example professional drivers).



# Chapter 7

## Younger/older drivers: risk perception and reported behaviours

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### Introduction

Different age and gender groups typically use vehicles in a quite different way, and their experience and life circumstances are also different. If common ‘backgrounds’ can be identified for specific groups of drivers based on their risk behaviour, road safety policy makers and practitioners could use this information to develop new measures especially for those groups.

In this chapter which describes the results of the SARTRE 3 survey we intend to examine differences and similarities between the different age and gender groups among the 23 European countries involved in the study, exam whether or not there has been an increase in the distinctive features of the youngest drivers since SARTRE 2, or if - on the contrary - there have been changes in this group, such as an increase in safety awareness and changes in attitudes and risky behaviours, which now make them closer to the standards of other, and safer, groups of drivers. The focus will be on how young drivers (of both sexes) differ in their perception of the road risk and self-reported behaviours from older age groups of drivers. Therefore, for the purposes of chapter, the term ‘younger driver’ refers to drivers aged 18-24, while ‘older drivers’ refers to drivers aged 25-39, 40–54 and 55 or over.<sup>15</sup>

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<sup>15</sup> Before beginning this analysis, we considered it worthwhile to check whether the selection of ‘younger’ drivers should be extended to include those up to the age of 29, instead of being limited to those aged 18-24 years old. This was because it was considered that the young now maintain a youthful style of living for longer and because in the previous SARTRE 1 and 2 surveys the group of 18-24 years olds was relatively similar, in many aspects, to the 25-29 year old age group. To do this, new age bands were defined in order to see if this would result in more homogeneous age subgroups. It was considered that if the young now became emancipated (or matured) later in life than previously, thereby sharing a similar lifestyle whether they were 18 or 26 years old, they might also share a similar way of joining the world of driving, and also share a similar perceptions of the circumstances in which this activity is developed. After a cluster analysis of factors was carried out to study group homogeneity, with a view to identify groups of individuals sharing similar

Six years have gone already since the second stage of the SARTRE study. Besides the sociological changes taking place in the different countries taking part in the study, many of them have been implementing a series of road safety actions to specifically address the high accident rates experienced by younger drivers.

The social and economic environment surrounding young males and females presents big differences in relation to other age groups, and similarly their motivations and other interests, and how these are expressed, differs markedly from other groups. Such differences are mirrored by how they use and drive vehicles, which often do not belong to them but to their parents. Furthermore, during recent years the young have been facing increasing difficulties in becoming 'emancipated' and assuming the responsibility for their own life, with the result that they depend on their family for more years than previously.

Thus, special attention will be devoted to young drivers groups, as a number of studies have shown, for example, that young drivers frequently perceive some specific risk behaviours to be a less of a cause of accident than older drivers (Goldenbeld, 1998) and also that measures are much more effective if they directly address the specific subgroups that feel more affected by them (Schulze, 1992).

Two main areas, and the associated results from particular questions, will be considered here:

**a) Drivers' perception of their own driving: age/gender groups**

- Assessment made by younger/older drivers of their own way of driving compared to the rest (Q06 and Q08);
- Characterization of younger/older drivers assuming a "risky position" according to socio-demographical variables (such as level of education, civil state, car driving experience, kilometres travelled, age of the vehicle driven, etc);
- The 'evolution' of younger/older drivers' self-perception through a comparison of SARTRE 2 and 3 findings.

**b) Self-reported behaviours and attitudes towards risk: age/gender groups**

- The position assumed by younger/older drivers in relation to some questions which entail driving dangerously, e.g. not maintaining a safe following distance, not giving way to pedestrians, overtaking when you can just make it, driving under the influence of alcohol and using a mobile phone while driving (Q13a,b,d ; Q20; Q21 and Q47a,b);
- Characterization of younger/older drivers assuming a "risky position" according to socio-demographical variables (such as level of education, civil state, car driving experience, kilometres travelled, age of the vehicle driven, etc);
- The evolution of younger/older drivers self-reported risk behaviours through a comparison of SARTRE 2 and 3 results.

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types of responses and to differentiate these from those giving other responses, it was found that the results were not modified by considering the age groups of 18-29 years of age; 30-39 years of age; 40-49 years of age; 50-59 years of age and 60 years or older. A regression analysis was also carried out with 8 different age groups, in relation to the variables included in the questionnaire. The best regression obtained belonged to 18-29 year age group ( $R^2 = 0,24$ ), while for the grouping used in previous surveys the  $R^2 = 0,21$ . As no significant difference was found the age sub-groups used since the beginning of the SARTRE project will be retained here.

## Drivers' perception of their own way of driving: age/gender groups

With the aim of understanding in which way younger and older European drivers differ in their perception of the road risk, two questions were chosen: Compared to other drivers, do you think your driving is...dangerous? (Question 6); Compared to other drivers, do you generally drive...than average speed? (Question 8).

Prominence was given to what was considered to be a "risky position" and special attention was given in the analysis to the age variable, by reporting the main differences between younger (18-24) and older drivers (25-39; 40-54; 55 or over). The issue of gender is also taken into account in the analysis.

The results clearly show that the responses of younger drivers suggest they take part in more risky driving behaviours and have less danger awareness. The findings show that women and especially younger women admit to less risky driving and seems to be more responsible and aware of the risks associated with driving.

### Drivers perceiving their own driving as being more dangerous

Although in the total SARTRE 3 sample the drivers who consider themselves more dangerous than others were only 5% of the total, in some countries this group was larger (for example in Cyprus 13%, Slovakia 11%, Poland 7% and the Czech Republic 6%). The finding that only 5% of drivers admit to having a dangerous driving style can be interpreted in different ways. On the one hand, if the data represent actual driving practices, they may show that a high percentage of the driving population engage in safer driving behaviours. On the other hand, if this data only reflect the drivers' idea (or perception) of their driving, they may reveal a general excess of self-confidence on the road - and a blaming of others - which in practical terms can also produce dangerous behaviours and situations. Besides revealing a general indulgence (or tolerance) of the harmful consequences of dangerous driving, this finding can be a symptom that the "risk culture" has been interiorised – a theory that can be considered in the general interpretation of the data. The outcome is that drivers personally consider that it is always (or at least generally) the other drivers who play the 'guilty' role. If this is a typical behaviour of drivers in general it has real consequences for developing measures to improve road safety.

Table 7.1 shows, for different countries, the proportion of drivers in each of the four age groups who consider themselves to drive more dangerously than other drivers. In all countries, younger drivers (aged 18-24) are more aware of driving "much more" or "a bit more" dangerously, compared with other aged drivers; correspondingly older drivers state more often that they drive "a bit less" or "a lot less" dangerously. Overall, the percentage of people aged 18-24 who admit to this behaviour is 10 per cent, markedly more than found for the other 3 groups. This self-perception of engaging in more dangerous driving behaviour decreases as age increases. The proportion of drivers aged 25-39 is smaller (5%) than that for the youngest driver group and is still lower in the higher age groups; 4% for 40-54y and 3% for those 55 and over.

**Table 7.1: Drivers of different age groups who think their driving is dangerous, much more or a bit more, in %**

Country	≤24	25–39	40–54	≥55
Austria	9	5	2	0
Belgium	14	7	5	2
Cyprus	12	17	14	5
Czech Rep.	12	7	5	4
Denmark	6	3	1	2
Estonia	10	4	4	4
Finland	13	5	3	5
France	7	6	1	2
Germany	9	6	3	2
Greece	8	3	6	5
Hungary	12	6	3	1
Ireland	5	2	1	1
Italy	8	4	2	3
Netherlands	16	4	2	4
Poland	8	5	7	8
Portugal	6	4	1	2
Slovakia	19	12	7	6
Slovenia	8	6	4	6
Spain	6	6	6	3
Sweden	8	3	1	2
United Kingdom	5	3	2	2
Croatia	8	5	3	5
Switzerland	17	2	3	2
<i>Average</i>	<i>10</i>	<i>5</i>	<i>4</i>	<i>3</i>

The results for the individual countries show that the proportion of young drivers who engage in more dangerous driving style is particularly higher in countries such as Slovakia (19%), the Netherlands (16%), Switzerland (17%), Belgium (14%) and Finland (13%). In fact, only in Cyprus, where the percentage of drivers in the younger group (aged 18-24) is 12%, is it found that drivers aged 25-39 (17%) and 40-54 (14%) place themselves in a risky position more often.

How should these findings be interpreted? Do the results mean that older, more experienced, drivers really feel better prepared and aware of road dangers, therefore being more cautious and safe in practice? Are they, in fact, the “safest” drivers?

If these findings relate solely to the perception of each person’s driving behaviour, thus remaining at a representation level, although worrying, the results would not be as serious as they seem. However, when we combine the various findings of this survey we understand that, generally speaking, younger drivers (18-24y) engage and admit to more dangerous behaviours. Factors like inexperience, low risk observation, high-risk acceptance, lifestyles, overestimation of own driving skill, high exposure, can help to

explain their engagement in ‘unsafe’ driving behaviour. Therefore, there is no doubt that we are facing a group of young drivers (aged 18-24), both male and female, but mainly men, who report highly dangerous behaviours and who (importantly), according to this specific question, also seem fully aware of the danger implied in their driving style.

### “More dangerous” driver profile

When the results for this particular group of interviewees who considered their driving to be a bit more or much more dangerous is examined, it reveals both the high numbers of drivers aged 18-24 within the group and also reveals that these risky and youngest drivers, both male and female, share the following characteristics:

- students;
- singles;
- secondary level of education;
- drive cars of 1300-1999 cc engine size.

If gender is taken into account the results show that young males admit that they drive dangerously more so than females. Additionally, there are some specific differences between young males and females.

For example they have different levels of driving experience, with risky women aged 18-24 have driven less than 5000 km/year (the same as older groups of women), while a big part of risky men of that age have driven more than 30000 km/year (about the same as the older groups of men).

There are also differences in the environments in which they drive. The group of youngest risky men mostly live in urban areas, cities and large towns, while the youngest women mostly live in rural areas and villages.

The analysis also revealed differences in income levels with the youngest males tending to have higher incomes (most typically level 2) than females of the same age, who most frequently ‘scored’ level 4 in European Union countries and 7 in Non-European Union countries.

Additionally the younger risky males and females tended to drive vehicles that were 6-10 years old (except in Non-European Union countries), where the females usually drove newer vehicles.

Therefore, the motives that lead both youngest males and females to consider themselves more dangerous drivers may be different. Such motives are at least partially explicable in terms of differences in distance driven, i.e., quantity of exposure. While females are probably more aware of the fact that they can be faced with dangerous traffic situations because they don’t have much experience (leading them to *underestimate* their abilities), while males are probably assuming a risky driving style due to their specific circumstances (and therefore resulting in them *overestimating* their abilities).

As might have been expected, the major differences found between the ‘unsafe’ youngest and older age groups of drivers are closely related with their different lifestyles/lifecycles. Older drivers tend to be married and working (in the intermediates age groups 25-39 and 40-54 women are frequently white collar/office worker while men are mostly manual workers), or retired in the oldest group. Apart from these sociological differences, there are no clear differences between young/older drivers.

Gender plays a much more important role than age here. In terms of quantity of exposure (more important than years of experience), older females are closer to young females, while older males are closer to young males. A considerable percentage of oldest Non-European Union country women drive cars of 1000-1299 cc engine size.

A large proportion of these risky drivers from older age groups have also achieved a secondary level of education, except in the case of European Union countries where the oldest men and women reported being educated only to primary level; and in the group of European Union countries where women aged 25-39 reported having undertaken some form of further education.

## Drivers perceiving their driving as faster or much faster than average

As far as drivers' perception of their own driving speed is concerned, relative to that of other drivers (Question 8), the results reveal that the idea of "dangerous driving" – reported earlier - does not seem to correspond, in terms of risk behaviour, to the idea of "driving faster". For this particular question the group of drivers who considered that they drove 'much faster' or 'a bit more faster' represent 20% of the total sample.

Table 7.2 shows, as with other such risky behaviours, that more young drivers (those aged 18-24) admit to this type of behaviour (31%) than other ages. The proportion of drivers engaging in faster driving behaviour is less and less represented, as they grow older. Drivers aged between 25 and 39 represent 25% of the total and the percentage is even lower in older age groups (18% for 40-54 and 10% for the 55 and over group). Although the interviewees' idea of "speed average" will be subjective, the high values in their answers are still important for the analysis of how risk is interiorised. Once again, it is others who drive fast.

When we examine this issue from a gender point of view we find that men, and mainly younger men (aged 18-24), admit more frequently to driving over the average speed. Younger females (aged 18-24) also admit more frequently that they drive above average speeds, compared to older female drivers.

When the results are analysed with respect to individual countries it can be seen that this general tendency remains. In fact, only in France (29%) and Sweden (25%) are lower percentages found in the younger drivers' group (18-24), compared to the age 25-39 group (both 30%). In the remaining countries, the perception of driving faster than the other drivers is proportionally higher in the younger age group. A relatively high proportion of faster young drivers were found in the Netherlands (53%), Croatia (52%), Cyprus (48%) and Slovenia (37%).

### **"Faster" driver profile**

The group of drivers who admit to driving fast represents 20% of the total sample. In every country, men predominate over women. Regarding age, in nearly all countries the youngest (18-24) are the highest proportion, except in France and Sweden where the biggest proportion appears in the 25-39 age band. Both faster men and women in the 18-24 age band share the following features:

- students;
- singles;
- secondary level of education;

- less experience drivers (3-5 years of driving experience);
- drive cars of 1300-1999 cc engine size;
- middle-up income levels, and in European Union countries the highest levels.

**Table 7.2: Drivers of different age groups who think their driving is faster a little or much more, in %**

Country	≤24	25--39	40--54	≥55
Austria	23	16	12	4
Belgium	32	18	15	4
Cyprus	53	29	23	32
Czech Rep.	21	19	13	7
Denmark	31	25	16	10
Estonia	21	11	8	2
Finland	35	23	14	9
France	29	30	19	9
Germany	33	23	19	10
Greece	31	20	16	6
Hungary	29	22	20	7
Ireland	27	16	12	9
Italy	36	30	17	11
Netherlands	53	46	29	19
Poland	14	13	10	5
Portugal	20	20	8	4
Slovakia	31	26	16	11
Slovenia	37	33	26	10
Spain	24	20	17	9
Sweden	25	30	25	16
United Kingdom	23	19	15	8
Croatia	52	48	43	34
Switzerland	32	29	12	8
<i>Average</i>	<i>31</i>	<i>25</i>	<i>18</i>	<i>10</i>

They are occasional drivers (men and women 18-24 years had driven <5000 km/year) with consequently less exposure to the risk, though accident rates show that they proportionally have more accidents than other age groups. These inexperienced drivers somehow underestimate speeding as a risk factor.

With less representation, drivers from other age groups that reveal less concern with own speed as a potential risk factor differ mostly from their young counterparts in distance driven (kilometres travelled) and experience. Older males in particular, are high mileage (>30000 km/year) and experienced drivers (11-25 years of experience of the two intermediate age groups and more than 25 years in the oldest group). The

reasons why they assume this driving behaviour must be different from the reasons of the youngest group as the quantity and nature of their exposure to risk are different.

Older females, much less represented in this group than males, although having the same level of experience, have driven significantly fewer kilometres than men. There are specific differences in kilometres travelled between European Union and Non-European Union women. In the intermediates groups European Union women drove 10000-15000 km/year, while Non-European Union women drove <5000 km/year. In the oldest group, the results show the opposite with European Union women most frequently reporting driving <5000 km/year and Non-European Union woman driving 10000-15000 km each year.

As highlight before, some social differences between younger/older drivers are clearly linked with different lifecycles. Unlike younger drivers, older drivers are married, workers (white collar/office worker in European Union women and Non-European Union men and manual workers in European Union men) or more likely to be retired in the case of drivers in the 55 or over age group.

There are some differences in the education level. In the groups of European Union women aged 25-39 and European Union men over the age of 54 the number reporting having taken further studies predominate. The other groups mainly report having achieved a secondary level.

## **Evolution of self-perception: SARTRE 2-SARTRE 3 age/gender groups comparison**

With the purpose of examining the evolution (or changes over time) of younger/older drivers' self-perception a comparison was made between the results obtained for SARTRE 2 and SARTRE 3 for the two questions (Q06 and Q08) previously analysed.

### **Drivers perceiving their own driving as more dangerous: SARTRE 2-SARTRE 3 changes**

The relatively small overall percentage of drivers (5%) who perceived their own driving to be more dangerous than other drivers in SARTRE 2 have only increased for SARTRE 3 in four countries (Slovakia, Spain, the Netherlands and the United Kingdom), but not in a very significant way. Slovakia shows the highest difference (from 7% to 11%). Therefore, the general trend, over time, is to decrease or to stay the same. However, if we analyze the changes by age and gender groups (see table 7.3) the youngest groups have increased considerably in these 4, and other, countries. In particular amongst drivers in Switzerland, Slovakia, Finland and the Netherlands the group of youngest drivers stating their riskier position has grown by a marked extend, even doubled in some cases, an important finding, even if the earlier proportions were relatively low. That means that the positive change detected in the general sample of most countries is somewhat confusing, because it is only limited to the older groups of drivers – who are already less risky – and not true when referring to young risky drivers who in many countries have increased in numbers. However, it is not easy to interpret these changes in individual countries, since many will have introduced various activities designed to improve the standard of road safety, some of which will have targeted younger drivers.

**Table 7.3: Drivers who think their driving is much more / a bit more dangerous: SARTRE 2 / SARTRE 3 age/gender groups comparison, in %**

Country	Men 18-24 SARTRE 2 → SARTRE 3 (change)	Men 25-39 SARTRE 2 → SARTRE 3 (change)	Women 18-24 SARTRE 2 → SARTRE 3 (change)
Austria	7 → 10 (+3)	3 → 7 (+4)	3 → 8 (+5)
Belgium	25 → 23	12 → 7	7 → 2
Czech Rep.	14 → 13	15 → 10	4 → 10 (+6)
Finland	5 → 13 (+8)	8 → 5	10 → 12 (+2)
France	8 → 9 (+1)	5 → 10 (+5)	7 → 3
Germany	10 → 14 (+4)	7 → 6	4 → 2
Greece	15 → 11	<b>10 → 4</b>	9 → 0
Hungary	12 → 14 (+2)	6 → 9 (+3)	10 → 9
Ireland	4 → 5 (+1)	6 → 1	7 → 3
Italy	<b>12 → 8</b>	7 → 5	3 → 9 (+6)
Netherlands	16 → 22 (+6)	5 → 5	0 → 7 (+7)
Poland	<b>12 → 9</b>	6 → 6	7 → 7
Portugal	<b>12 → 9</b>	7 → 5	2 → 1
Slovakia	10 → 18 (+8)	6 → 12 (+6)	3 → 20 (+17)
Slovenia	<b>9 → 9</b>	6 → 7 (+1)	<b>10 → 7</b>
Spain	8 → 7	3 → 8 (+5)	4 → 5 (+1)
Sweden	10 → 10	2 → 3 (+1)	0 → 4 (+4)
United Kingdom	3 → 6 (+3)	6 → 5	2 → 4 (+2)
Switzerland	6 → 20 (+14)	<b>15 → 4</b>	1 → 7 (+6)

**Drivers perceiving their driving as faster or much faster than average: SARTRE 2-SARTRE 3 changes**

The proportion of drivers making up this group in SARTRE 3 is bigger than in the earlier survey. However, while it has grown smaller for the European Union average (from 21% to 18%), it has actually increased for the Non-European Union average (17% to 19%); although the countries making up this group are very different.

The proportion of drivers who acknowledge their speeding risk have increased on average, in six of the nineteen countries that participated in both SARTRE 2 and 3; the Netherlands from 30% to 34%, Slovenia from 19% to 27%, Slovakia from 15% to 22%, Germany from 16% to 19%, Spain 14% to 17% and Hungary 17% to 18%. Again, it is important to differentiate these results by age and gender because in some countries the younger groups have increased by much more (see table 7.4), although it cannot be detected in the general sample as older faster drivers have diminished by a higher proportion over the period. This means that risk groups (based on reported speed), already quite sizeable, are actually increasing in number in many countries. It could be considered that this finding shows that education and publicity campaigns related to speed, or other specific actions, aimed to young people are not working very well and

could be improved. An alternative is that such campaigns have increased the awareness of this behaviour among risky drivers.

**Table 7.4: Drivers who think their driving is a little faster / much faster than average speed: SARTRE 2 /SARTRE 3 age/gender groups comparison, in %**

Country	Men 18-24	Men 25-39	Women 18-24
	SARTRE 2 → SARTRE 3 (change)	SARTRE 2 → SARTRE 3 (change)	SARTRE 2 → SARTRE 3 (change)
Austria	33 → 32	24 → 26 (+ 2)	17 → 13
Belgium	40 → 45 (+ 5)	30 → 19	10 → 18 (+ 8)
Czech Rep.	27 → 31 (+4)	26 → 27 (+1)	4 → 6 (+2)
Finland	33 → 43 (+10)	<b>37 → 34</b>	23 → 25 (+2)
France	43 → 27	38 → 41 (+3)	31 → 32 (+1)
Germany	30 → 38 (+8)	25 → 30	16 → 24 (+8)
Greece	41 → 38	31 → 24	10 → 13 (+3)
Hungary	42 → 33	26 → 29 (+3)	<b>23 → 22</b>
Ireland	38 → 35	36 → 20	<b>20 → 17</b>
Italy	40 → 44 (+ 4)	29 → 38 (+9)	23 → 27 (+4)
Netherlands	62 → 70 (+8)	47 → 53 (+6)	<b>44 → 30</b>
Poland	<b>28 → 17</b>	<b>18 → 15</b>	<b>10 → 7</b>
Portugal	<b>38 → 27</b>	<b>38 → 25</b>	<b>14 → 10</b>
Slovakia	30 → 41 (+11)	20 → 33 (+13)	9 → 22 (+13)
Slovenia	35 → 48 (+13)	28 → 38 (+10)	15 → 23 (+ 8)
Spain	24 → 31 (+ 7)	19 → 25 (+ 6)	9 → 14 (+ 5)
Sweden	<b>41 → 32</b>	40 → 37	14 → 16 (+ 2)
United Kingdom	<b>39 → 33</b>	32 → 27	<b>22 → 4</b>
Switzerland	27 → 35 (+ 8)	33 → 32	9 → 24 (+15)

## Self-reported behaviours and attitudes towards risk: age/gender groups

In order to explore differences in how younger and older drivers behave, and how often they engage in some potentially more dangerous behaviours while driving, the questions about a series of particular behaviours were analysed. These related to: how often they follow the vehicle in front too closely (Q13a); give way to a pedestrian at pedestrian crossings (Q13b); overtake when just can make it (Q13d); drive after drinking even a small amount of alcohol (Q20); drive when they may have been over the legal limit (Q21); make phone calls while driving (Q47a); and answer phone calls while driving (Q47b).

## Following the vehicle in front too closely

Table 7.5 shows that younger drivers (aged 18-24) are more likely to report that they close follow other vehicles – a potentially risky behaviour. Overall 13 per cent of young drivers reported ‘following the vehicle in front too closely’ either ‘often’, ‘very often’ or ‘always’- a higher proportion than in other age group. This behaviour appears to decrease with the age (11% for the 25-39 group, 8% for 40-54 year olds and 7% for those aged over 54). With regard to gender, it is found that mainly younger male drivers admit more often to engage in this type of behaviour.

With respect to the results found in different countries we can observe that, although not in a linear way, younger drivers (aged 18-24) generally admit to engaging in this risk behaviour compared to older drivers. Considering only the age group 18-24, countries like Greece (42%), Cyprus (37%), Hungary (22%), Italy (16%), Slovenia (15%) and Estonia (14%) stand out for scoring above the group average (13%).

### “Close following” driver profile

As highlighted earlier, younger drivers, especially males, drive closer to the vehicles immediately in front of them than older age groups of drivers. The youngest male and females (aged 18-24) who engage in this risk behaviour share nearly all the evaluated social characteristics and are likely to be:

- students;
- single;
- have obtained a secondary level of education;
- live in towns of 10 000 - <100 000 inhabitants (for drivers in European Union countries) or towns  $\geq$ 100 000 (Non-European Union countries) that they all define as large towns;
- have a high income level in European Union countries (typically levels 2 and 1) and a middle income level in Non-European Union countries (levels 6 and 5);
- are ‘only’ occasional drivers (<5000 km/years);
- have 3-5 years driving experience (except youngest non-European Union females, who have less than 2 years of experience);
- drive vehicles of 1300-1999 cc engine size;
- drive vehicles aged 6-10 years.

Older male and female drivers differ from younger drivers (of the same sex) for this behaviour in terms of their exposure, i.e., drivers aged 25-39 and 40-54 have driven > 30000 km/year per year while the oldest group drove 10000-15000 (European Union) or 5000-100000 km/year (Non-European Union). Older women have driven more than the younger ones, but less than men of the corresponding age. As expected, they are also more experienced drivers.

As emphasize before, we also found some differences connected with lifecycles with less risky behaviour being associated with being married, working in intermediate groups (white collar/office worker - with the exception of middle aged groups of European Union men, where there are more manual workers) and those who have retired in the case of drivers in the older group (aged over 54).

Older drivers are also more likely to have achieved secondary level of education, as had the youngest group, and have achieved middle-income levels.

**Table 7.5: Drivers of different age groups who follow the vehicle in front too closely either often, very often or always, in %**

Country	≤24	25—39	40–54	≥55
Austria	5	4	7	3
Belgium	9	19	18	18
Cyprus	37	26	22	21
Czech Rep.	11	4	6	1
Denmark	12	13	6	3
Estonia	14	8	5	5
Finland	9	6	7	5
France	13	9	4	1
Germany	13	9	6	3
Greece	42	36	32	37
Hungary	22	12	11	8
Ireland	8	4	5	1
Italy	16	14	9	10
Netherlands	10	13	14	11
Poland	4	3	2	2
Portugal	10	7	4	2
Slovakia	9	10	5	2
Slovenia	15	8	3	2
Spain	7	7	5	4
Sweden	13	13	7	7
United Kingdom	3	5	3	3
Croatia	12	11	11	8
Switzerland	7	8	4	5
<i>Average</i>	<i>13</i>	<i>11</i>	<i>8</i>	<i>7</i>

## Not giving way to a pedestrian at pedestrian crossings

Table 7.6 shows that, in the majority of the countries, pedestrians seem to be very respected at pedestrian crossings (88% of the sample give way to pedestrians). Overall, it is especially older drivers and females who respect this traffic rule the most.

Within the group of interviewees who answered that they never, rarely or only sometimes give way to a pedestrian at pedestrian crossings, who were 12% of the total driver sample, we find again that more (18%) younger drivers (aged 18-24) admitting to engaging in such a behaviour. As the drivers' age increases, so does their respect for pedestrians, at least for self reported behaviour.

When analysing the findings in each country this tendency is confirmed. Only in Cyprus, the United Kingdom and Slovakia do older drivers (aged 55 or more) admit that they do not respect pedestrians crossing the road as much as younger drivers report.

**Table 7.6: Drivers of different age groups who give way to pedestrians at pedestrian crossings 'sometimes', 'rarely' or 'never', in %**

Country	≤24	25--39	40--54	≥55
Austria	18	20	16	16
Belgium	31	14	12	14
Cyprus	9	28	21	12
Czech Rep.	20	17	18	14
Denmark	23	23	13	5
Estonia	16	3	2	1
Finland	13	9	6	3
France	9	9	6	7
Germany	16	12	14	14
Greece	20	16	13	10
Hungary	22	8	7	5
Ireland	6	4	4	6
Italy	19	14	10	9
Netherlands	18	9	8	5
Poland	11	12	8	6
Portugal	16	10	9	3
Slovakia	18	17	14	21
Slovenia	21	9	6	3
Spain	40	32	31	25
Sweden	12	7	9	5
United Kingdom	1	4	3	2
Croatia	16	7	7	2
Switzerland	16	14	12	9
<i>Average</i>	<i>18</i>	<i>14</i>	<i>11</i>	<i>9</i>

For this particular risk behaviour, again the characteristics that stand out in the youngest group of men and women are similar to that identified for other risk behaviour. They are most likely to be:

- students;
- single;
- have achieved secondary level of education;
- live in towns of 10 000 - <100 000 inhabitants in the European Union countries and less than 10 000 in Non-European Union;

- be occasional drivers, <5000 km/year (European Union men 18-24 drove 5000-10000 km/year, that is a bit more than women of the same age, but much less than other men);
- drive cars of 1300-1999 cc engine size (only in the case of European Union youngest women the engine size prevailing is 1000-1299 cc);
- have 3-5 years of driving experience;
- have achieved a middle income level (levels 3 or 4).

Apart of some expected social characteristics (for example, they are married, in work – middle aged men are mostly manual workers and women of this age are white collar/office workers, or mostly retired in the oldest group) the middle-age men groups stand out within older drivers group in terms of their exposure as they typically report driving more than 30 000 km each year.

The proportion of those who drive the oldest cars is higher among the oldest (over 54 years of age) European Union men (as well as among any age group for Non-European Union men), than in other male groups. Amongst women, a higher proportion of drivers in the 40-54 years old group drive cars of 6-10 years; the rest of European Union females typically report driving newer cars (3-5 years old).

## Overtaking when can just make it

Table 7.7 shows a strong relationship between overtaking dangerously and belonging to the younger age group (18-24). In fact, in almost every country involved in this survey, the differences in the percentage of drivers from this age class who admit that they overtake when just can make it are huge, compared to percentage of answers from older drivers (from the 25-39, 40-54 or 55 and over groups). Within the ‘overtaking’ group (who ‘only’ comprise 9% of all drivers), when considering only the 18-24 year age class, countries like Croatia (55%), Poland (54%), Cyprus (24%), Slovakia (20%), Czech Republic (20%) and Greece (19%) stand out for the very sizeable number of young drivers admitting this type of behaviour.

### “Dangerous overtaking” driver profile

The drivers, both male and female, in this young ‘overtaking’ group typically are:

- students;
- single;
- have achieved a secondary level of education;
- drive cars of 1300-1999 cc engine size;
- have 3-5 years of driving experience;

That youngest men and women in this group differ in:

The number of kilometres driven. In European Union countries men aged 18-24 had driven >30000 km/year in a higher proportion, instead of <5000 km/year typically reported by all the females and the youngest males in Non-European Union countries.

Income level amongst European Union younger men tends to be higher (level 2) than for European Union younger women (level 5); in Non-European Union countries both men and women often reported having a medium income (level 4 or 5).

**Table 7.7: Drivers of different age groups who overtake when they can just make it, often, very often or always, in %**

Country	≤24	25—39	40--54	≥55
Austria	5	2	3	2
Belgium	8	7	8	4
Cyprus	24	14	12	10
Czech Rep.	20	17	16	11
Denmark	5	3	2	2
Estonia	12	5	1	1
Finland	0	1	1	2
France	3	3	1	2
Germany	2	4	5	2
Greece	19	16	19	6
Hungary	2	3	1	2
Ireland	0	2	3	1
Italy	7	7	2	1
Netherlands	7	7	3	2
Poland	54	57	52	36
Portugal	7	2	3	0
Slovakia	20	21	17	14
Slovenia	2	2	0	1
Spain	5	5	4	3
Sweden	3	3	2	1
United Kingdom	5	3	1	1
Croatia	55	54	48	42
Switzerland	6	4	3	1
<i>Average</i>	<i>13</i>	<i>11</i>	<i>9</i>	<i>5</i>

The place where they live. The youngest men group frequently define the city where they live as being a large town, though in the Non-European Union countries they live in town <10 000 inhabitants. In contrast the group of young women of Non-European Union countries mostly define where they live as being a small town (with 10 000 - <100 000 inhabitants).

Older age groups, less represented within the group, also share social characteristics such as being married; being in work (most frequently white collar/office worker) or retired in the oldest group; have achieved a secondary level of education (except for European Union men and women aged 55 or more who were more likely to have reported having achieved a primary level, while European Union women aged 25-39 were likely to have reached a further level). Apart from these social characteristics, there are no clear differences between young/older drivers.

The middle-age men groups stand out within older drivers group in terms of their exposure as they typically report driving more than 30000 km/year while the oldest

group had tended to have driven less (10000-15000 km/year). Older women tended to have driven more than younger ones, but less than men of the corresponding age.

## Driving under the effects of alcohol

Drinking and driving is a risky behaviour often associated with young people and their lifestyles and leisure time. However, when analysing drivers' answers to the question "How many days per week do you drive after drinking even a small amount of alcohol?" it was found that there are no significant differences among the younger and older drivers. It should be noted that in many countries drivers are allowed to drink a 'small amount of alcohol' and still drive legally. Overall, the group of drivers reporting that they do drink and drive but not necessarily while over the legal makes up around 15% of drivers in all age groups.

The relationship between the age variable and this kind of potentially risky behaviour is not linear, unlike almost all of the other questions analysed. Indeed, we find some countries where the answers about drinking and driving behaviour show an increase with the age (e.g. Portugal, France, Austria, Switzerland, Croatia, Slovenia, the United Kingdom, Sweden, Finland and Ireland) while in other countries, younger drivers admit more often to drinking and driving and the numbers assuming that position actually decrease with age (e.g. Spain, Italy, Estonia and Hungary).

If we isolate the younger drivers (aged 18-24), we find that countries like Italy (42%), Spain (35%), Cyprus (33%), Greece (22%), Portugal (21%), Switzerland (18%), Belgium and Croatia (both 16%) stand out for the high percentages of young drivers admitting that they drink and drive. The results are given in table 7.8.

Taking into account only gender, it is found that many more male than female drivers respond that they have driven after drinking, with no reference to the quantity drunk, (20% of male against 7% of female). When the responses of male and female drivers are examined taking account of age, it is found that there are no significant differences between either factor with regard to this (self reported) risky behaviour.

### **"Drinking and driving" driver profile**

Unlike all the other risk behaviours analysed, there are no substantial differences among the younger and older drivers regarding drinking and driving. However, the youngest male and female profile repeat some of the distinctive characteristics found in every other risky behaviours reported earlier. They tend to be:

- students;
- single;
- have achieved a secondary level of education;
- drive cars of 1300-1999 cc engine size;
- have 3-5 years of driving experience (youngest females from Non-European Union countries have even less experience, e.g. < 2 years);
- the youngest females drive newer vehicles (only 3-5 years old) than do the youngest males (6-10 years);
- the most frequent in European Union subgroup is the size of town 10 000 - <100 000 (they define it as a "village") and  $\geq 100\ 000$  inhabitants in Non-European Union countries (defined by them as a "large town").

**Table 7.8: Drivers of different age groups responding they drive after drinking, 1 or more days/week, in %**

Country	≤24	25--39	40—54	≥55
Austria	10	14	19	22
Belgium	16	12	14	15
Cyprus	33	42	30	22
Czech Rep.	3	2	4	2
Denmark	14	14	12	19
Estonia	8	1	3	3
Finland	2	2	4	4
France	10	19	24	24
Germany	13	12	10	12
Greece	22	22	23	17
Hungary	3	2	1	1
Ireland	3	11	13	12
Italy	42	33	28	33
Netherlands	11	8	7	11
Poland	1	2	1	1
Portugal	21	29	34	33
Slovakia	3	5	4	4
Slovenia	17	21	21	30
Spain	35	31	30	19
Sweden	1	1	2	3
United Kingdom	4	7	10	13
Croatia	16	17	27	22
Switzerland	18	20	23	23
<i>Average</i>	<i>15</i>	<i>15</i>	<i>15</i>	<i>15</i>

There are also some differences in this drinking and driving group regarding the kilometres driven. The youngest females who drive after drinking have the same lack of experience as the youngest females of other kind of risk groups observed (only having driven <5000 km per year); they are as inexperienced as older women of this specific group and also as the youngest men of European Union countries. But the rest of the groups of risk men had tended to drive much more each year.

Drivers from older age groups have large differences between them. There are some differences within 25-39 age group: European Union males and females aged 25-39 tend to be single, while Non-European Union males and females are frequently married; European Union women aged 25-39 have frequently undertaken further studies, while the rest of the group generally report having reached a secondary level of education; 25-39 year old Non-European Union females also tend to have had less years of driving experience (6 to 10 years). Drivers aged 40-54 tend to be more experienced, have driven high mileages (>30000 km/year) and share also all the evaluated social characteristics such as being married; being in work (women and Non-European Union men between

25 to 54 years tend to be white collar/office workers; European Union men of 25 to 54 years old are frequently manual workers) and retired in the oldest group; and have achieved a secondary level of education. The oldest male drivers frequently report having only received a primary education and in the oldest female group they tend to drive cars with smaller engines (1000-1299 cc).

Concerning the question “Over the last week, how many days did you drive, when you may have been over the legal limit for drinking and driving?” - which may refer to more objective behaviours than the earlier question – in general there are no significant differences between the younger and older age groups of driver: 18-24y, 25-39y (both 5%), 40-54y (4%) and  $\geq 55$ y (3%).

As we have seen in the previous question, the relation between age and driving when they may have been over the legal limit of alcohol is not linear. However, when we isolate younger drivers 18-24 (see table 7.9), it is confirmed, on the one hand that the percentage of these drivers is considerably above the average for that group (5%) in countries like Italy (17%), Cyprus (16%) and Spain (12%). On the other hand, countries like Ireland, Sweden, United Kingdom and Poland stand out because no drivers (i.e. 0%) aged 18-24 were found in this group. The results are given in table 7.9.

If we take into consideration the gender variable, we confirm that, in global terms, male drivers who assume having drunk above the legal limit and driven over the last week (5%) are more than the double of female drivers (2%). When we analyse the answers of male and female drivers bearing in mind the age, we observe that there are no substantial differences between them regarding this risky behaviour.

In this risk behaviour group a number of characteristics stand out and are shared by the group of youngest men and women. These characteristics are:

- being single;
- having a secondary level of education;
- they drive cars of 1300-1999 cc engine size;
- have less than 5 years of driving experience (women have even less < 2 years);
- a medium income level (3 between European Union women or 5 Non-European Union and level 4 both European Union and Non-European Union young men).

We also find some specific differences between the youngest males and females:

- they have different driving experience (most risky women of 18-24y had driven < 5000 km/year while European Union men 18-24 have driven 5000-10000 km/year and Non-European Union >30000 km/year);
- they drive in different environments (the group of youngest risky men mostly live in urban/city/large town, while the women 18-24 mostly live in rural area/village);
- they have different occupations (European Union women 18-24 are mostly white collar/office workers instead of students);
- they have different age vehicles (young females drive vehicles 3-5 years old, like young Non-European Union men, while European Union young men drive older cars, 6-10y).

**Table 7.9: Drivers of different age groups assuming they drove over the legal limit, one or more days/last week, in %**

Country	≤24	25—39	40--54	≥55
Austria	2	3	3	2
Belgium	5	6	6	6
Cyprus	16	26	19	9
Czech Rep.	3	2	3	1
Denmark	1	0	1	0
Estonia	3	1	3	1
Finland	2	0	0	0
France	4	5	6	5
Germany	2	3	2	3
Greece	7	9	10	5
Hungary	2	2	1	1
Ireland	0	3	3	2
Italy	17	9	4	5
Netherlands	3	2	2	1
Poland	0	0	1	1
Portugal	6	6	3	3
Slovakia	2	5	4	3
Slovenia	2	3	3	2
Spain	12	9	6	4
Sweden	0	0	0	0
United Kingdom	0	1	0	1
Croatia	5	6	9	8
Switzerland	4	5	5	2
<i>Average</i>	5	5	4	3

Older drivers aged 25-39; 40-54 and 55 or over have also some distinctive differences between them. European Union drivers aged 25-39 differ from others in marital status (singles) and females have less years of experience (6 to 10). They have secondary level of education (in the oldest male group we find also drivers that have primary education). In the oldest female group almost half of the drivers have cars of 1000-1299 cc.

There are also many differences between young/older groups in social variables, especially between Non-European Union young/older women.

## Using the mobile phone while driving

Research suggests that one of the factors that can be the cause of distractions while driving and, therefore, increase the risk is the use of mobile phones. As young people are a group with a higher tendency to use new technologies and, particularly, the mobile phone, the question 'How many times on average day do you receive a call while

driving' was meant to find out how frequently they engaged in this particular type of risky behaviour.

**Table 7.10: Drivers of different age groups who answer a phone call while driving (one or more times per day, in %)**

Country	≤24	25–39	40–54	≥55
Austria	60	53	34	15
Belgium	54	46	34	9
Cyprus	79	58	48	31
Czech Rep.	45	46	38	16
Denmark	60	46	34	14
Estonia	76	73	64	41
Finland	62	68	54	29
France	41	27	22	6
Germany	33	32	28	12
Greece	72	62	49	15
Hungary	58	65	52	37
Ireland	58	45	31	12
Italy	72	71	55	32
Netherlands	44	44	29	16
Poland	32	39	20	5
Portugal	62	63	43	19
Slovakia	61	64	49	38
Slovenia	78	68	46	21
Spain	41	38	29	16
Sweden	68	59	45	26
United Kingdom	33	28	23	9
Croatia	41	38	29	16
Switzerland	68	59	45	26
<i>Average</i>	<i>58</i>	<i>53</i>	<i>40</i>	<i>19</i>

Table 7.10 shows the percentage of drivers who answer a phone call while driving is not only very high (41% assume that on average day they answer the phone at least once while driving), but also the relation between the age variable and use the mobile phone, especially to answer a call while driving seems to be linear. The younger the drivers, the more they use the mobile phone while driving. In fact, while in the 18-24 age group the risk behaviour is admitted to by 58% of them, only 19% of drivers over 54 similarly admit to the behaviour. Drivers' aged 25-39y answered the same in 53% of the cases and the 40-54y group, in 40%.

The countries where younger drivers (aged 18-24) seem to have a higher tendency to engage in this risky behaviour are: Cyprus (79%), Slovenia (78%), Estonia (76%), Greece, Italy (both 72%), Croatia, Sweden (both 68%), Switzerland (65%), Portugal and Finland (both 62%), Slovakia (61%).

**Table 7.11: Drivers of different age groups who make a phone call while driving, 1 or more times per day, in %**

Country	≤24	25—39	40--54	≥55
Austria	38	36	21	8
Belgium	32	32	21	3
Cyprus	66	48	42	23
Czech Rep.	30	31	28	9
Denmark	43	35	24	9
Estonia	55	56	42	19
Finland	49	50	36	11
France	27	18	11	2
Germany	10	19	20	7
Greece	49	43	35	10
Hungary	43	42	29	15
Ireland	46	30	20	7
Italy	55	55	43	24
Poland	22	28	11	3
Portugal	44	45	27	9
Slovakia	34	40	28	18
Slovenia	59	48	25	9
Spain	27	24	18	9
Sweden	50	50	37	18
United Kingdom	21	23	15	6
Croatia	46	49	36	18
Switzerland	46	43	25	12
<i>Average</i>	<i>41</i>	<i>38</i>	<i>27</i>	<i>10</i>

Table 7.11 shows, for different countries, the proportions of drivers who reported that they made phone calls while driving (even more of a deliberate risky action than receiving a call, since drivers have no control over incoming calls but can control when they decide to make phone call). They represent 28% of the total sample. The results show that once again there is a tendency for younger drivers (aged 18-24) to report engaging in this type of behaviour more frequently (41%). As the drivers' age increases, the risky behaviour decreases: 25-39y (38%), 40-54y (27%) and 55y or over (10%).

The countries where younger drivers (18-24y) seem to have a higher tendency for this risky behaviour are: Cyprus (66%), Slovenia (59%), Estonia, Italy (both 55%), Sweden (50%), Greece, Finland (both 49%), Croatia (46%), Ireland, Switzerland (both 46%), Portugal (44%), Denmark and Hungary (both 43%).

The group of drivers admitting to use the mobile phone while driving is high and the percentage of young drivers within the group is even higher. The profile of youngest male and female that use the mobile phone while driving, making or answering phone calls, is that they likely to be:

- students;

- single;
- have achieved a secondary level of education;
- drive cars of 1300-1999 cc engine size;
- live in what they refer as large towns of 10 000 - <100 000 inhabitants (except in Non-European Union countries, where youngest males live in small towns of less than 10 000 inhabitants while youngest females live in big towns with more than 100 000 inhabitants).

There are also some differences regarding the kilometres driven. The youngest females tend to have driven less than 5000 km/year, as have the youngest males in Non-European Union countries, while the youngest males in European Union countries tend to have driven >30000 km each year.

Drivers from the older age groups also share all the evaluated social characteristics and tend to be: married; in work (European Union men aged 25 to 54 tend to be manual workers, while Non-European Union men and women between 25 to 54 are frequently white collar/office worker) and are often retired in the oldest group. They have often reached a secondary level of education (except in the 25-39 female groups, that tend to have achieved a higher level of education).

Unlike the older females, males tend to be higher mileage drivers (>30000 km/year) and in the oldest group have mostly cars of 2000 cc or more engine size.

## Evolution of self-reported behaviours: SARTRE 2-SARTRE 3 age/gender groups comparison

### **Drivers that often, very often or always follow the vehicle in front too closely: SARTRE 2-SARTRE 3 changes**

This behaviour, that can be very frequently observed when travelling in most countries, is nevertheless admitted to by a very small group of drivers. The average on European Union countries has increased a little from 9% to 10%, but in Non-European Union countries was only 6% in both surveys (as was Switzerland). With regard to individual countries there has been a change from SARTRE 2 to SARTRE 3 in six of them, with especially big changes having occurred in Greece (from 21% to 35%) and in Belgium (from 8% to 17%). Hungary changed from 7% to 11%, Slovakia and Slovenia from 5% to 7% and Spain from 5% to 6%. When age and gender are considered the case of young Greeks, both male and female, stands out. What is the reason why such a big percentage take that risk? Do they see this behaviour as a value or a competency more than as a risk? Anyway, there is much to do to change that tendency.

### **Drivers that never, rarely or only sometimes give way to pedestrians at a pedestrians crossing: SARTRE 2-SARTRE 3 changes**

On average more than 80% of the total sample SARTRE 3 drivers say that they give way to pedestrians. Maybe some of these do not actually do so as often as they report, but the case of those who admit that usually they do not do it is much more worrying because it means that their beliefs and attitudes associated to that risk are not acceptable. Overall, the SARTRE 3 sample shows a reduction of the group that do not give way to pedestrians from 15% to 12%, with the same change found for both European Union and Non-European Union samples. With regard to individual countries, Spain has the biggest representation of the risk behaviour and it has increased

from SARTRE 2 (26% to 31%). Belgium, Poland and Hungary also show an increase in the size of this risk group, but only by one percentage point (14% to 15%, 9% to 10% and 7% to 8% respectively).

**Table 7.12: Drivers who follow the vehicle in front too closely 'often', 'very often' or 'always'. SARTRE 2 / 3 age/gender groups comparison, in %**

Country	Men 18-24	Men 25-39	Women 18-24
	SARTRE 2 → SARTRE 3 (change)	SARTRE 2 → SARTRE 3 (change)	SARTRE 2 → SARTRE 3 (change)
Austria	7 → 4	8 → 6	<b>12 → 3</b>
Belgium	13 → 15 (+ 2)	11 → 18 (+ 7)	7 → 2
Czech Rep.	6 → 12 (+ 6)	<b>7 → 6</b>	0 → 8 (+ 8)
Finland	<b>14 → 10</b>	<b>12 → 8</b>	8 → 7
France	12 → 13 (+ 1)	10 → 12 (+ 2)	5 → 13 (+ 8)
Germany	20 → 14	9 → 12 (+ 3)	2 → 11 (+ 9)
Greece	19 → 41 (+22)	25 → 36 (+11)	37 → 45 (+ 8)
Hungary	10 → 29 (+19)	7 → 16 (+ 9)	3 → 9 (+ 6)
Ireland	7 → 5	4 → 6 (+ 2)	<b>7 → 10 (+ 3)</b>
Italy	19 → 20 (+ 1)	<b>19 → 16</b>	12 → 10
Netherlands	13 → 12	12 → 15 (+ 3)	7 → 7
Poland	13 → 6	6 → 5	6 → 0
Portugal	8 → 15 (+ 7)	<b>10 → 10</b>	7 → 3
Slovakia	5 → 16 (+11)	6 → 13 (+ 7)	1 → 2 (+ 1)
Slovenia	8 → 18 (+10)	5 → 8 (+ 3)	<b>4 → 12 (+ 8)</b>
Spain	3 → 9 (+ 6)	8 → 8	4 → 4
Sweden	10 → 13 (+ 3)	<b>17 → 16</b>	12 → 10
United Kingdom	<b>10 → 4</b>	<b>9 → 6</b>	11 → 0
Switzerland	8 → 10 (+ 2)	<b>12 → 6</b>	0 → 0

With respect to age and gender differences (see table 7.13), the case of Spain is quite special as not only the youngest, but also all male groups have enlarged since SARTRE 2 (men 40-54 from 22% to 33% and men aged 55 or over from 19% to 27%). As for Spanish females only the group 18-24 has reduced (from 45%, the biggest in SARTRE 2, to 32%); women aged 25-39 remain 27%, risk women aged 40-54 increased from 21% to 28% and women aged 55 or over from 20% to 22%. Specific actions must be taken aimed to this kind of risk, relating the high rate of pedestrians' deaths also with that behaviour, not only with inappropriate behaviours of pedestrians. Anyway, still the youngest Spanish men have the worse evolution, like in Belgium, while in Finland the more negative change appear in the group of women aged 18-24.

**Table 7.13: Drivers who never, rarely or only sometimes give way to pedestrians. SARTRE 2/SARTRE 3 age/gender groups comparison, in %**

Country	Men 18-24	Men 25-39	Women 18-24
	SARTRE 2 → SARTRE 3 (change)	SARTRE 2 → SARTRE 3 (change)	SARTRE 2 → SARTRE 3 (change)
Austria	33 → 22	15 → 21	31 → 13
Belgium	25 → 38 (+13)	16 → 12	17 → 23 (+6)
Czech Rep.	<b>34 → 23</b>	35 → 19	<b>48 → 15</b>
Finland	11 → 9	7 → 11 (+4)	<b>9 → 18 (+9)</b>
France	12 → 9	<b>14 → 6</b>	<b>21 → 10</b>
Germany	26 → 17	<b>18 → 15</b>	<b>21 → 17</b>
Greece	22 → 21	<b>21 → 17</b>	<b>17 → 16</b>
Hungary	19 → 21 (+2)	8 → 8	17 → 22 (+5)
Ireland	9 → 8	5 → 5	10 → 3
Italy	32 → 17	19 → 14	28 → 22
Netherlands	27 → 19	9 → 9	33 → 16
Poland	14 → 13	<b>10 → 13 (+3)</b>	12 → 7
Portugal	21 → 16	14 → 15 (+1)	<b>23 → 15</b>
Slovakia	<b>23 → 20</b>	26 → 18	<b>11 → 15 (+4)</b>
Slovenia	<b>20 → 20</b>	16 → 9	18 → 22 (+4)
Spain	36 → 45 (+9)	27 → 35 (+8)	<b>45 → 32</b>
Sweden	29 → 13	<b>25 → 8</b>	<b>29 → 10</b>
United Kingdom	7 → 2	4 → 5 (+1)	<b>4 → 0</b>
Switzerland	22 → 17	22 → 17	<b>19 → 13</b>

**Drivers that often, very often or always overtake when just can make it:  
SARTRE 2 – SARTRE 3 changes**

This risk behaviour is admitted to less frequently than some of the other behaviours (5% of the global SARTRE 2 sample, and 7% of SARTRE 3). Slovakia, the Czech Republic and Greece stand out from other countries with the bigger overall 'risk group' (dangerous overtaking) percentages, which have all increased from SARTRE 2 (15% to 19%, 15% to 16% and 9% to 15% respectively in each country) – see table 7.14. Poland also shows an extreme change (from 2% to 51%) – but it appears likely that this change is the result of a qualitative change introduced in the question from one survey to the other. With regard to age and gender a sizeable change was found for Greece with respect to the young women group. While none of this group was interviewed in SARTRE2 they now comprise 19% of the sample.

**Table 7.14: Drivers who overtake when just can make it. SARTRE 2 / 3 age/gender groups comparison, in %**

Country	Men 18-24	Men 25-39	Women 18-24
	SARTRE 2 → SARTRE 3 (change)	SARTRE 2 → SARTRE 3 (change)	SARTRE 2 → SARTRE 3 (change)
Austria	4 → 4	4 → 2	2 → 5 (+ 3)
Belgium	6 → 8 (+ 2)	9 → 7	0 → 8 (+ 8)
Czech Rep.	25 → 29 (+4)	20 → 21(+ 1)	4 → 4
Finland	2 → 0	2 → 2	2 → 0
France	4 → 4	2 → 3 (+ 1)	2 → 0
Germany	20 → 0	11 → 8	4 → 4
Greece	18 → 18	13 → 20 (+ 7)	0 → 19 (+19)
Hungary	5 → 2	3 → 2	3 → 0
Ireland	2 → 0	4 → 3	0 → 0
Italy	4 → 12 (+ 8)	3 → 7 (+ 4)	2 → 2
Netherlands	7 → 9 (+ 2)	2 → 8 (+ 6)	4 → 5 (+ 1)
Poland	9 → 54 (+45)	3 → 60 (+57)	2 → 54 (+52)
Portugal	9 → 9	8 → 2	1 → 4 (+ 3)
Slovakia	28 → 21	12 → 25 (+13)	22 → 18
Slovenia	1 → 1	0 → 2 (+ 2)	0 → 3 (+ 3)
Spain	2 → 7 (+ 5)	4 → 5 (+ 1)	4 → 1
Sweden	5 → 5	2 → 5 (+ 3)	0 → 0

#### Drivers assuming 1 or more days/week they drive after drinking alcohol: SARTRE 2-SARTRE 3 changes

The proportion of drivers answering that they engage in this risk behaviour is especially high on Mediterranean countries; Italy (32%), Portugal (30%) and Spain (28%), but also in Greece and France, Slovenia and Switzerland (all 21%). It has increased since SARTRE 2 in Spain (23% to 28%) and France (20% to 21%). The group of drivers that drink and drive is smaller in countries where the BAC permitted is 0 or 0.2g/l. With regards to age and gender groups, three countries (Italy, Spain and Portugal) have shown pronounced changes. Italy has a very important problem with men aged 18-24 and also men aged 25-39 because about half of the samples of those ages admit to engaging in the behaviour one or more times per week. And about women, not only the youngest women drink and drive (nearly the fourth part of them), but also the risk group of women 25-39 increased from 10% to 18 from SARTRE 2.

There must be an explanation to this evolution as the remaining Italian risk groups (drink and drive groups) decreased and there was no change of legislation before the last survey. The case of Spain is also alarming because every single risk group increased their representation from SARTRE 2 to SARTRE 3 (though not as much), except the group of women aged 55 or over. In Portugal, instead of the youngest, the group that went up are the group of men 40-54 (43% to 48%), women 40-54 (6% to 12%) and women aged 55 or over (8% to 11%). Among countries with a 0 BAC

permitted, only Slovakia has shown a small increase for the risk groups. There is an important detail to keep in mind and that is that even if no trend was found for an increasing problem with older drivers that drink and drive (because in general the problem is diminishing) in many countries the risk group of men over 40 years old are larger than the group of youngster (in Austria, France, Ireland, Portugal, Slovakia, Slovenia, Sweden and Switzerland) and in some of them, also older women drink and drive more than youngest, but this problem appears to be decreasing.

**Table 7.15: Drivers assuming 1 or more days/week they drive after drinking. SARTRE 2 / 3 age/gender groups comparison, in %**

Country	Men 18-24	Men 25-39	Women 18-24
	SARTRE 2 → SARTRE 3 (change)	SARTRE 2 → SARTRE 3 (change)	SARTRE 2 → SARTRE 3 (change)
Austria	27 → 15	38 → 21	0 → 5
Belgium	25 → 26 (+ 1)	25 → 20	6 → 4
Czech Rep.	4 → 4	4 → 3	0 → 2
Finland	2 → 4 (+ 2)	3 → 2	3 → 0
France	8 → 15 (+ 7)	29 → 32 (+ 3)	3 → 3
Germany	16 → 20 (+ 4)	20 → 20	10 → 4
Greece	53 → 24	48 → 22	33 → 19
Hungary	0 → 4 (+ 4)	3 → 3	0 → 6 (+ 6)
Ireland	9 → 3	18 → 17	3 → 3
Italy	42 → 58 (+16)	39 → 49 (+10)	14 → 23 (+ 9)
Netherlands	7 → 15 (+ 8)	9 → 13 (+ 4)	7 → 5
Poland	5 → 1	5 → 3	1 → 0
Portugal	33 → 31	48 → 43	12 → 8
Slovakia	2 → 3 (+ 1)	5 → 9 (+ 4)	0 → 2 (+ 2)
Slovenia	28 → 25	39 → 34	7 → 7
Spain	30 → 39 (+ 9)	35 → 44 (+9)	11 → 29 (+18)
Sweden	5 → 2	2 → 3 (+ 1)	0 → 0
United Kingdom	19 → 6	20 → 11	2 → 0
Switzerland	16 → 21 (+5)	29 → 27	9 → 9

**Drivers driving when they were over the legal limit for drinking and driving:  
SARTRE 2–SARTRE 3 changes**

In general the group of drivers assuming drinking and driving over the legal limit is relatively small. The biggest groups are found in Italy and Slovakia (9%), or Greece and Spain (8%). The only increased changes that stand out since SARTRE 2 are Italy (from 6% to 9%) and Slovakia (from 4% to 9%). Although still small the actual size of this risk group also increased in Spain (from 5% to 8%), France (from 3% to 7%) and Hungary (from 1% to 3%). It seems that European drivers are more careful not to break the law with regard to drinking and driving although it could be said that Mediterranean drivers drink and drive but only after small amounts of alcohol. An issue here is to

confirm that the ‘small amount’ that they consume does not cause them to exceed the legal limit; that is that they are aware of what is safe and also what the law permits. Looking to the age/gender groups (see table 7.16) we find that the negative change in Hungary is due to the increase in the youngest women group, while in Italy it was the two youngest male risk groups that showed the largest increase.

**Table 7.16: Drivers who drove over the legal limit one or more days/last week. SARTRE 2/ 3 age/gender groups comparison, in %**

Country	Men 18-24	Men 25-39	Women 18-24
	SARTRE 2 → SARTRE 3 (change)	SARTRE 2 → SARTRE 3 (change)	SARTRE 2 → SARTRE 3 (change)
Austria	7 → 4	12 → 6	0 → 0
Belgium	14 → 8	15 → 10	1 → 2 (+ 1)
Czech Rep.	3 → 4 (+ 1)	4 → 3	4 → 0
Finland	0 → 3 (+ 3)	0 → 1(+ 1)	0 → 0
France	4 → 8 (+ 4)	9 → 12 (+ 3)	0 → 0
Germany	5 → 4	3 → 5 (+ 2)	2 → 0
Greece	26 → 9	18 → 7	9 → 0
Hungary	0 → 0	2 → 4 (+ 2)	0 → 7 (+ 7)
Ireland	2 → 0	5 → 5	0 → 0
Italy	20 → 34 (+14)	8 → 17 (+ 9)	3 → 4 (+ 1)
Netherlands	2 → 2	1 → 4 (+ 3)	0 → 5 (+ 5)
Poland	4 → 0	3 → 0	0 → 0
Portugal	4 → 9 (+ 5)	9 → 9	0 → 1 (+ 1)
Slovakia	3 → 4 (+ 1)	5 → 14 (+ 9)	0 → 8 (+ 8)
Slovenia	7 → 2	13 → 6	1 → 1
Spain	11 → 14 (+ 3)	6 → 12 (+ 6)	4 → 9 (+ 5)
Sweden	0 → 0	1 → 0	0 → 0
United Kingdom	7 → 0	3 → 2	2 → 0
Switzerland	3 → 8 (+ 5)	8 → 14 (+ 6)	0 → 1 (+ 1)

## Conclusions

The results reveal substantial differences in the perception of road risk and self-reported behaviours among European drivers from various age groups. The younger the driver the more they appear to hold attitudes and report behaviours that can be considered risky. Such findings may help understand why younger drivers are more involved in injury or damage only accidents than older drivers.

In fact, both male and female young drivers admit to engaging in more risk taking behaviours – such as following the vehicle in front too closely, overtaking when just can make it, not giving way to a pedestrian at pedestrian crossings and using a mobile phone while driving - than older age same sex drivers. Unsafe driving practices

decreases for both sexes as the age increases. Thus, young male and female drivers differ more from the more removed age groups (40-54y;  $\geq 55$ ) than from the successive age group (25-39y). Younger drivers also recognize more than their older counterparts the danger implied in their driving style, which can be viewed as a typical characteristic of youthfulness. The perception of driving more dangerously and faster than the others is proportionally higher among the youngest group.

Driving under the effects of alcohol seems to be an exception, since it was found that there were no significant differences among younger and older drivers. However, the relationship between the age variable and this kind of potentially risky behaviour is not linear in all of the countries. It should be noted that in many countries drivers are allowed to drink a 'small amount of alcohol' and still drive legally.

The likelihood to engage in unsafe driving behaviours is influenced by several driver characteristics (gender, age, driving experience, etc). Young males and females share many sociological characteristics (singles, students, secondary level of education, drive vehicles of 1300-1999 cc engine size, middle-up income levels and usually don't drive older vehicles) and their positions in some Road Safety attitudes and behaviours are getting closer, though still young males, especially those aged 18-24y and also 25-39y seems to have riskier patterns. Although in some cases males and females unsafe driving stems from different origins and are manifested in different ways. The youngest female risky position appears to be more related with a lack of experience. However, a lack of experience does not seem to be the explanation for younger males since, at least in many countries, younger men report having driven as much as older drivers. Age thus renders a special contribution to risk taking, which has to be separated from experience. Younger drivers differ markedly from older drivers in terms of both life-style (such as going out at night and at week-ends) and life-cycle (having fewer responsibilities as they are more likely to be unmarried and have children).

In all the self-reported risk behaviours the groups that increased from SARTRE 2 to SARTRE 3 were the male and female aged 18-24y and male 25-39y. It will be useful to study what kind of changes, in each particular country, could explain the increase in these specific groups.

As for changes in self-perception it can be seen that the group of younger women feeling more dangerous than others while driving have enlarged significantly their representation in many countries. Something similar could be said in the analysis of the self-perception as faster drivers. The change to a riskier position for this kind of risk is higher for younger women than for the other groups that is very compatible with their answers to the questions of speeding; a higher proportion of youngest women say they drive over the limit in every kind of roads and would like a higher speed limit introduced. The case is exactly the same when we compare younger and older men. But comparing both genders, the proportions referred to men are always much bigger.

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# Chapter 8

## Enforcement

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### Introduction

Enforcement, together with engineering and education, is recognised as being one of the main ways of improving road safety. However, unlike other measures (such as making engineering improvements to the road or improving behaviour by means of education programmes) enforcement is not always appreciated, or supported, by the driving public. The role of enforcement is further complicated because there are many different types of enforcement activity - and because the punishments for violating (such as fines or license withdrawal) also need to be seen as part of the enforcement process.

While some enforcement activity (such as detecting drunken drivers) is widely accepted and approved of, other actions, such as the use of speed cameras and unmarked police cars to impose speeding fines may not be popular or supported by a majority of drivers – especially if the driving public sees this as simply a way of raising revenue rather than promoting road safety.

Effective enforcement should be seen as a way of influencing the safety of the majority of drivers rather than ‘catching’ and punishing large numbers of drivers; the reason why enforcement activity should be widely publicised rather than being ‘hidden’ and why low detection rates can be viewed as demonstrating that current enforcement activity is successful. Therefore, it is often the drivers ‘perception’ of enforcement activity – rather than the actual numbers of drivers being detected and charged – that is important. Ideally police enforcement should be accepted by the public as a way of making the roads safer for all users. The driving public’s attitudes towards enforcement are therefore a key element of the road safety problem.

The SARTRE3 questionnaire includes a number of questions that provided information directly relevant to the enforcement issue. This chapter will consider the questions that provided information on:

- General attitudes towards enforcement
- Enforcement of particular behaviours such as speeding and drink-driving

- The drivers' perceptions and experience of enforcement, and
- Attitudes towards new 'technologies' (or systems) that either help, encourage, or force drivers to comply with traffic laws.

A number of these issues will also be considered in–detail elsewhere in this report (e.g. drink-driving in chapter 2, speeding in chapter 3 and new technologies in chapter 9).

The latest survey was conducted in 23 countries. While a majority of these countries are members of the European Union (European Union) the surveys were also conducted in a number of 'candidate' (or applicant) countries that anticipate becoming members of the European Union in the future. In fact, the European Union supported these countries taking part in the study since they will need to harmonise a number of activities (such as driver and vehicle testing – and enforcement activities) as part of the entry process. The results of these surveys can therefore serve as a 'benchmark' for these countries; as well as providing information to all those countries taking part about how they compare to neighbouring countries. As a consequence, the results are often presented separately for member and the total sample.

It is important to note that, since different countries conducted earlier surveys, only European Union 'average of averages' will be compared here, while the changes over time will be discussed for individual countries in detail in chapter 11.

## General attitudes towards enforcement

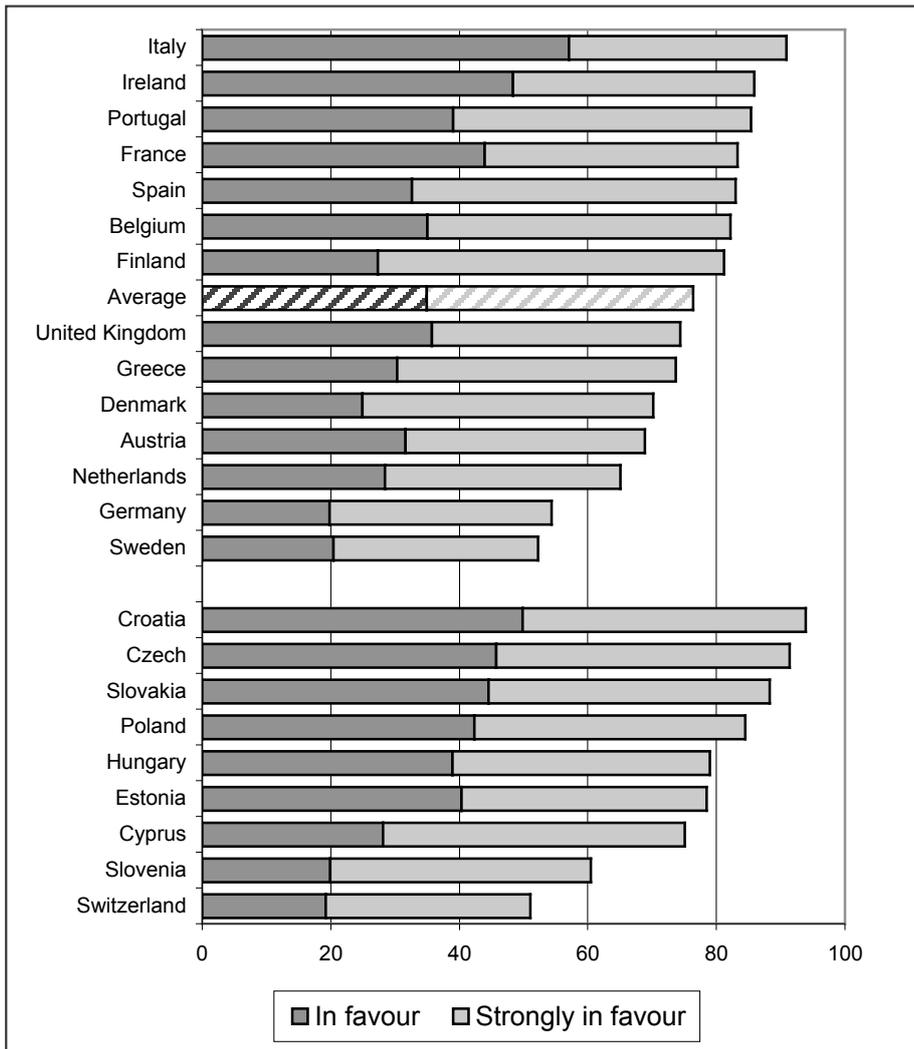
Overall, over three-quarters (76 %) of all the drivers in the survey were 'in favouring' of more enforcement (Question 2b), with 35 % being 'strongly in favour'. This suggests there is a broad recognition that such activities are beneficial and can help to improve road safety; note that generally there was a high level of concern about road safety (Question 1c) with over 40 per cent of the drivers interviewed reporting they were 'very concerned' while a similar proportion (42 %) responded that they were 'fairly' concerned' about road accidents.

## Attitudes towards penalties for different driving offences

However, the extent of this support varied for different driving offences. While just over 60 per cent thought that the penalties for speeding (Question 3a) should be more severe (either 'agreeing' or 'strongly agreeing') nearly 90 per cent thought that penalties for drink-driving (Question 3b) should be more severe. There were also marked differences between the drivers in different countries with regards to their support of enforcement activity.

Figure 8.1 shows the proportion of drivers in each country who thought there should be more enforcement.

The support for more enforcement is relatively high in the majority of countries and varies from over 90 per cent (e.g. 94 % in Croatia, 91 % in the Czech Republic and 90 % in Italy) to 'only' around 50 per cent (e.g. 51 % in Switzerland, 52 % in Sweden and 54 % in Germany).

**Figure 8.1: Drivers in each country in favour of more enforcement, in %**

### Attitudes towards police enforcement activity

Question 13, which asked how often they signal other drivers to warn them of speed ‘traps’, is another question that provides information on drivers’ general attitudes to enforcement. Drivers who make a practice of warning other drivers presumably do not support such police enforcement activity and actively help other drivers to avoid being caught speeding; it is interesting to reflect that the commonly accepted use of the word ‘trap’ itself suggests that the police is engaged in an “unfair” activity. Figure 8.2 shows the proportion of drivers in each country who reported warning other drivers either ‘often’, ‘very often’ or ‘always’.

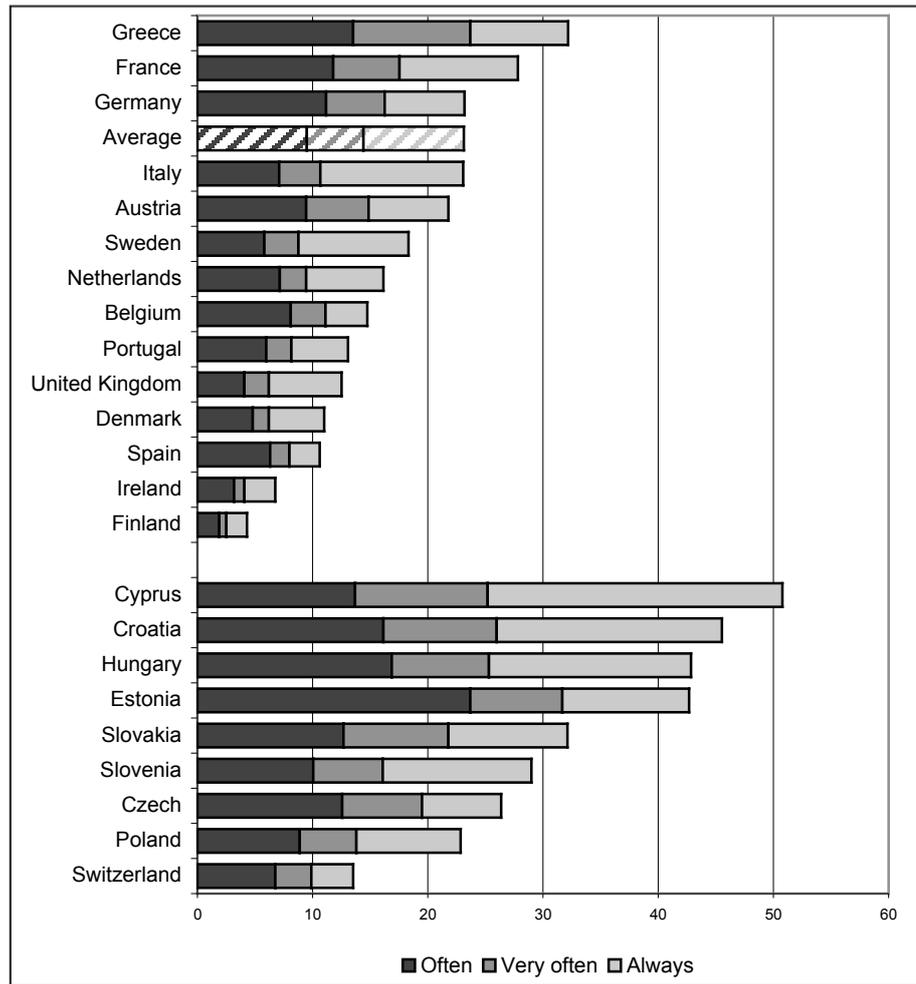
**Figure 8.2: Drivers warning other drivers of speed traps, in %**

Figure 8.2 shows that overall drivers in candidate countries are more likely to warn other drivers about police enforcement activity. However, there are also marked differences between individual countries. While around half of the drivers in Cyprus (51%), Croatia (46%), Hungary and Estonia (both 43%) regularly warn other drivers of police enforcement activities only a very small percentage of drivers do so in Finland (4%), Ireland (7%), Spain (11%), Denmark (11%) and the United Kingdom (13%). These results indicate that attitudes to enforcement (and support for the police) are very different in European countries.

## Attitudes towards speeding enforcement

In terms of the number of driving violations issued each year, in European Union countries the enforcement of drivers exceeding the speed limit is by far and away the most frequent police activity.

The results show that most drivers consider that other drivers frequently break the speed limit (Question 7). Overall 84 per cent of drivers responded that other drivers exceed the limit either ‘often’ (40 %), ‘very often’ (38 %), or ‘always’ (6 %). This finding helps to explain why so many drivers admit to exceeding the speed limit themselves (Question 9). Overall, the proportion of drivers who reported that they ‘often’, ‘very often’ or ‘always’ drove faster the speed limit on different types of road was 25, 18, 14 and 8 percent for ‘Motorways’, ‘Main roads between towns’, ‘Country Road’ and ‘Built-up areas respectively.

Figure 8.3 shows the proportion of drivers in each country who think (either ‘Agree’ or ‘Strongly agree’) that the penalties for speeding should be more severe. For comparison purposes this figure shows the corresponding information for drinking and driving; note that the countries are ordered by the speeding opinion.

**Figure 8.3: Drivers who agree that penalties for drink-driving or speeding should be more severe, strongly agree and agree in %**

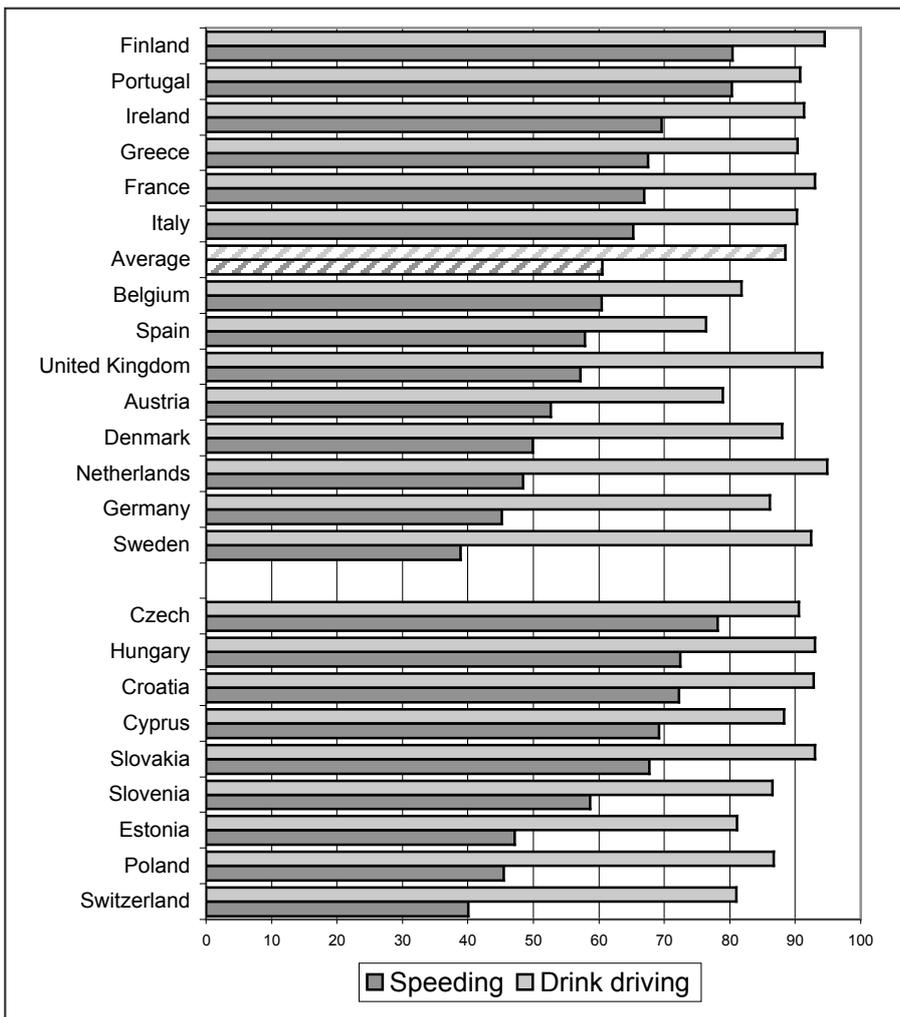


Figure 8.3 shows that around 60 per cent of all European Union drivers support higher penalties for speeding offences; this result is somewhat surprising given the large numbers of drivers who admit to frequently speeding themselves, especially on higher speed roads.

Figure 8.3 also shows that there are marked differences between countries. While over three-quarters of drivers in Finland, Portugal (80 %) and the Czech Republic (78 %) supported higher penalties for speeding, less half of drivers in Sweden, Germany, the Netherlands, Denmark, Switzerland, Poland and Estonia did so.

Figure 8.3 also clearly shows that drivers are much more in favour of having harsher penalties for drinking and driving offences than for speeding offences.

## Attitudes towards drink driving enforcement

The survey showed that there is very widespread support for drink-driving legislation and enforcement. Nearly 80 per cent of drivers disagreed (with 58 % doing so 'strongly') with the idea of letting people decide for themselves how much they should be allowed to drink and drive (Question 3d). In fact nearly half (45 %) of all the drivers interviewed thought that drivers should not be allowed to drink any alcohol (Question 22) before driving.

Similarly, there was considerable support for making the penalties for those caught driving when over the limit more severe.

Figure 8.3, shown above, shows the percentage of drivers in each country who are thinking (either 'Agree' or 'Strongly agree') that the penalties for drinking and driving should be more severe. Over 90 percent of drivers in 13 of the 23 countries surveyed supported making the penalties for driving 'over the limit' more severe; and over three-quarters of the drivers in the remaining 10 countries were still in favour of harsher penalties. This finding shows a remarkable level of support for imposing harsher penalties for such offending motorists.

Note that the drink driving issue is considered in detail in chapter 2 of the report.

## Expectation and experience of enforcement

It is generally recognised that the driver's *perception* of enforcement activity is more important than the *actual* amount that takes place and for this reason enforcement campaigns are most effective when highly visible and well publicised. The presence of 'quiet' enforcement, such as that provided by speed cameras and unmarked police cars, will make the drivers assessments about the amount of enforcement activity taking place more difficult. This is also true for police vehicles that are participating in traffic – they are seen by fewer drivers than stationary vehicles.

## Perception of drink driving and alcohol controls

Two of the questions asked drivers about how likely it was that they would be 'checked' (i.e. be subject to enforcement activity – irrespective of whether or not they were breaking the law) while driving on a 'typical journey'. These questions were asked with reference to 'speeding' (Question 11) and 'drinking and driving' (Question 25). Similarly, three separate questions were asked about how often they had been detected

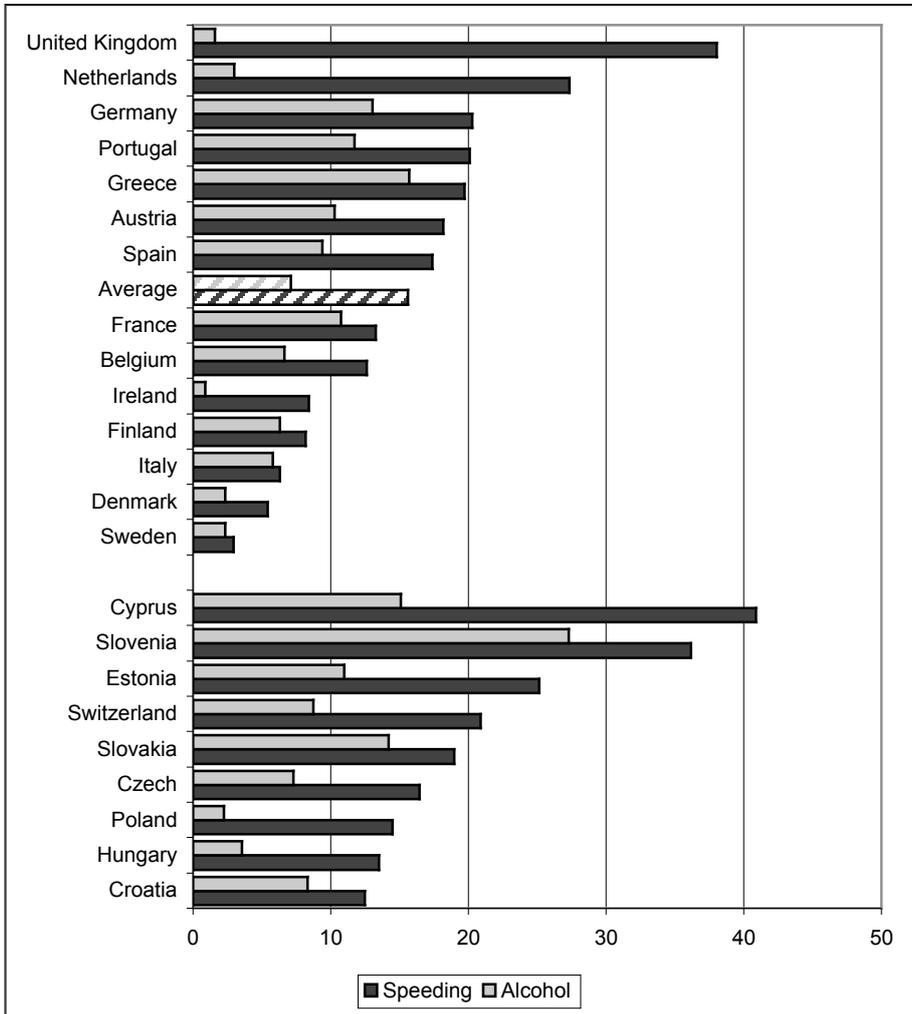
violating (and received a fine or other punishment) in the last three years with respect to driving when not wearing a seat belt (Question 18), while speeding (Question 12) and for driving while over the alcohol limit (Question 24).

Figure 8.4 shows, for each country, the proportion of drivers who responded that it was likely (either ‘often’, ‘very often’ or always’) that they would be checked for either speeding or drink driving; note that the countries are sorted by the variable ‘speeding’.

Figure 8.5 shows that:

Overall around three-quarters of the drivers had ‘never’ been checked in the past three years.

**Figure 8.4: Drivers thinking they would be checked for drink driving and speeding on a typical journey (Often + Very often + Always, in %)**



High rates of testing were found in some European Union countries, such as Finland, Sweden, Netherlands, France, Spain and Greece; high rates of testing are also

found in some candidate countries as Estonia, Slovakia, Croatia and Slovenia; it is important to note that the lowest level of testing can be found in Italy, Ireland, the United Kingdom, Denmark and Austria are even lower than the lowest rates found in candidate countries.

Figure 8.4 shows that overall drivers thought they would be checked for speeding (18 %) about twice as often as for drink-driving (9 %). This 'ratio' of approximately 2:1 is similar to that for European Union countries (16 and 7 % respectively). This is a somewhat surprising result given the large number of speed cameras (and radar speed 'guns') now being employed in many countries and the likelihood that most breath-tests are conducted in the evening. The overall results may reflect drivers attitudes towards the two offences such that drivers caught speeding are generally considered 'unlucky' while drinking and driving is now widely recognised as being an unacceptable and anti-social behaviour.

### Difference of enforcement perception among countries

However, Figure 8.4 shows that there are considerable differences between individual countries in drivers' perceptions. For example:

While over one third of all drivers in Cyprus (41 %), the United Kingdom (39 %) and Slovenia (36 %) think their speed will be checked less than 10 per cent of drivers in Sweden (3 %), Denmark (5 %), Italy (6 %) and Ireland (8 %) think their speed will be monitored.

While, exceptionally, over one-quarter of drivers in Slovenia (27 %) report that they expect to be checked for drinking less than 5 per cent of drivers in Ireland (0.9 %), the United Kingdom (1.6 %), Denmark (2.4 %), Sweden (2.4 %); Poland (2.3 %) and Hungary (3.5 %) did so.

There were also very marked differences in ratio of the drivers' expectations of being checked for the two offences. This varied from being high, for example in the United Kingdom (38.0:1.6 =24) and the Netherlands (27.3:3.0=9.1) to a much lower ratio in Italy (6.3:5.8=1.1), Sweden (2.9:2.4=1.2), France (13.3:10.7=1.2) and Denmark (5.4:2.4=2.3); although it can be seen that these countries, perhaps with the exception of France, have very low expectations of being checked for either violation.

In addition to asking about drivers' *expectations* of being checked for drinking and driving it was also asked (Question 23) about how many times drivers have actually been checked in the previous three years. Figure 8.5 shows the percentage of drivers in each country who had been checked either 'once only' or 'more than once'; the remainder has not been checked in this period.

**Figure 8.5: Drivers checked for drink driving in the last 3 years once or more, %**

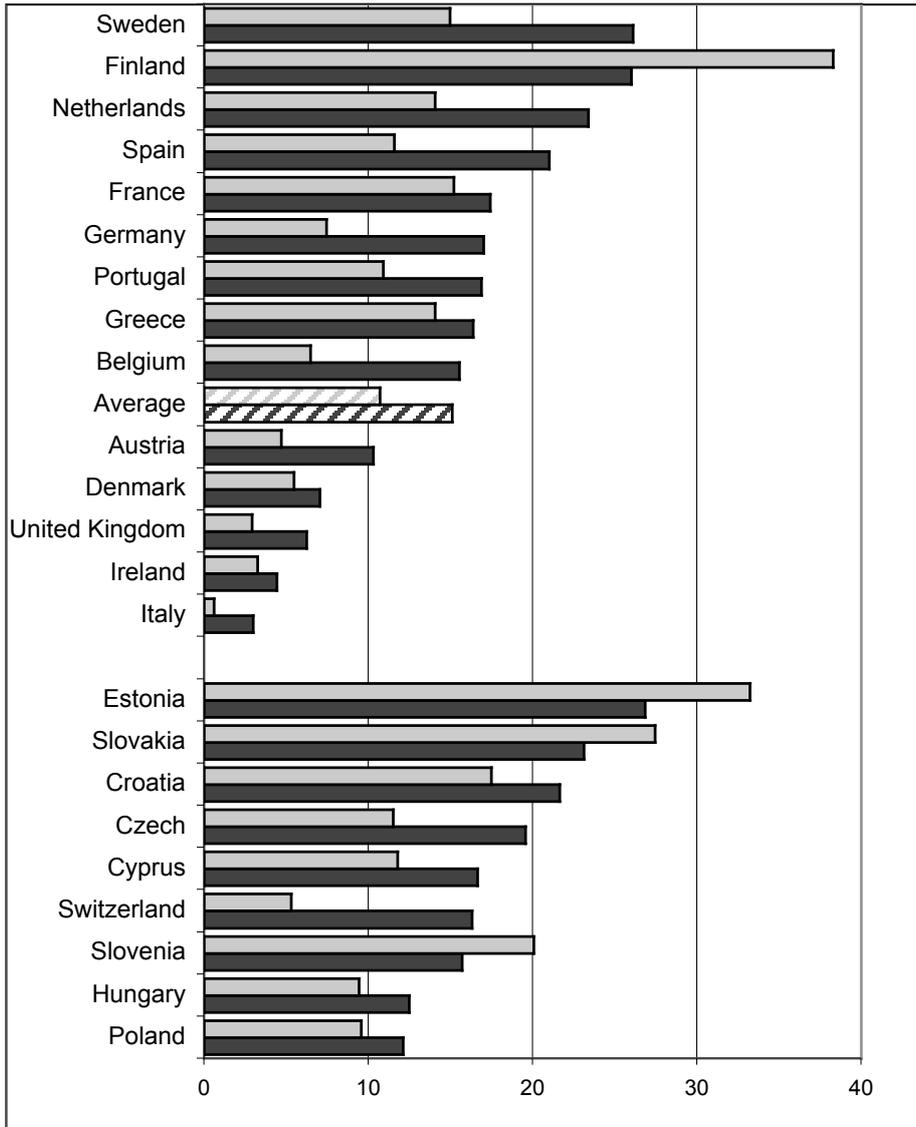


Table 8.1 shows the percentage of drivers in each country that had been detected (and punished) for not wearing their seat belt, speeding or drinking and driving.

**Table 8.1: Drivers detected and punished in previous 3 years for different offences (in %\*)**

Country	Speeding	Seat belt	Drink driving
Austria	29.9	5.3	1.0
Belgium	15.1	3.6	1.3
Denmark	17.1	3.3	0.1
Finland	15.5	3.0	0.6
France	8.1	5.1	1.0
Germany	35.9	7.2	1.8
Greece	14.3	8.2	3.8
Ireland	13.1	1.6	0.4
Italy	13.4	7.6	0.6
Netherlands	46.5	5.1	1.0
Portugal	6.5	3.3	1.9
Spain	14.5	5.1	2.9
Sweden	9.3	2.2	0.5
United Kingdom	9.3	0.7	0.2
<i>Average</i>	<i>17.8</i>	<i>4.4</i>	<i>1.2</i>
Croatia	24.3	16.6	3.8
Cyprus	31.2	17.8	12.7
Czech	21.4	9.2	2.0
Estonia	19.8	11.1	4.1
Hungary	12.3	3.9	1.1
Poland	17.2	2.6	0.6
Slovakia	26.6	15.0	5.9
Slovenia	30.8	14.2	4.0
Switzerland	34.6	10.3	2.7
<i>All 23 countries average</i>	<i>20.3</i>	<i>7.0</i>	<i>2.3</i>

Table 8.1 shows that:

Overall one-fifth of all drivers surveyed (20 %) had been ‘caught’ (and punished for) speeding in the last 3 years – perhaps a surprisingly high number – which was around 3 times the number similarly detected breaking the seat belt law and over 8 times the number punished for drink-driving.

There were very marked differences between countries for the number of people detected speeding. Over one-third of all drivers in the Netherlands (47 %), Switzerland (37 %), and Germany (36 %) had been punished for speeding offences compared to less than one-tenth in France (8 %), Portugal (7 %), the United Kingdom and Sweden (both 9 %).

Twice as many (13 %) of drivers in Cyprus had been detected drink-driving than in any other country, with Slovakia (6 %) being the country with the next highest number. Less than one per cent of drivers in Denmark, the United Kingdom, Ireland, Sweden, Finland, Poland and Italy had been detected and punished.

The drivers in Cyprus (18 %), Croatia (17 %), Slovakia (15 %) and Slovenia (14 %) had received most punishments for seat-belt violations; with less than 1 % (0.7 %) of such violations being issued in the UK – possibly a reflection of the high wearing rates reported – with Ireland and Sweden also recording low rates for non-wearing.

## General effectiveness of enforcement

Drivers were asked (Question 33) how effective they thought the overall enforcement system was with regard to ‘detecting and sanctioning traffic violations’ with respect to five more general issues that included whether or not:

- The size of the penalty fitted the seriousness of the offence (‘Size of penalty’)
- All drivers were treated in the same way for similar offences (‘Similar treatment’)
- Offenders were dealt with sufficiently quickly (‘Speed of punishment’)
- Enforcement targeted road safety sufficiently (‘Targets road safety’)
- It succeeded to detect and punish most driving offences (‘General detection and punishment’)

Table 8.2 gives the percentages of drivers responding ‘very’ to each of these questions.

Table 8.2 shows:

about one-third of the interviewed drivers is apparently satisfied with the enforcement activity, considering the overall system “very” effective regarding the egalitarian treatment of the drivers according to the offence, the speed of punishment of the offenders and targeting the road safety goals; about one-fifth of the interviewed drivers considers “very” effective the enforcement system on regard of the size of the penalty fitting the seriousness of the offence and about the success on detecting and punishing most driving offences: these lower rates might suggest a deeper effort to improve these two enforcement issues in order to gain the driver’s trust about the overall enforcement system

The results also revealed that around one-quarter of the drivers interviewed would be in favour of punishing the car’s owner if the offending driver was unknown (Question 34e), with 9% being ‘very’ and 16% being ‘fairly’ in favour of such enforcement activity. This particular measure was favoured most by drivers in Cyprus, Portugal and Croatia (with 46, 43 and 37 % respectively being in favour) compared to drivers in Sweden, Hungary and Finland where only 12, 12 and 14 % respectively responding that they would be in favour.

**Table 8.2: Drivers responding that enforcement is effective with respect to various issues, very in %**

Country	Size of penalty	Similar treatment	Speed of punishment	Targeting road safety	Detecting and punishing most driving offences
Austria	16.0	23.1	23.6	24.8	11.3
Belgium	21.1	27.7	27.4	28.9	20.5
Denmark	8.5	19.1	18.4	16.1	8.0
Finland	10.8	19.6	28.5	31.2	19.8
France	12.6	18.4	22.0	24.8	18.2
Germany	17.2	26.9	24.1	25.1	13.2
Greece	48.5	58.9	50.8	61.7	47.2
Ireland	41.4	40.1	46.4	47.0	36.1
Italy	25.5	27.4	21.5	37.4	24.0
Netherlands	9.1	19.8	21.7	19.3	10.4
Portugal	23.0	25.8	27.5	32.1	25.9
Spain	31.9	35.8	26.6	31.6	22.9
Sweden	17.7	25.2	31.7	27.0	17.8
United Kingdom	40.5	32.4	41.4	36.3	31.6
<i>Average</i>	<i>23.1</i>	<i>28.6</i>	<i>29.4</i>	<i>31.7</i>	<i>21.9</i>
Croatia	16.7	16.7	11.9	17.8	9.8
Cyprus	45.1	48.4	37.7	46.7	41.1
Czech	15.6	24.1	17.4	17.5	10.8
Estonia	56.5	46.0	49.4	63.9	55.4
Hungary	13.8	13.9	15.7	6.6	7.5
Poland	22.4	6.4	11.0	17.5	9.1
Slovakia	4.0	5.7	7.8	3.8	4.3
Slovenia	10.5	16.6	19.7	17.4	12.6
Switzerland	22.6	21.5	28.8	31.1	16.0
<i>All 23 average</i>	<i>23.1</i>	<i>26.1</i>	<i>26.6</i>	<i>28.9</i>	<i>20.6</i>

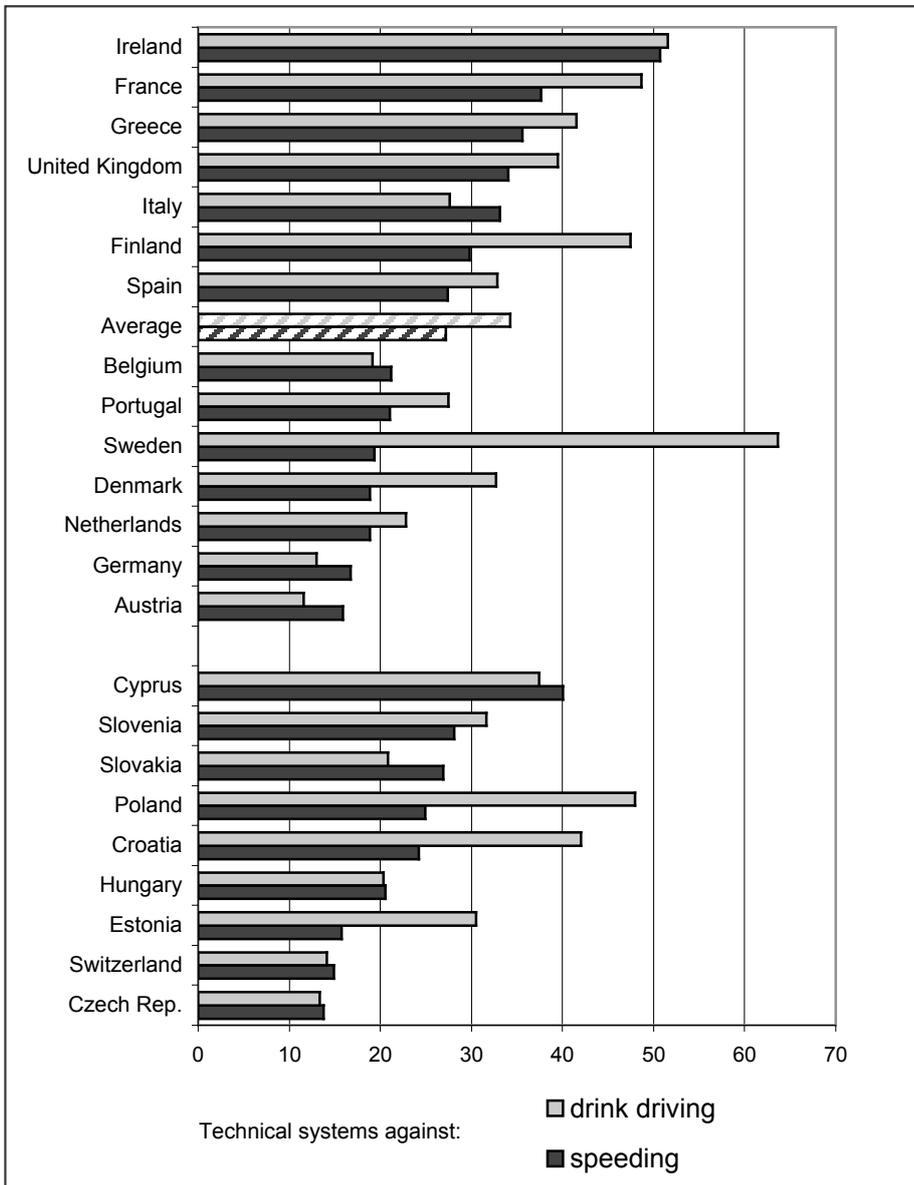
## Technical measures and enforcement techniques

In some countries recent years have seen a marked increase (some would say explosion) in the use of 'automatic' enforcement, such as the use of speed 'limiters' in Heavy Good Vehicles (HGV) and fixed speed cameras at the road-side to detect speeding drivers. Recent developments in new technologies (such as GPS systems, drink-driving ignition locks, 'black-box' recording equipment) now allow a new variety of enforcement to be considered or introduced.

## Opinions of drivers about enforcement technology

In order to discover what drivers felt about this increasing role of technology in enforcement the questionnaire included a number of questions about ‘new’ technical developments that could be (or in some cases already are being) used for enforcement purposes. Importantly, some of the systems would simply *help* the driver to avoiding breaking the law, while other could be used to *impose* adherence to the law.

**Figure 8.6: Drivers who would find it very useful to have technical systems fitted to their cars to prevent drink driving and speeding, in %**



These questions asked both how ‘useful’ the drivers would find some of the systems, as well as how much they would be in ‘favour’ of their introduction.

Figure 8.6 shows the percentage of drivers in each country who responded that they would find it ‘very’ useful to have systems in their cars that prevented them from either exceeding the speed limit, or from starting (and driving) their cars if they were over the legal limit, with the countries being ordered by the degree usefulness they would find a system that prevented them from driving over the speed limit.

Figure 8.6 shows that:

Around one-quarter (26 %) would find the technical system against speeding to be very useful, while around one-third (32 %) would find the technical system against drink-driving if over the limit very useful

While the drivers in many countries were equally ‘supportive’ of the two measures (with drivers in Ireland and Cyprus being strongly in favour of both measures in contrast drivers in Switzerland and the Czech Republic who were relatively less in favour of both measures) the drivers in some countries viewed the two measures very differently. For example drivers in Sweden (and a number of other countries) were much more in favour of technical system to prevent drinking and driving than reduce speeding in contrast to drivers in Italy and Slovakia who favoured the speed measure more than the drink-driving measure.

## Enforcement technology and speed

The majority of the new technology (or systems) questions that asked whether drivers would be ‘in favour’ of them (or not) were concerned with speeding behaviour. The different types of systems included were those that would:

Prevent drivers from exceeding the speed limit (presumably by monitoring the speed limit of the road on which they were driving by the use of GPS systems or ‘intelligent’ speed limit signs) and linking this to some speed-limiting device that controlled the vehicle’s maximum speed (called ‘Speed limiter’ in Table 8.3).

Use radar ‘cameras’ at the roadside to monitor speeding vehicles; with fines being sent through the post; a system that it’s already been in operation since a long time in many countries (‘Speed camera’ in Table 8.3).

Allowing local (public) authorities to enforce speeding (‘Public enforcement’ in Table 8.3).

Allowing private organisations to enforce speeding (‘Private enforcement’ in Table 8.3).

Allowing the police (using ‘black-box’ technologies) to examine a driver’s speed – and perhaps other behaviours such as acceleration and deceleration drivers had been driving, at any time, or perhaps before an accident, so that they could be more easily prosecuted (‘Black-box’ in Table 8.3).

The percentage of drivers in each country that responded that they were ‘very’ in favour of each of these systems is given in Table 8.3.

**Table 8.3: Drivers in favour of different types of anti-speeding enforcement, very in %**

Country	Speed limiter	Speed cameras	Public enforcement	Private enforcement	Black box
Austria	15.9	18.6	19.6	4.7	17.4
Belgium	21.2	40.8	35.6	7.6	24.7
Denmark	18.9	29.7	11.6	2.5	24.1
Finland	29.8	44.6	48.7	6.7	29.2
France	37.7	24.1	22.0	6.1	30.5
Germany	16.5	19.0	12.7	3.9	19.6
Greece	35.6	27.9	25.8	6.8	35.2
Ireland	50.7	55.3	29.6	9.5	55.4
Italy	33.7	27.6	29.9	5.2	42.6
Netherlands	18.8	29.1	25.5	10.0	21.8
Portugal	22.0	32.0	21.6	6.7	28.8
Spain	25.5	17.7	14.5	4.0	23.3
Sweden	19.4	20.1	11.0	6.5	22.3
United Kingdom	34.0	36.5	20.8	5.7	41.4
<i>Average</i>	<i>27.1</i>	<i>30.2</i>	<i>23.5</i>	<i>6.1</i>	<i>29.7</i>
Croatia	24.3	31.5	9.3	2.7	29.4
Cyprus	41.8	32.3	18.6	11.3	35.9
Czech	13.8	20.0	10.5	6.2	14.8
Estonia	15.8	21.9	32.8	3.9	17.6
Hungary	20.6	35.0	11.4	3.7	25.7
Poland	24.9	44.1	11.4	4.0	32.9
Slovakia	26.9	29.1	11.1	4.5	24.4
Slovenia	28.1	26.4	8.3	3.8	26.1
Switzerland	14.5	13.2	9.7	2.8	18.5
<i>All 23 average</i>	<i>25.7</i>	<i>29.4</i>	<i>19.6</i>	<i>5.6</i>	<i>27.9</i>

Table 8.3 shows:

With the exception of allowing private organisations to enforce speeding there was general support for the majority of the measures with, overall, around one-quarter of the drivers being in favour of the enforcement strategies.

As with other findings there were considerable differences between the drivers in the different countries. For example, while more than half of the drivers in Ireland were in favour of the use of speed limiters and speed cameras many fewer drivers in Switzerland were in favour of such enforcement tactics.

## New enforcement technology

In Table 8.4 are shown the percentages of drivers that were “very” in favour of the introduction of enforcement systems such as automatic cameras to detect red-light ‘running’, an ignition lock device that would prevented the driver from starting their engine without demonstrating that he were not over the legal limit and an electronic device ‘tagging’ the vehicle that would help the police to enforce the traffic laws.

**Table 8.4: Drivers in favour of some ‘new’ enforcement technologies very, in %**

Country	Red light cameras	Drink drive ignition lock	Vehicle tagging
Austria	24.4	11.6	8.8
Belgium	48.3	19.2	17.6
Denmark	56.2	32.7	20.5
Finland	54.7	47.4	15.2
France	30.1	48.6	19.2
Germany	21.1	12.7	8.8
Greece	28.8	41.5	22.4
Ireland	55.9	51.6	39.8
Italy	28.6	28.2	22.8
Netherlands	43	22.8	11.1
Portugal	28.3	27.3	12.4
Spain	16.2	30.2	13.7
Sweden	25	63.6	10.5
United Kingdom	49.6	39.5	33.7
<i>Average</i>	<i>36.4</i>	<i>34.1</i>	<i>18.3</i>
Croatia	45.3	42	20.4
Cyprus	32.6	38.8	24.4
Czech	22.4	13.3	13.9
Estonia	41.5	30.5	24.7
Hungary	39.8	20.3	24.4
Poland	50.4	48	31.1
Slovakia	36.1	20.8	30.9
Slovenia	37.2	31.6	19.3
Switzerland	15.2	15.2	9.2
<i>All 23 average</i>	<i>36.1</i>	<i>33.6</i>	<i>19.8</i>

Table 8.4 shows:

Around one-third of the drivers were in favour of the use of red-light cameras and drink-drive ignition locks. There was less support for vehicle ‘tagging’. However this lower level of support for tagging vehicles may have resulted from being unclear what it would actually involve.

Again there were very marked differences between the drivers in individual countries. For example, while there would be strong support for the use of red-light cameras in Denmark, Ireland and Finland there was much less support for this type of enforcement in countries such as Switzerland and Spain. High levels of support for ignition locks were found in Sweden, Ireland and France in contrast to Austria, Germany and the Czech Republic. Drivers in Ireland and the United Kingdom were most in favour of the use of vehicle tagging.

## Discussion and conclusions

In general, the results suggest that European drivers are reasonably supportive of enforcement activity, although there are considerable differences between individual countries. This support extends to favouring more controls and higher penalties, especially for drink-drive offences. This support may partly be a result of the general widespread concern about road safety and the recognition that driver behaviour is a very major contributory factor in road accidents.

However, it must be recognised that in public surveys that ask people their attitudes to socially desirable and acceptable issues (such as improved road safety and the role of the police) there is often a tendency for individual respondents to give socially acceptable responses, such that the measured level of support may be somewhat higher than is actually the case. For example, drivers may report that they support speed cameras, but will not be in favour of them being widely introduced in their area. It is also necessary to recognise that surveys – especially when conducted in different countries by different market research companies – are likely to be subject to sampling errors. For this reason any ‘small’ differences in the results, for example between individual countries, should be treated with some caution; although more sizeable differences will probably reflect ‘real’ differences.

It is also important to remember that drivers’ attitudes and perceptions will be very strongly influenced by the current enforcement situation in their individual country – and their own experiences. Thus it is important when interpreting the results to recognise the very different situations and conditions that exist in individual countries. The results suggest that there is less general support for more enforcement in those countries where such activity is already high or perceived as being high.

Similarly, the very marked differences between countries how technology is currently used for enforcement purposes will influence attitudes about both enforcement and the use of technology. Some countries already have considerable number of speed cameras in place, while others have few, or none, while some already use ‘red-light’ and close following cameras to help with enforcement. It is likely that the use of such technologies will continue to grow and, if this is the case, it is important to maintain public support and goodwill for such activities.

The results clearly demonstrate that some types of enforcement are more accepted than others. For example, enforcement of drinking and driving is very strongly supported compared to, for example, speed enforcement. While this may reflect that drivers think drinking and driving is socially unacceptable it may also be partly explained by the fact that considerably fewer drivers have actually been punished for drinking and driving compared to those who have been convicted of speeding.

One factor that was of central interest to the surveys was how ‘applicant’ countries (who will be joining the European Union in the near future) compare to current members of the European Union. In general there were no consistent differences between the two groups of countries. In part this was because the considerable differences found between individual European Union countries meant that findings for individual applicant countries generally fell within the (broad) spectrum of the findings of European Union countries. However, there was a tendency for applicant countries to provide more extreme answers for many of the questions, possibly reflecting the more varied social and economic situation within these countries than the more ‘uniform’ members of the European Union.

However, the results did reveal some geographic and cultural differences between countries. In general ‘northern’ countries (such as Sweden, Denmark and Finland) tended to give similar (and often ‘better’ – or safer) results than did ‘southern’ countries (such as Spain, Italy and Greece). Similar grouping can be identified between ‘wine drinking countries’ (for example, France, Spain and Italy) and ‘beer drinking countries’ (such as the Netherlands and Germany). The results also show that there are very marked similarities between the two English speaking countries (Ireland and the UK) on many of issues explored.

One important finding was that there were very marked differences between countries of drivers ‘expectation’ and ‘experience’ of enforcement activity by the police. While the drivers in some countries had a higher expectation than actual experience warranted, while the opposite was true for other countries. Ideally drivers should have a very high expectation of enforcement activity – and this, of itself – if acted upon - should result in them not needing to suffer by actually being caught and punished.

The results made it possible to compare what proportions of drivers had experienced enforcement (that is they were actually detected and punished in the last three years) for different types of offence. They revealed that speeding was the most frequent violation enforced by the police; although this varied considerably from country to country. Seat-belt violations were the next most frequent, although this was understandably low in those countries having high wearing rates. In comparison relatively few drink-drive violations were reported. Overall, there were around 4 times as many speeding violations reported as seat-belt violations, while there were correspondingly four times as many seat-belt violations as drink-drive violations. These results suggest that the police are targeting ‘easy’ violations rather than those that might be more directed towards safety. It is much easier, and cheaper, to detect a speeding driver automatically with a speed camera than to recognise, stop and breathalyse a driver over the limit – unless they are breathalysed as a result of being involved in an accident, as is done automatically in some countries.

If public support for enforcement is to be maintained it is important that it is perceived positively by road users as a way of improving safety and protecting them from dangerous driving – any public perception that it is simply a way of ‘raising revenue’ needs to be strongly countered. With this in mind it is important that enforcement activity is ‘transparent’ (and widely publicised) rather than being ‘secret’ (such as using speed ‘guns’ from hidden positions). Enforcement should be used to influence the many rather than to catch and punish the few. The use of enforcement is a vital ‘tool’ for improving road safety. However, it must be used appropriately and needs to have the general support of the public. This means that any enforcement activity

should be accompanied by education and publicity programmes to alert and inform the public. This also means that enforcement programmes, if they are to be effective, should include surveys that collect and monitor information on public attitudes.



# Chapter 9

## New technologies and advanced systems

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### Introduction

In recent years there has been a dramatic increase in the use of new technologies and ‘expert’ systems in transport (ETSC, 1999; ERTICO, 2002). For example, a wide variety of in-vehicle information systems are available that can provide active navigational information, or warn drivers of traffic congestion on their planned route. Other equipment can be fitted to vehicles that will prevent the vehicle being driven over a certain maximum speed, or to help the driver to maintain a pre-determined speed - either above or below the speed limit. Importantly, such systems can be either ‘mandatory’ (that is compulsory, for example, having laws that requires lorries to have a speed limiter and tachograph fitted) or provided as options that can typically be switched on or off by the driver. It is now possible to equip a vehicle to provide the driver with a mobile office that can receive phone calls, e-mails and even moving pictures of ‘live’ sporting events.

There is a similar expansion in the number and complexity of new systems that can be mounted at the roadside to monitor a driver’s behaviour (such as driving over the speed limit, close-following, or red-light running). While such systems can be used to advise (or warn) drivers about their driving behaviours, they can also be used for enforcement purposes.

The rapid spread and growing sophistication of such systems may have serious implications for the safety and efficiency of the road network and therefore the attitudes of drivers towards their use and introduction are important; especially with regard to those systems that are increasingly being used for enforcement purposes. As a result the SARTRE 3 questionnaire included a small number of new questions that were specifically designed to provide information on drivers’ attitudes to such systems; some of which are currently being used in some countries, as well new systems that could be developed and used in the future.

However, it is important to recognise that within the different countries taking part there are very sizeable differences in the current use of such systems. In some countries navigation and congestion systems are already widely available, although not used by every driver, and speed cameras are commonplace, while in other countries few, if any, systems are used. Such differences are likely to have a strong influence on the attitudes of the drivers in different countries.

In addition, most respondents might have no previous experience with these systems though they were available. In comparison with questions concerned in other chapters, this put those respondents in a much more challenging situation, especially because the descriptions of the systems were non-specific. Specifically, the respondent with no prior experience had to imagine specific features of a given system, and we have no information about their assumptions.

It should be noted that earlier phases of the SARTRE programme (e.g. SARTRE 1 and 2) were not as concerned with such issues as the current survey. This means that, unlike other chapters, there is limited opportunity to see how drivers' attitudes might have changed during the time between the various surveys.

## Types of systems and attitudes measured

The survey included questions on a variety of such systems. While it is possible to classify these systems in a number of ways it is convenient to consider the various types of system as those that either (a) assist the driver, (b) impose particular behaviours or (c) can be used by the police for enforcing traffic laws. Examples of *assistance* systems would be in-vehicle information systems that can help navigate the driver to his destination, or warn him of traffic congestion on his route by spoken voice, by the use of symbolic information or even by text messages. The driver is generally free to switch off, or ignore, such systems.

This is not the case with systems that *impose* certain behaviours upon the drive, such as speed limiters that restrict the vehicle's top speed, or prevent him (with an ignition 'lock') from starting the engine until having passed an alcohol breath-test.

The most frequent used *enforcement* systems include speed and red-light cameras, although systems that record close-following are now in use in some countries.

A variety of driver attitudes and perceptions were measured. In addition to more general attitudes to issues such as road safety, congestion and factors that contribute to accidents, a number of more specific questions were asked about their attitudes to particular systems. These questions obtained a measure (using 4 point rating scales) for:

- How useful drivers would find the system, and
- How much they would be in favour of such systems.

## Some general attitudes

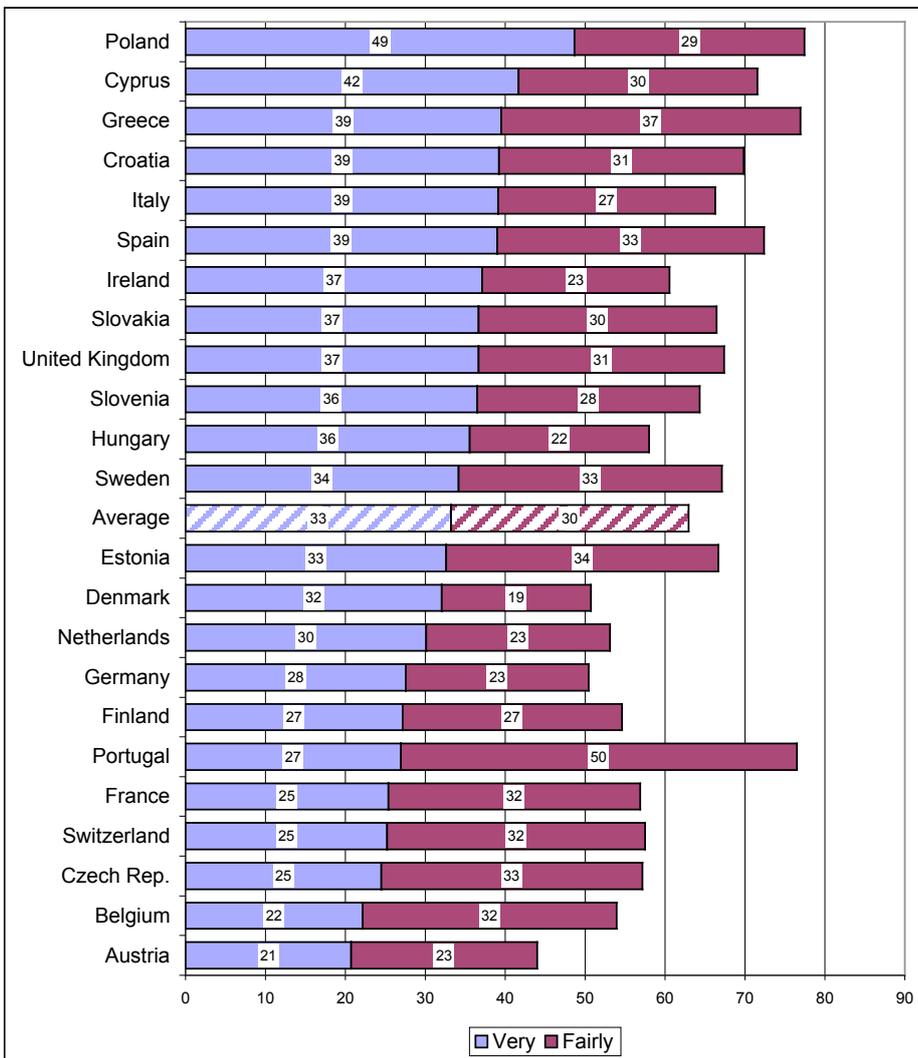
Drivers attitudes towards the use of new technologies and systems is likely to be influenced by their attitudes towards the existing 'problems' that they are designed to help with. In this context it is interesting to note that 86% of drivers were concerned (either 'fairly' or 'very') about road accidents and 63% were similarly concerned about traffic congestion. Additionally, 76% were in favour of having more enforcement.

Similarly the results of question on the role of a variety of contributory factors in accidents – reported in detail in chapter 5 – found that a variety of driver behaviours that might be improved by the use of new technologies were recognised as being responsible for large numbers of accidents.

## Attitudes towards assistance systems

The majority of assistance systems provide the driver with navigational information (e.g. “turn right at next roundabout in 2 kilometres”) or warnings of congestion (e.g. “accident on M1 northbound north of junction 18 with delays of up to 1 hour can be expected”).

**Figure 9.1: Drivers reporting navigation system would be useful very or fairly, in %**



Figures 9.1 and 9.2 show the percentage of drivers in each country that thought either a navigation or a congestion warning system would be useful (Would you find it useful to have a device on your car like...? – “A guidance, or navigation, system to help you find your destination” – “A congestion (traffic jam) warning device” – “Very/Fairly/Not much/Not at all”).

**Figure 9.2: Drivers reporting congestion warning system would be useful, very or fairly, in %**

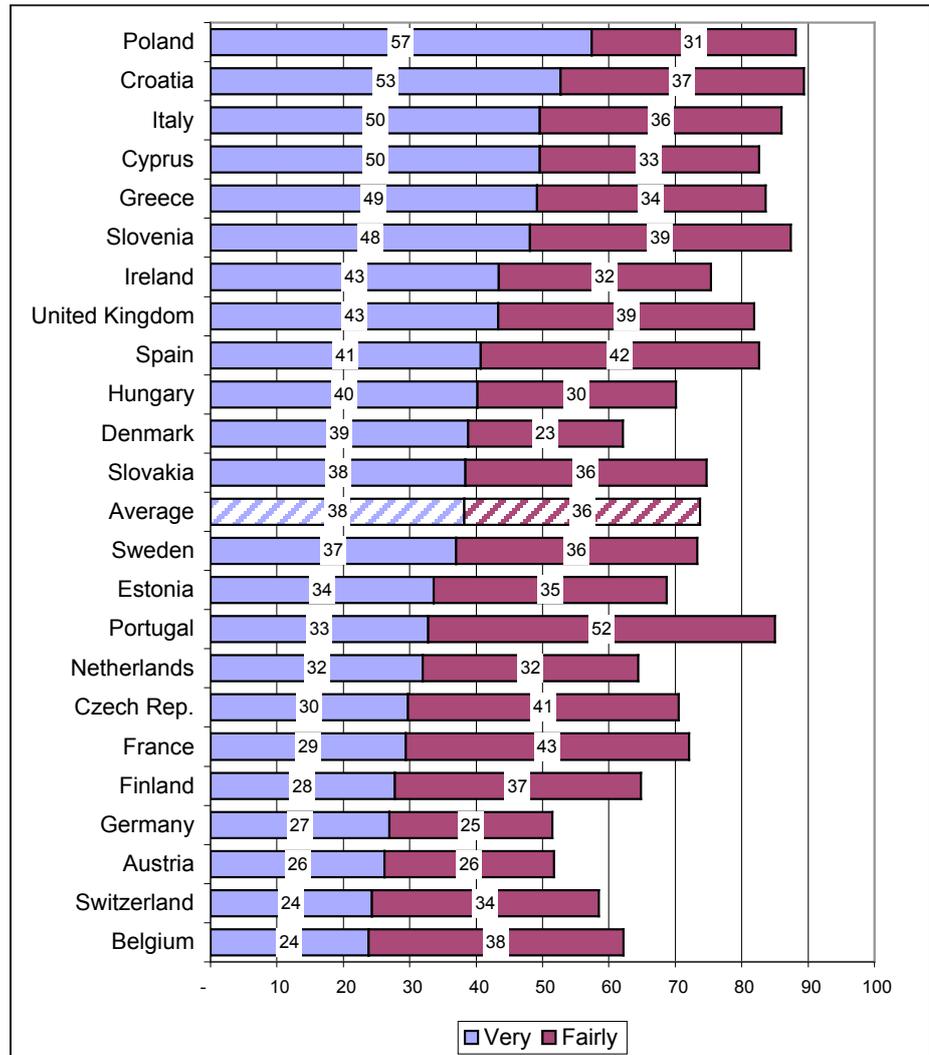


Figure 9.1 and 9.2 show that assistance systems - both navigation and congestion warning - are very much appreciated in Poland, Croatia, Cyprus, Italy, and Greece. Little support on the other side is given to both types of systems in Austria, Switzerland, Belgium, navigation systems are not considered very useful also in the Czech Republic, too, and congestion warning systems are not considered very useful in Germany.

The attitude towards congestion warning and navigation systems, however shows differences within countries, too - it seems as if problems drivers have to face are reflected in the answer patterns as well as the attitude towards new technologies.

However, these patterns of responses do not suggest a single, and simple, interpretation. It appears that drivers in some countries with higher and more advanced levels of motorization show less enthusiasm for such assistance systems in contrast to more enthusiasm being found amongst drivers in those countries where motorization is still rising. However, there are many exceptions to this explanation and the distribution of countries between the extremes indicates that more factors are likely to be involved in determining attitudes towards specific assistance systems. More general features of the transport infrastructure – and especially the problems these present the driver – and a more general acceptance or experience of newer technologies (such as mobile phones and the internet) in the home and work environment are likely to play a role. The industrial and economic situation in individual countries are also likely to influence drivers' attitudes to such systems; as will attitudes to technology in general.

## Attitudes towards systems that impose behaviours

Drivers were also asked how useful they would find 3 systems that would force particular behaviours upon them. Table 9.1 shows the percentage of drivers in each country responding that they would find it 'very useful' to have in their car:

A system that prevented you exceeding the speed limit - "Very/Fairly/Not much/Not at all"). This could be done by monitoring the speed limit of the road on which they were driving by the use of GPS systems or 'intelligent' speed limit signs and linking this information to a speed limiting device that controlled the vehicle's maximum speed.

An alcohol-meter to check if you had been drinking and that prevented you driving if you were over the limit - "Very/Fairly/Not much/Not at all"). In some countries (such as America) drivers who have been detected drinking and driving, when they return to driving, have a breathalyser type device fitted to their ignition systems that prevents drivers who exceed the limit from starting their engines.

A system that detected 'fatigue' and forced you to take a break - "Very/Fairly/Not much/Not at all"). This type of device could be simply based on the amount of time the vehicle has been driven - although this would not allow for a new (fresher) driver to take over – or be based on measuring more physiological or psychological driver characteristics such as 'eye-blinks' or 'steering wheel reversal' rates.

**Table 9.1: Drivers who would find it useful to have a system fitted to their cars that prevent driving under certain conditions, in %**

	Over speed limit	When over legal drink limit	When fatigued
Austria	16%	<b>12%</b>	17%
Belgium	21%	19%	23%
Cyprus	40%	37%	36%
Czech	14%	13%	20%
Denmark	19%	33%	31%
Estonia	16%	31%	28%
Finland	30%	47%	36%
France	38%	49%	44%
Germany	17%	13%	19%
Greece	36%	42%	36%
Hungary	21%	20%	29%
Ireland	<b>51%</b>	52%	<b>55%</b>
Italy	33%	28%	32%
Netherlands	19%	23%	24%
Poland	25%	48%	51%
Portugal	21%	28%	24%
Slovakia	27%	21%	35%
Slovenia	28%	32%	30%
Spain	27%	33%	31%
Sweden	19%	<b>64%</b>	38%
United Kingdom	34%	40%	44%
Croatia	24%	42%	45%
Switzerland	<b>15%</b>	14%	<b>15%</b>
<i>Average</i>	<b>26%</b>	<b>32%</b>	<b>32%</b>
5% lower than average			
5% higher than average			

Table 9.1 shows that:

Around one-quarter (26%) would find a speed limiting device to be very useful; around one-third (32%) would find a system that prevented them from driving if they were over the alcohol limit to be very useful; and the same percentage (32%) would find a system that prevented them driving when fatigued to be very useful.

The support for these various devices varied a lot between countries – between 15 and 51% for speed limiters (with drivers in Switzerland showing the lowest level of support and Ireland's drivers the highest), between 15 and 55% for fatigue monitoring systems (with again Switzerland showing the lowest support and Ireland the highest)

and between 12 and 64% for systems that would prevent driving when over the legal limit (with drivers in Austria having the lowest and Sweden the highest support).

In some countries drivers show little support for any kind of system that imposes restrictions on their behaviour. For example, drivers in Switzerland, Austria, Germany and the Netherlands responded in this way, as did drivers in Belgium, but to a lesser extent.

In contrast drivers in some countries are supportive of most systems that impose constraints on how they drive, for example, drivers in Ireland, France and the United Kingdom. Drivers in Croatia and Poland generally supported such systems - except for speed limiting devices; as do drivers in Greece - except for devices that detect fatigue.

In addition to the 'usefulness' measure for the device that prevented drivers from exceeding the speed limit a question was asked that asked how much the drivers would be 'in favour' of such a device (How much would you be in favour of the following? "Speed limiting devices fitted to cars that prevented drivers exceeding the speed limit" - "Very/Fairly/Not much/Not at all").

Figure 9.3 shows how the 'usefulness' score obtained for each country corresponds to the 'favourability' score.

Figure 9.3 shows that:

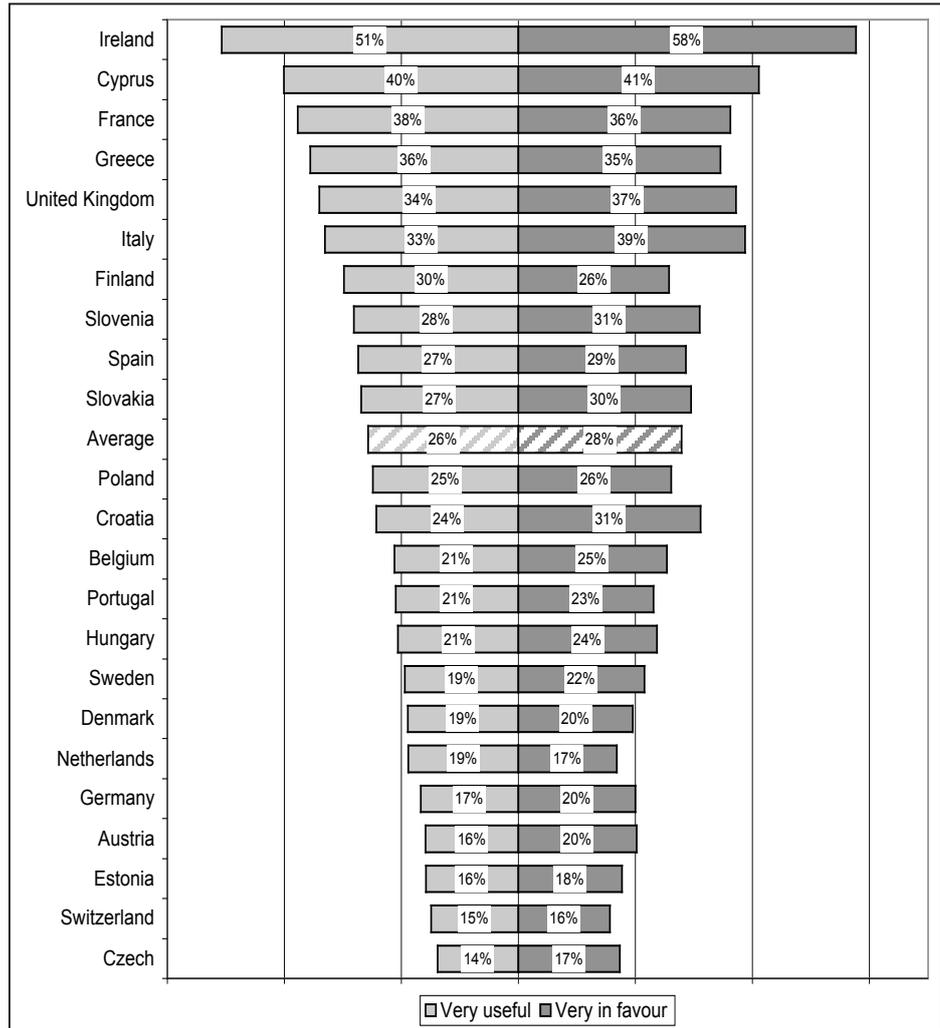
- There were marked differences between countries for both of these scores.
- The highest ranking countries for both parameters are Ireland and Cyprus.

In general the "favourability" index scores more highly than the "usefulness" index (with an average difference of +2%). This difference between the two scores is particularly large for Ireland (+7%), Croatia (+7%), Italy (+6%), Austria (+4%) and Belgium (+4%).

Usefulness, however is ranked higher than favourability in Finland (4.1%), Netherlands (2), France (2%) and Greece (1%).

Again it is difficult to interpret these findings. In some cases the results will be influenced by whether drivers think that the systems are possible or practicable; or how they think they will be introduced.

**Figure 9.3: Usefulness and favourability scores for device preventing drivers from exceeding the speed limit**



## Attitudes towards enforcement systems

Systems, such as the one described above, which physically prevent the driver from exceeding the speed limit are very different in nature from enforcement systems placed at the roadside to detect speeding drivers and punish them by imposing a fine and perhaps penalty points. In many countries there has been a significant increase in the use of such systems in recent years. In addition to speed cameras some countries now also employ red-light cameras to detect drivers who ‘jump’ traffic signals (or ‘red-light runners’). Also recent developments in new technologies (such as GPS systems, black-box’ recording equipment and vehicle identification ‘tagging’ devices) now allow a new variety of enforcement to be considered or introduced.

Note that these findings are also covered in Chapter 8, which deals with enforcement in more detail.

## Enforcement camera systems

Table 9.2 below shows the proportion of drivers in each country who are in favour of the use of camera technology to support police enforcement. (How much (“Very/Fairly/Not much/Not at all”) would you be in favour of the following? - “Automated cameras for red light surveillance; “Surveillance of speed excess by automated cameras”).

**Table 9.2: Drivers being ‘very’ in favour of enforcement ‘camera’ systems**

	Speed camera	Red light camera
Austria	<b>19%</b>	<b>24%</b>
Belgium	<i>41%</i>	<i>48%</i>
Cyprus	31%	31%
Czech	<b>20%</b>	<b>22%</b>
Denmark	30%	<b>56%</b>
Estonia	<b>22%</b>	<i>42%</i>
Finland	<i>45%</i>	<i>55%</i>
France	24%	<b>30%</b>
Germany	<b>19%</b>	<b>21%</b>
Greece	28%	<b>29%</b>
Hungary	35%	40%
Ireland	<b>55%</b>	56%
Italy	26%	<b>28%</b>
Netherlands	29%	43%
Poland	44%	50%
Portugal	27%	<b>24%</b>
Slovakia	29%	36%
Slovenia	26%	37%
Spain	<b>15%</b>	<b>14%</b>
Sweden	<b>20%</b>	<b>25%</b>
United Kingdom	37%	50%
Croatia	32%	45%
Switzerland	<b>14%</b>	<b>14%</b>
<i>Average</i>	29%	35%
5% lower than average	<b>bold</b>	
5% higher than average	<i>italic</i>	

Table 9.2 shows:

A general higher acceptance of red light cameras than of speed cameras.

For both types of enforcement cameras the acceptance varies extremely between countries. The lowest acceptance for speed cameras is found in Switzerland (14%) and the highest in Ireland (55%). The lowest acceptance for red-light cameras is again found in Switzerland (14%), the highest in Denmark (56%).

In many countries drivers are in favour of both (e.g. Belgium, Finland, Ireland, Poland, UK) or opposed to both (e.g. Austria, Czech, Germany, Spain, Sweden, Switzerland). Only Estonia shows a conflicting pattern with high support for red-light cameras and low support for speed cameras.

These results are likely to be influenced by the existing situation in the different countries. In many countries there are already large numbers of speed cameras being used – and in some countries a significant number of drivers have already been detected and punished by means of speed cameras.

## **Electronic identification and ‘black-box’ systems**

Table 9.3 shows the proportion of drivers in each country who would be in favour of a vehicle ‘tagging’ device – that uniquely identified their vehicle - that either provided them with automatic access to services (such as paying road or congestion tolls) or that might be used by the police for enforcement purposes, such as identifying speeding drivers. (How much “Very/Fairly/Not much/Not at all”) would you be in favour of the following? - “Electronic identification of your vehicle that would give access to services”; “Electronic identification of your vehicle also for enforcement by the police”).

Such systems are already available based on existing technologies and are already in place or being evaluated in some countries. This means that given public approval and political will such systems could be widely introduced in only a few years.

**Table 9.3: Percentage being 'very' in favour of identification systems**

	for service	for enforcement
Austria	<b>10%</b>	<b>9%</b>
Belgium	30%	18%
Cyprus	24%	24%
Czech	15%	14%
Denmark	22%	20%
Estonia	32%	25%
Finland	14%	15%
France	19%	19%
Germany	15%	<b>9%</b>
Greece	27%	22%
Hungary	26%	24%
Ireland	47%	<b>40%</b>
Italy	<b>48%</b>	22%
Netherlands	14%	11%
Poland	36%	31%
Portugal	15%	11%
Slovakia	24%	31%
Slovenia	<b>48%</b>	19%
Spain	21%	15%
Sweden	17%	10%
United Kingdom	27%	34%
Croatia	23%	20%
Switzerland	18%	<b>9%</b>
<b>Average</b>	<b>25%</b>	<b>20%</b>
5% lower than average		
5% higher than average		

Table 9.4 shows the percentage of drivers being 'very' in favour of 'black box' recording systems that might be to record previous behaviours (e.g. immediately prior to being involved in an accident) or for enforcement purposes. ( How much ("Very/Fairly/Not much/Not at all") would you be in favour of the following? - "The use of a 'black box' to record a driver's behaviour that could be used as evidence by the police to prove speeding/dangerous driving " ;"The use of a 'black box' to identify what caused an accident").

**Table 9.4: Percentage in favour of 'black-box' systems**

	evidence speeding dang. behaviour	identify accident causes
Austria	17%	25%
Belgium	25%	27%
Cyprus	34%	44%
Czech Rep.	<b>15%</b>	<b>18%</b>
Denmark	24%	38%
Estonia	18%	31%
Finland	29%	46%
France	31%	38%
Germany	20%	28%
Greece	35%	47%
Hungary	26%	42%
Ireland	<b>55%</b>	<b>63%</b>
Italy	41%	45%
Netherlands	22%	27%
Poland	33%	44%
Portugal	26%	29%
Slovakia	24%	33%
Slovenia	26%	35%
Spain	24%	34%
Sweden	22%	29%
United Kingdom	41%	49%
Croatia	29%	43%
Switzerland	17%	20%
<b>Average</b>	<b>28%</b>	<b>36%</b>
5% lower than average		
5% higher than average		

Table 9.3 shows:

- In general 25% of European drivers would support having an electronic identification device fitted to their vehicle that gives access to services, such as automatic payment of tolls.
- However, only 20% of drivers would support this type of device if it were to be used by the police for enforcement purposes.
- High support for electronic identification for services is found in Italy and Slovenia – where experience with tolling systems is widespread
- A high support for electronic identification for enforcement was found in Ireland.

- The use of identification systems for enforcement purpose is highly rejected in the German speaking countries Germany, Austria and Switzerland.
- Austrian drivers are also very reserved towards the use of identification systems for service purpose.

In general the support for the enforcement function is about 5% lower than for the service function of electronic identification. For Italy and Slovenia this difference is much higher (26 and 29 %). In Slovakia and UK the enforcement function of identification systems gets higher support than the service function (7%).

Table 9.4 shows:

- There was more support for ‘black-box’ systems that recorded information about the events before accidents than for enforcement purposes.
- The highest support for both systems came from drivers in Ireland
- Also, drivers in Cyprus, Greece, Italy, Poland and the United Kingdom were most in favour of ‘black-box’ devices.
- There was least support for these systems in the Czech Republic, reservation for both options to use black box systems comes from drivers in Switzerland, Austria, Germany, Netherlands and Sweden.

To some extent these findings will have been influenced by how familiar drivers are with such systems. Some countries already have such systems in place, while others do not. The public greets often new technologies with some suspicion – especially if they are seen devices that monitor how people behave.

It should also be recognised that the currently available ‘black-box’ technologies can record a wide range of driver behaviours. They can, for example, record steering behaviour, acceleration and deceleration, and the time spent driving without taking a rest break. Such systems could also be used to record the driver’s behaviour immediately prior to being involved in an accident, which might allow drivers to be more easily prosecuted for dangerous driving. Given the sophistication of such devices, and the possible uses to which they could be put, it is perhaps surprising the number of drivers who would support their introduction – although this would be likely to depend on the costs involved and the way they would be used. It may reflect that the driving public is resigned to such measures eventually being introduced as society becomes more advanced technically.

## Changes from earlier SARTRE surveys

SARTRE 2 and SARTRE 3 had questions on “how useful” speed limiting devices, alcohol interlock systems and navigation systems are considered. However, the questions on speed limiters and ‘alcolocks’ had small differences in how they were asked which prevents a direct comparison being made.

However, the attitudes towards navigation systems can be compared for SARTRE 2 and SARTRE 3. (Would you find it useful to have a device on your car like...? “A guidance, or navigation, system to help you find your destination” Very/Fairly/Not much/Not at all ).

**Figure 9.4: Navigation system found 'very useful'  
SARTRE 2 compared to SARTRE 3**

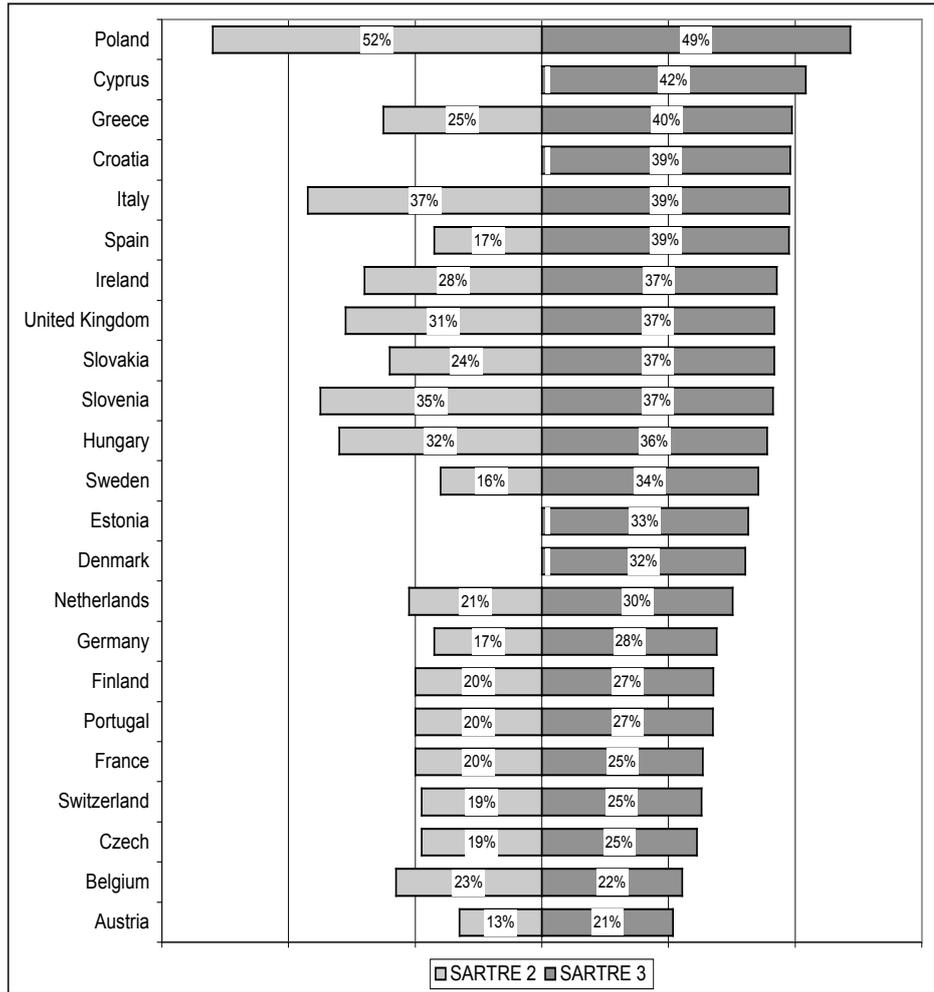


Figure 9.4 shows:

As reported earlier the highest acceptance of navigation systems, found in SARTRE 3, is in Poland and Cyprus, Italy, Greece, Spain and Croatia with acceptance being lowest in Austria and Belgium.

The acceptance of such systems has risen in most countries since the previous survey, although in general there has understandably been less of a shift in the countries that were already showing the greatest support in 1996.

## Discussion

This chapter on attitudes towards new technologies shows a wide and complex variety of answer patterns that cannot easily be interpreted with any simple explanations.

However, it looks as if at least three determinants influenced the attitude towards new technologies:

The purpose for which this system will be used. The problems, drivers face in their respective country, are likely to influence their attitude towards the various devices. In countries where congestion, or poor signing, is a problem there may be more support assistance systems that reduce such problems.

General familiarity, use and liking of new technology will also be important. This dimension and its influence appears to make more of an impact when the situation is already more extreme. Drivers from some countries may think they are already 'saturated' and do not appear to support such systems because they are already familiar with them. Drivers from other countries with less experience of such systems may have exaggerated expectations in the technology (although this could be either positive and negative).

The attitude towards current enforcement activity, and possibly the value they place on being able to make 'free' decisions on driving behaviour will have an important impact on the support of any device which might restrict personal freedom in driving. Current enforcement activity and publicity seems to have influenced the answers of Irish drivers a lot. Two months before the SARTRE 3 poll a penalty point system has been introduced in Ireland. This introduction was highly supported by continuous positive reports in mass media. So the positive attitudes towards enforcement and respective devices of the Irish sample have to be interpreted considering these special circumstances.

An additional factor in general may have been that drivers may have had different ideas about what the systems could actually do and what they might be used for. For example the understanding of vehicle 'tagging' might have differed between countries – and did present problems with translation into the different languages used in the survey. In addition, drivers might not understand the benefits of the automatic enforcement for traffic safety, for example.

At this point the size of these various influences cannot be judged. It is necessary to link this answer patterns with data from the different countries. An in-depth analysis (to be reported elsewhere) will consider the contextual data of SARTRE 3 and integrate them with the questionnaire data to obtain more insight in the processes, which determine the attitude and finally the use of new technologies.

## Summary

In recent years drivers have become familiar with a wide range of new technologies and systems.

In general drivers are reasonably supportive of such developments, but the degree of support varies depending on whether the system is designed to help them, impose behaviours or help enforcement activity.

There are very large differences between the drivers of different countries. This may be influenced by the current situation in a particular country and their recent experience of such systems.

Drivers in Ireland were particularly supportive for most devices, which have been assessed in this questionnaire. This might have resulted from extensive recent publicity

campaigns designed to ‘explain’ the advantages of new systems (such as speed cameras).

## References

Intelligent Transportation Systems and Road Safety. ETSC, 1999.

ITS: Part of Everyone’s daily Life. ERTICO, 2002.

[www.etsc.be](http://www.etsc.be)

[www.ertico.com](http://www.ertico.com)

# Chapter 10

## Harmonisation

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### Introduction

The publication of the *European transport policy for 2010: Time to decide* (2001), *European Road Safety Action Programme* (2003) and the European Union's casualty reduction target (a 50 % fatality reduction by 2010) have brought the problems of Europe's road safety into a sharper focus. The largest debate was about the achievability of the European Commission's proposed target and ways of doing it. The European Commission believes the target can be achieved, but to do that Member States need to make specific commitments, better co-ordinate national, regional and local schemes across the European Union, disseminate best practices and new intelligent transport systems and sophisticated passenger restraint systems.

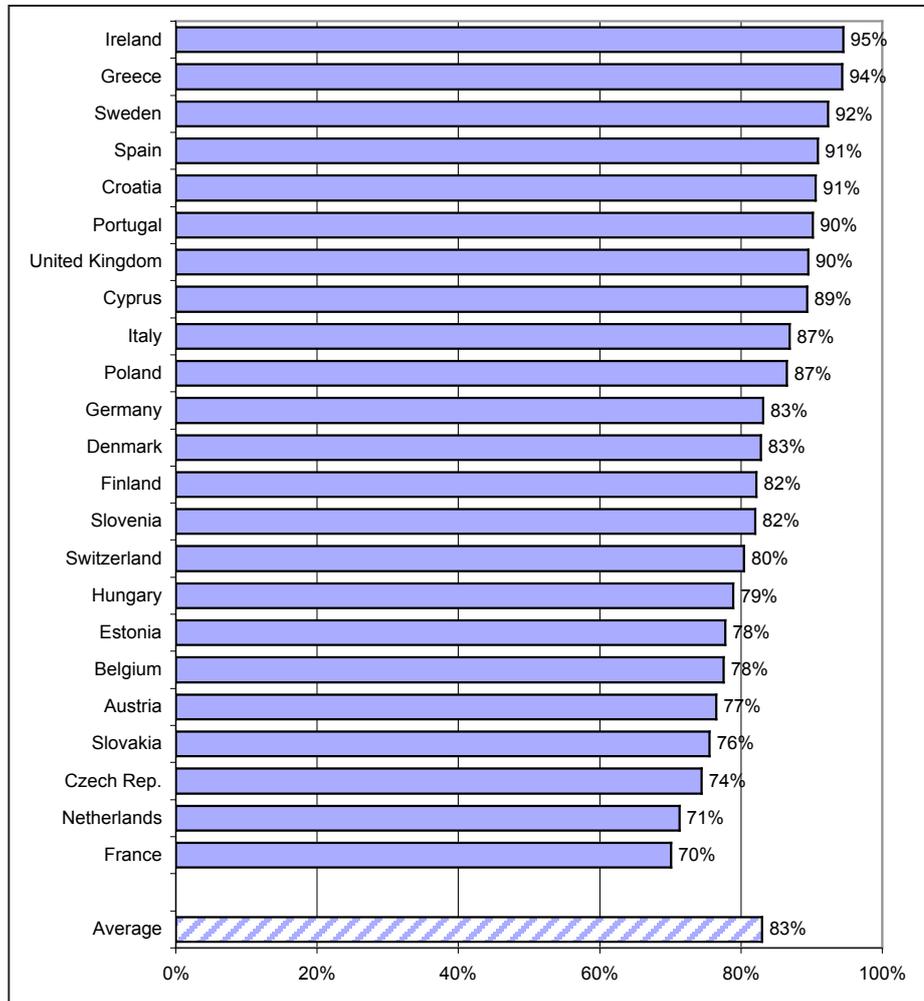
Meeting these conditions is not an easy task. The European Commission's experience shows how reluctant Member States are to take up joint action at the European Union level. A good illustration is how the European Union struggled to introduce a single blood alcohol limit (0.5 g/l) and digital tachographs in lorries or safer car fronts. In an effort to understand the reasons for the failed projects, the European Commission points to the fact that some countries use the subsidiarity principle to justify why they will not agree to follow uniform road safety schemes. While it is not the intention of the paper to question this statement, the study did look into the issue of social support for a single European road safety policy.

### Why do we need road safety action?

By setting its goal, the European Commission gave Member States a very ambitious task. Until now the majority of Member States have adopted lower fatality reduction targets in their road safety programmes (2010-2012) (ETSC; 2003). SARTRE 3 studies the opinions of drivers about the new target. The results are given in Figure 10.1.

As you can see, European drivers accept the setting of targets; as many as 83 % of them support a 50 per cent or higher fatality reduction<sup>16</sup> and only 5 % of the respondents rejected the idea. Support for ambitious targets (50 % or more) in Ireland (95%), Greece (94%), Sweden (92 %), Spain (91 %), Croatia (91 %) and Portugal (90 %), and the lowest in France (70 %). The strongest opposition ‘*We shouldn’t have any plan*’ to targets as such came from France (16 %), Czech Republic (16 %), Estonia (13 %), Slovakia (9%), Switzerland (8 %), Finland (8 %) and Poland (7%).

**Figure 10.1: The recent European Union White Paper on transport wants to reduce the number of people killed each year on our roads by half, by the year 2010. In your opinion, the plan should be that, over the next 10 years, we should aim to? (Q40): reduce killed of 50% and more**



<sup>16</sup> Caution is advised however. The questions did not allow a free choice of the target; neither did they allow one to choose a target more than 10 and less than 50 %.

There is a strong indication that the choice of target is not dictated by European Union membership or Non-European Union country status. It has more to do with the level of risk in the countries. Drivers from countries where risk is high are happy to support more radical targets. Sweden comes as an exception, but the country has been supporting “Vision Zero” for many years. To be solved is the question whether strong support for ambitious targets translates into interest in road safety and support for the goals envisaged in the *European Road Safety Action Programme*. In the next question drivers were given five different social problems (Rate of crime, Pollution, Road accidents, Standard of health care, Traffic congestion, Unemployment) and asked to prioritise them. The results are given in Table 10.1.

**Table 10.1: How concerned are you about each of the following (Q01) very and fairly in %**

Country	Rate of crime	Road accidents	Pollution	Standard of health care	Unemployment	Traffic congestion
Austria	74	83	86	40	85	61
Belgium	90	86	81	76	76	68
Croatia	88	92	87	78	92	71
Cyprus	88	93	85	84	69	80
Czech Rep.	88	83	77	76	67	56
Denmark	79	76	78	80	40	40
Estonia	96	91	84	88	78	52
Finland	90	91	85	73	76	42
France	89	96	88	76	82	61
Germany	75	72	83	55	87	53
Greece	92	97	90	94	92	87
Hungary	86	88	89	85	72	67
Ireland	93	98	87	90	72	80
Italy	83	88	93	77	83	56
Netherlands	91	79	83	82	63	65
Poland	85	91	87	89	91	91
Portugal	93	94	88	92	92	71
Slovakia	88	84	84	91	83	50
Slovenia	79	89	89	68	84	49
Spain	91	90	82	86	85	70
Sweden	64	46	61	63	40	26
Switzerland	85	79	87	53	85	61
United Kingdom	91	87	85	81	65	81
<i>Average</i>	<i>86</i>	<i>86</i>	<i>84</i>	<i>77</i>	<i>76</i>	<i>63</i>

As you can see drivers are concerned about road accidents, however they give equal consideration to issues such as rate of crime and pollution, and slightly less to unemployment and standard of health care. The order in which the social problems are

ranked is similar in European Union countries and Non-European Union countries, except that the latter show slightly more interest in health care and unemployment. Six years ago SARTRE 2 revealed similar interests, with the only clear change since 1996 being less concern in European Union countries about unemployment and more concern about the health care system and unemployment among drivers from European Union accession countries.

Despite Europe's strong concerns about road accidents (drivers from Ireland, Greece and France showing the strongest concern), not to be overlooked is the group of drivers who do not see road accidents in their countries as a risk. The group is the biggest in Sweden (54 %), Germany (28 %), Denmark (24 %), Switzerland (21%) and the Netherlands (21%). It seems that successful road safety schemes may lead to drivers losing interest in the problems. Sweden seems particularly interesting, a country that for many years has been among Europe's top three safest countries. The high per cent of drivers saying they take no interest in road accidents over the last decade may be one of the reasons why the country has been experiencing problems with implementing its road safety programme over the last few years.

Over the last years interest in road accidents in Europe has hardly changed, with a few exceptions. Austria has seen an increased importance of road accidents (from 72 to 83%) as well as Switzerland (from 70 to 79 %), France (from 90 to 96 %) while Sweden, Germany, Slovenia and the United Kingdom have seen a slight drop in the declared interest.

### **Possible road safety policies**

The *European Road Safety Action Programme* sets out the basic road safety problems, the European Commission's prevention proposals and a framework for national, regional and local work. In the programme the European Commission proposes to:

- stimulate road users towards a more responsible behaviour in particular through increased respect for existing rules (especially those on speed, alcohol, drugs and fatigue and the use of protective equipment);
- use the latest technology to make vehicles safer and speed up the introduction of new devices as standard vehicle equipment (particularly devices to control the performance of the car and driver);
- encourage road infrastructure improvement.

The following questions checked how responsive European drivers would be to these proposals, how traffic risk reduction could be improved and what government action they would be willing to support. Table 10.2 gives data about the policies and declared driver support.

**Table 10.2: Would you be in favour of or against the Government devoting more effort to the following road safety measures (Q02) strongly in favour and in favour, in %**

Country	Improve the standards of roads	Improving driver training	Increase nb of cycling lanes in town	Have more enforcement of traffic laws	Have more road safety publicity campaigns
Austria	86	78	69	69	68
Belgium	83	71	77	82	73
Croatia	100	95	88	94	86
Cyprus	85	86	72	75	75
Czech Rep.	98	79	83	91	60
Denmark	82	70	82	70	61
Estonia	99	87	84	78	62
Finland	85	74	88	81	81
France	88	89	84	83	78
Germany	84	75	72	54	61
Greece	99	95	70	74	71
Hungary	99	72	93	79	62
Ireland	98	94	73	86	83
Italy	94	87	77	91	74
Netherlands	76	69	76	65	68
Poland	99	87	91	85	84
Portugal	96	93	73	85	83
Slovakia	95	78	83	88	56
Slovenia	97	81	89	60	74
Spain	93	84	71	83	78
Sweden	87	57	77	52	56
Switzerland	62	72	68	51	59
United Kingdom	93	81	67	74	73
<i>Average</i>	<i>91</i>	<i>81</i>	<i>78</i>	<i>76</i>	<i>71</i>

The data shows that drivers give priority to road improvement. It is hardly surprising that Non-European Union countries (except Switzerland) place importance on that as well (96% of respondents from accession countries support these efforts). European Union drivers are also in favour (89%). Over the last six years since the last SARTRE study, driver support for government work aimed at improving roads has gone up. The interesting thing is that the biggest change has been in Austria (from 70 to 86 %), Sweden (from 75 to 87%), Switzerland (from 50 to 62 %) and Germany (from 75 to 84%). There is no clarity, however, what “improving the standards of roads” means to drivers from different countries and whether the term includes support for arrangements to reduce road risk and limit the consequences of accidents. Some information (especially from accession countries) suggests that better road standards may be

perceived as better driving conditions and higher speeds and that drivers will not welcome engineering schemes that will take some of the freedom away from them.

The other policies such as cycling lanes, improving driver training, enforcement of traffic laws or more road safety publicity campaigns are less popular. It seems drivers tend to support policies that improve driving conditions or are addressed to other road users (e.g. beginner drivers). Please note the support drivers have for improved traffic laws enforcement – i.e. lower than for other policies - 76% of drivers in Europe believe the problem needs the government's attention. The degree of support differs greatly from country to country. Croatian drivers are keenest to see improved enforcement (94 % of drivers are in support), followed by Czech (91%), Italian (91%) and Slovakian drivers (88%). Least support is in Switzerland (51%), Sweden (52%), Germany (54%) and Slovenia (54%). There has been a slight increase in the support for this policy since the last SARTRE, but mainly in European Union countries. The biggest positive change has been in Spain (from 64 to 83%), Portugal (from 69 to 85 %), Switzerland (from 35 to 51 %), Finland (from 69 to 81%), France (from 72 to 83%) and Belgium (from 72 to 82 %), against a drop in support in Slovenia (from 73 to 60%), the Netherlands (from 76 to 65%), Greece (from 81 to 74%) and Germany (from 61 to 54 %). More details about traffic enforcement are given in Chapter 3.8.

The results are a cause for concern especially in the context of the European Commission's pledge to improve enforcement and harmonise it across the European Union. The European Commission estimates that compliance with existing regulations alone (especially those on speed, alcohol, fatigue and drugs and use of protective equipment) should help reach half of the European programme's planned fatality reduction target. Consequently, before increased enforcement is introduced a lot of work has to go into the preparation and dissemination of relevant schemes.

Of the five proposed preventive measures, publicity campaigns were the least popular. There was some variation though. The strongest support for road safety publicity campaigns comes from Croatia (86% of drivers are in favour), Poland (84%), Portugal (83%), Ireland (83%) and Finland (81%), while Slovakia (56%), Sweden (56%) and Switzerland (59%) are least supportive. Publicity campaigns are usually seen as a useful tool for raising road user awareness and a means of enhancing other preventive action (e.g. enforcement). If we wanted campaigns to continue to serve this purpose, the results suggest that there is a need (at least in some countries) for a review of campaign policies. There has been a slight drop in campaign support in Slovakia, Greece, the Netherlands and Ireland.

Reducing the number of road accident fatalities will involve a better understanding and meeting of the needs of other groups of road users. The majority of road accident victims in the European Union are those travelling in cars, however more than 30 % of deaths are made up of unprotected road users (pedestrians, cyclists, moped and motorcycle drivers). Recent studies show (ETSC: 2003) that the risk of death<sup>17</sup> of motorcyclists is twenty times higher and of pedestrians 7-9 times higher than for car users. One of the questions (Q05) asked drivers about the groups of road users that the government should dedicate more attention to. The results suggest that European drivers do not distinguish any particular groups and are more supportive of schemes that tackle the problems of pedestrians, bicyclists, drivers, public transport, trucks and motorcyclists all at the same time.

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<sup>17</sup> Fatality rate per distance travelled

Diagnosing drivers' attitudes to the problems of vulnerable road users (pedestrian, cyclists and motorcyclists) is no easy task. Generally, drivers want their governments to tackle the problem, the relevant support has hardly changed over the last six years; support in European Union countries and non-European Union countries is very similar and finally, just like in the case of other problems, there are big differences from country to country. Since the last SARTRE study support for vulnerable road users has grown in Switzerland, Italy, Austria and the Czech Republic, against a drop in Slovenia, Slovakia, the Netherlands, United Kingdom, Sweden and Spain. As you can see, over the last few years Europe has seen the forming of an unusual group of countries where driver consideration for vulnerable road users is decreasing. The group includes countries considered Europe's safest and those that are lagging behind. With less pressure on the governments to address the problems of vulnerable road users, the result may be less action by countries where risk is high for pedestrians, cyclists and motorcyclists. The change in attitude of Dutch, British or Swedish drivers should also be studied in-depth.

The results also suggest that driver opinions about the problems of vulnerable road users are only slightly influenced by the actual risk to these groups. For example there is clearly less support for tackling motorcyclist problems, even despite the fact that the risk to motorcyclists is highest. What is more in many cases there was opposition to government involvement in the matter. This may suggest a negative attitude to the problems of these road users.

## Support for harmonising enforcement and engineering

In this chapter we are going to concentrate more in detail on the European Road Safety Action Plan and examine the proposals of the European Commission. Once we have examined these proposals, we will compare them with the statements made by European drivers, which should give us an idea of the perception of these proposals by drivers and of their support for these initiatives.

In this respect, the European Commission proposes four measures: first, higher levels of policing and regulating the sanction system; secondly, stepping up education and awareness programmes; thirdly, introducing technological innovations as well as regulating equipment for vehicles; finally, introducing new technical solutions for road infrastructures.

Before analysing the proposed measures in more detail, we believe it is interesting to sketch out a picture with regard to the main offences, i.e. driving under the influence of alcohol, driving without a seat belt and speeding. By examining the results of the SARTRE study, we can see once again that these problems are still very current, and even though each country is affected differently, the offences are present everywhere.

It should be noted that in order to measure the behaviour related to these offences, we have based our research on the statements made by drivers themselves and that consequently the figures are most probably underestimated in comparison with the real situation.

Regarding the problem of speeding (Question 9<sup>18</sup>) we can see that only 47% of the considered drivers state that they never or rarely exceed the speed limits on motorways.

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*18 Q9: 'In general, how often do you drive faster than the speed limit on the following types of road?'*

51% state they never or rarely do so on main roads between towns, 60% on country roads and 75% on built-up areas. The tendency is similar among the Member States and the Accession Countries but we can note that Switzerland is quite always below the average percentage of the Member States and respects less than the others the speed limit except in the built-up areas where 84% declare that they never or rarely exceed the speed limits.

The seriousness of the problem therefore differs and depends on the type of road: the more drivers have the impression that they can drive fast without danger, the more they declare exceeding the speed limits. Another point that should be noted is that the variance of countries in relation to the average of the other countries is lower as the speed limit drops. In other words, the behaviour of the considered drivers is more consistent in built-up areas than on motorways, for example, where the speed limits differ also from country to country.

With regard to driving under the influence of alcohol (Question 21<sup>19</sup>), 4% of the considered drivers say they drove at least one day during the preceding week under conditions where they had probably exceeded the legal limit for drink-driving. 70% of these drivers did so on less than one day during the same week and 26% stated that they never drink alcohol. The tendency is similar among the Member States and the Accession Countries but, among the Member States, Sweden and Cyprus stand out. In Sweden, nobody declares he drove at least one day during the preceding week under conditions where he has probably exceeded the legal limit for drink-driving. On the contrary, in Cyprus (legal limit: 0.9‰) we find the highest percentage of drink-drivers: 19% said they drove at least one day during the preceding week when they had probably exceeded the legal limit for drink-driving.

Wearing a seat belt has not yet by any means become a reflex in Europe based on these self-reported figures (Question 15<sup>20</sup>). In this respect, 13% of the considered drivers still never or rarely fasten their seat belts when driving in built-up areas, 8% on country roads, 5% on main roads between towns and 5% on motorways. Drivers in general thus seem to believe that the faster they drive, the more important it is to wear a seat belt.

If we examine the difference between the Member States and the Accession Countries, the general tendency is similar except for the motorways where the Accession Countries are less fastening their seatbelts (8% of the drivers never or rarely fasten their seat belts) comparing to the Member States (3% of the drivers never or rarely fasten their seat belts). Among the European members, Portugal respects more the rules than the others. However, Poland (on motorway), Croatia (on the other types of roads), Cyprus, Hungary, Italy and Greece (on main roads between towns) and Spain and Italy (in built-up areas) are the less obeying countries.

The SARTRE survey therefore indicates once again that a solution must be found for these three problems that affect all European countries. To overcome this problem and achieve the objective of reducing the number of accidents by 50% between 2003 and 2010, the European Commission has proposed harmonising prevention as well as enforcement of these offences within the different countries of the European Union. This will be examined on the following pages.

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<sup>19</sup> Q21: 'Over the last week, how many days did you drive, when you may have been over the legal limit for drinking and driving?'

<sup>20</sup> Q15: 'When driving this car (having seat belts fitted), how often do you wear the seat belt when making a journey on motorway, on main road between towns, on country roads, In built-up areas?'

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## Support for harmonising enforcement

### Harmonisation of laws

Having drawn up the balance of the current systems for the detection and enforcement of offences, we wish to analyse the degree of reluctance of the considered drivers towards the harmonisation of rules relative to driving under the influence of alcohol and to speeding, in other words, the extent to which the considered drivers are willing to accept changes to the rules.

### Speed

With regard to speed (Question 28d<sup>21</sup>), the considered drivers on the whole react favourably to the idea of harmonising speed limits on similar roads. Only the Cypriots (55%) are not at all or not much in favour of this proposal. The tendency is the same among the Member States and among the Accession Countries but, among the different countries, the reaction is not uniform. For example, some countries are less in favour (minimal 10% below the European average): Cyprus (45%), Spain (64%) and the Czech Republic (71%) or more in favour (minimal 10% above the European average): Slovenia (92%), the Netherlands (89%) and Croatia (89%).

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<sup>21</sup> Q28d: 'There is a possibility of having similar laws and regulations applied to driving throughout Europe. In order to achieve this 'harmonization', various measures could be introduced throughout European countries. How much would you be in favour of having the same speed limits for similar roads?'

**Table 10.3: Driver's opinion about same speed limits for similar roads in %**

Country	Very	Fairly	Not much	Not at all
Austria	52	36	9	3
Belgium	38	45	12	5
Cyprus	8	37	38	18
Czech	25	45	22	8
Denmark	57	29	9	6
Estonia	37	50	10	2
Finland	48	32	13	8
France	48	39	7	5
Germany	47	38	10	5
Greece	27	46	18	10
Hungary	45	43	8	4
Ireland	54	26	9	11
Italy	36	43	12	8
Netherlands	52	37	6	5
Poland	27	50	17	6
Portugal	20	58	21	1.8
Slovakia	29	45	17	9
Slovenia	53	39	6	2
Spain	21	42	23	14
Sweden	46	31	10	14
United Kingdom	43	41	9	8
Croatia	47	41	9	2
Switzerland	36	40	17	8
<i>Average</i>	<i>39</i>	<i>41</i>	<i>14</i>	<i>7</i>

On the other hand, a more detailed analysis of whether the considered drivers are in favour of changes to the speed limits in their own country reveals a much less positive reaction (Question 10<sup>22</sup>). On the whole, they do not wish to see the current limits modified. In addition, if they are to be modified, drivers are more in favour of higher speed limits than lower ones. This is particularly the case for speed limits on motorways and for certain countries, such as Hungary (63% of drivers would like to see speed limits on motorways higher than the current limit of 130 km/h), Denmark (60% are in favour of a higher speed limit than the current limit of 110 km/h) and the Netherlands (50% are in favour of a higher speed limit than the current limit of 120 km/h). An average of 6% of the considered drivers would even prefer to see no speed limits on motorways (18% in Germany<sup>23</sup>, 13% in Poland and 12% in Switzerland).

<sup>22</sup> Q10: 'Compared to the present limits, what do you think the speed limit should be...?'

<sup>23</sup> Notice, however, that in Germany there is no general speed limit, but only speed limits for certain stretches on motorways.

On the other hand 18% would like to see lower speed limits in towns. In Hungary, England and Ireland, as many as 59%, 44% and 34% respectively would like lower limits in towns than the current limits of 30 mph (48 km/h) (England and Ireland) and 50 km/h (Hungary).

Although there is a speed limit of 60 km/h in Polish and Slovakian towns, the results for these two countries are not extremely more or less than those of the other countries (18% of Polish drivers and 19% of Slovakian drivers want lower limits in towns).

Consequently, with the exception of towns, the harmonisation of speed limits will not be easy to apply if it means stricter rules.

**Table 10.4: Perception of speed limits per type of road**

In %	On motorways	On main roads between towns	On country roads	On built-up areas
Lower	5	7	11	18
The same	52	71	75	74
Higher	37	22	14	8
Without limits	6	0.5	0.5	0.2

Likewise, the proposal to require car manufacturers to restrict car maximum speed (Question 28b<sup>24</sup>) provokes different reactions (53% of the considered drivers are 'fairly' + 'very' in favour). The Accession Countries are less in favour (44% are 'fairly' + 'very' in favour) than the European countries (57% are 'fairly' + 'very' in favour). The countries that most strongly oppose (more than 60% are 'not much' + 'not at all' in favour) are: Germany (62%), Switzerland (63%), Hungary (64%), Slovakia (64%) and Czech Republic (65%). The data suggest the need for a more in-depth study of this issue.

### Alcohol

For driving under the influence of alcohol, drivers appear to be aware of the problem. In their opinion, this factor is the most frequent cause of accidents in the list of proposed causes and the tendency is the same among the Member States and the Accession Countries. The majority of respondents (59%) are in favour of driving without alcohol or with a level, which is lower than the current level (Question 22<sup>25</sup>). This percentage is higher among the Accession Countries (66% are in favour of driving without alcohol or with a level, which is lower than the current level) than among the European countries (54%). Only 8% of the considered drivers believe that drivers should be allowed to consume more alcohol or as much alcohol as they want. Among the Accession Countries, the percentage is a bit higher (9%) while among the European Union countries it's a bit less (7%). The European Union countries are more in favour of the status quo. Unfortunately, as we have seen earlier, drink-driving still occurs very frequently and it is the cause of many accidents. One explanation for this phenomenon

<sup>24</sup>Q28b: 'There is a possibility of having similar laws and regulations applied to driving throughout Europe. In order to achieve this 'harmonisation', various measures could be introduced throughout European countries. How much would you be in favour of a requirement that manufacturers modify their vehicles to restrict their maximum speed?'

<sup>25</sup> Q22: 'People have different opinions about what the legal limit should be. Which of the following statements best matches your opinion. Do you think that drivers should be allowed to drink? No alcohol at all, less alcohol than at present, as much alcohol as at present, more alcohol than at present, as much as they want.'

could be that it is not the people who drink and drive the most who are aware of the problem. Indeed, the drivers who are the most in favour of maintaining or reducing the level of alcohol appear to be those who tend to drink the least when driving. In this respect, of those who believe that drivers should no longer be allowed to drink alcohol before driving (45% of the considered drivers), 61% say they never drink-drive<sup>26</sup>. Of those who would like to maintain the authorised level of alcohol as it is today (33% of the considered drivers), 71% never drink before driving or less than one day per week. It would be interesting to take these elements into account when developing communication campaigns.

**Table 10.5: Driver's opinion about a same uniform European alcohol limit in %**

Country	Very	Fairly	Not much	Not at all
Austria	64	23	9	5
Belgium	39	43	13	6
Cyprus	11	40	32	17
Czech	16	27	21	36
Denmark	63	19	8	10
Estonia	20	29	25	26
Finland	61	16	11	12
France	53	35	7	6
Germany	56	26	7	11
Greece	30	41	18	12
Hungary	25	24	16	35
Ireland	60	19	11	10
Italy	32	38	18	11
Netherlands	55	31	5	9
Poland	18	31	24	27
Portugal	19	60	18	4
Slovakia	20	20	18	42
Slovenia	46	37	9	8
Spain	22	41	28	10
Sweden	45	17	8	30
United Kingdom	54	26	11	10
Croatia	47	32	10	11
Switzerland	39	28	21	11
<b>Average</b>	<b>39</b>	<b>31</b>	<b>15</b>	<b>16</b>

We have also evaluated the extent to which the considered drivers were or were not in favour of having a uniform European Union wide introduction of a maximum alcohol

<sup>26</sup>Q21: 'Over the last week, how many days did you drive, when you may have been over the legal limit for drinking and driving?'

limit of 0.5 g/l (Question 28c<sup>27</sup>). Nearly all countries are in favour of the proposition but the European countries are more in favour (77%) than the Accession Countries (57%). However, there is a tendency that the more the national limit differs from 0.5 g/l, the lower the acceptance is for a maximum level of 0.5 g/l.

The considered drivers also reacted to the proposal to not allow new drivers to drink before driving (Question 28e<sup>28</sup>). This measure was welcomed very positively in all the countries and there is no difference between the European countries and the Accession Countries. The average of the "completely" and "rather" favourable answers is 82% for all the countries together. Certain countries such as the Czech Republic, Slovakia, Hungary and Slovenia have a general zero tolerance in terms of drink-driving. Other countries such as Austria, Spain, Greece and the Netherlands impose a lower level for young drivers than the level for other drivers. Over the last few years the support has been growing. The biggest change is in the United Kingdom with a 59 % increase in those in favour. Support dropped in Greece (-19 %-points) and Spain (-17 %-points), countries that have already introduced a lower BAC for new drivers.

In view of all these results concerning speeding and drink-driving, it appears that the considered drivers are much more aware of the risks linked to driving under the influence of alcohol than those related to speeding. Given these facts, it will probably be more difficult to harmonise the rules for speeding, especially if they are made stricter, than to harmonise the rules related to driving under the influence of alcohol.

### Penalty point systems

72% of the considered drivers are in favour of introducing a single penalty points system across the European Union (Question 28a<sup>29</sup>). The European countries are more in favour (76% of 'very' + 'fairly' in favour) than the Accession Countries (76% of 'very' + 'fairly' in favour). The five countries, which are the most in favour, are: Ireland (87% of drivers are 'fairly' + 'very' in favour), Portugal (86%), Sweden (86%), United Kingdom (83%) and Finland (82%). From among these countries only Sweden has not introduced penalty points while Ireland applies it to speed offences only. The least support is among drivers from Austria (58%), Estonia (56%), Cyprus (54%), Switzerland (52%) and Belgium (51%). The data suggest that drivers familiar with the penalty points system are more likely to support the system (76% strongly + fairly in favour) than drivers from countries that have not introduced the system yet (66%).

### The use of cameras as a mean of enforcement

We have measured the reactions of the considered drivers to enforcement systems such as automated cameras (Question 34a,b<sup>30</sup>).

27 Q.28c: 'There is a possibility of having similar laws and regulations applied to driving throughout Europe. In order to achieve this 'harmonisation', various measures could be introduced throughout European countries. How much would you be in favour of having a maximum alcohol limit of 0.5g/l?'

28 Q.28e: 'There is a possibility of having similar laws and regulations applied to driving throughout Europe. In order to achieve this 'harmonization', various measures could be introduced throughout European countries. How much would you be in favour of not allowing new drivers to drink any alcohol before driving?'

29 Q.28a: 'There is a possibility of having similar laws and regulations applied to driving throughout Europe. In order to achieve this 'harmonization', various measures could be introduced throughout European countries. How much would you be in favour a penalty points system for traffic offences which results in loss of licence when exceeded?'

30 Q.34a: 'How much would you be in favour of automated cameras for red light surveillance?'; Q.34b: 'How much would you be in favour of surveillance of speed excess by automated cameras?'

We can see once again that the considered drivers accept the systems currently in use on the whole and that automated cameras are perceived favourably whether for monitoring drivers' respect of traffic lights or of speed limits. An average of 72% of the considered drivers are very positive or positive regarding monitoring drivers' respect of traffic lights using automated cameras and 66% for monitoring drivers' respect speed limits with cameras. It's probably because it is an objective and reliable system. On the other hand, if the proposal had suggested that the number of cameras on the roads would increase, the reactions would undoubtedly have been different.

**Table 10.6: Support for automated cameras...**

In %	Very	Fairly	Not much	Not at all
...for red light surveillance	35	36	18	10
...for speed excess surveillance	29	37	22	12

**Where should drivers be penalised?**

The fact that the considered drivers who commit offences in other countries are prosecuted in their own country has given rise to a wide range of reactions (Question 36a,b<sup>31</sup>) but in general the concerned drivers are divided (51% of very + fairly agree). The European countries are more positive (57% of very + fairly agree) than the Accession Countries (41% of very + fairly agree). The most positive countries (above the European average) are Austria (75%), Germany (74%), Belgium (72%), Ireland (67%), Switzerland (64%), Spain (60%) and Estonia (59%). In the same respect, these countries wish to see their drivers prosecuted in their home country if they commit offences in other countries. Concerning this second measure (see table 10.7), the reaction of the considered drivers is comparable (51% of the drivers on average are very or fairly agree). The European countries are this time also more positive (57% of very + fairly agree) than the Accession Countries (41% of very + fairly agree).

Probably, this measure will therefore be difficult to implement as a result of the wide range of systems that exist, particularly in terms of severity and the different legal systems in the various European countries.

**Table 10.7: Support for prosecuting...**

In %	Very	Fairly	Not much	Not at all
...foreign drivers in their own country after having committed violations in respondent's country	27	22	18	34
...drivers from respondent's country in their own country after having committed violations in another country	28	23	17	32

<sup>31</sup> Q36: 'Would you agree (Very, Fairly, Not much, Not at all) that: drivers from other European countries who commit driving violations in your country be prosecuted in their country your nationality drivers will be prosecuted in your country, if they commit offences in other European countries

## How severe should the sanctions be?

The majority of the considered drivers agree that the sanctions for speeding and for driving under the influence of alcohol should be more severe (Question 3<sup>32</sup>) and the tendency is the same for the European countries and the Accession Countries. Once again, the countries are more enthusiastic to be more severe for drink-driving (89% agree or strongly agree) than for speeding (61% agree or strongly agree). On average, 22% do not agree or do not agree at all with making the sanctions for speeding more severe, while this is 7% for drink-driving. The most negative countries (50% or less who agree or entirely agree) to be more severe for speeding offences are Denmark (50%), Netherlands (48%), Estonia (47%), Poland (45%), Germany (45%), Switzerland (40%) and Sweden (39%). Concerning the proposition to be more severe for the sanctions for driving under the influence of alcohol, the 'less positive' country is Spain with 76% of people who agree or entirely agree with the proposition.

### Conclusion

Chapter 3.8 taught that enforcement is insufficient in European countries as a whole, given the number of controls and sanctions in comparison with the number of – declared – offences. This point should be better covered in the deliverable T3.8 about Enforcement.

The considered drivers themselves appear to be receptive to a modification of the current systems, however, only within certain limits. In this respect, they are in favour of the introduction of stricter sanctions, especially for driving under the influence of alcohol. Similarly, they do not agree with the proposals regarding penalising offences committed by foreigners in their country or committed by them abroad.

Harmonisation will therefore be easier for drink-driving but will certainly have to be phased and must not replace the current system at one fell swoop. For speeding and seat belt wearing, reactions will perhaps be more outspoken, however, harmonisation will be easier to accomplish when drivers are made aware of the dangers linked to this behaviour. This could be achieved by means of awareness-raising campaigns.

## Support for harmonising engineering

The *European Road Safety Action Programme* emphasises the need to step up work on fitting modern devices that make driving easier and help monitor driver behaviour. The implementation of many of these new technologies is expected to help reach the 50% fatality reduction on European Union roads. As much as it is true, the effect new technologies will have on road safety will depend on driver acceptance. Chapter 3.9 of the report gives a more detailed description of the problem. Table 10.8 shows the average support of drivers for three groups of devices, i.e. devices that:

1. assist the driver (Q30\_a, Q30\_b)
2. impose particular behaviours (Q30\_c, Q30\_d, Q30\_e, Q31\_a)
3. can be used by the police for enforcing traffic laws (Q34\_a, Q34\_b, Q31\_c, Q31\_e)

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32 Q3ab: 'Do you agree or disagree with the following statements: a. Penalties for speeding offences should be much more severe, b. Penalties for drink-driving offences should be much more severe'

**Table 10.8: Average support of drivers for devices that...  
very and fairly, in %**

Country	Assist the driver	Impose particular behaviours	Used by the police for enforcing traffic laws
Austria	48	41	46
Belgium	58	53	64
Croatia	77	67	67
Cyprus	80	73	64
Czech Rep.	64	47	58
Denmark	56	46	55
Estonia	68	57	61
Finland	60	65	66
France	65	78	60
Germany	51	41	51
Greece	80	73	60
Hungary	64	47	63
Ireland	68	80	73
Italy	76	63	64
Netherlands	59	45	57
Poland	83	67	69
Portugal	81	71	69
Slovakia	71	65	64
Slovenia	76	61	58
Spain	78	64	50
Sweden	70	62	45
Switzerland	58	40	38
United Kingdom	75	70	73
<i>Average</i>	<i>68</i>	<i>60</i>	<i>60</i>

As you can see, European drivers are more likely to support group one than the other two groups. When put in a descending order of support, the most popular devices were those making driving easier. This was followed further by devices stopping drivers from driving when tired and after alcohol consumption, and finally - those limiting speeds. In general, non-European Union countries' drivers show more support for devices that make driving easier; elsewhere the differences between European Union and non-European Union drivers are small. The different levels of support from different countries show that not all drivers are ready to accept the devices. This may be the result of insufficient knowledge about the benefits of using the devices or resistance against more stringent laws where drivers feel their behaviour is being disciplined.

These doubts should be clarified as soon as possible, and the results of the analyses should be key to implementation schedules of the various devices.

## Conclusion

In this chapter we studied the opinions of the different European countries on the harmonisation of the different national road safety policies.

There is in fact a need for a road safety action and the considered drivers accept the setting of targets (more radical if the risk in the country is higher). However, the different road safety policies proposed are welcomed differently. The drivers seem to be in favour of harmonisation as long as it remains more theoretical. When more concrete measures are proposed, the enthusiasm is lower.

With regard to the possible harmonisation of regulations, standards or road safety work, the drivers are more in favour of stricter measures in the area of drink-driving than in the area of speed. But, in general, there remains a lot of work in order to change driver's opinions about the significance of speed and drink-driving. With regard to the second problem, drivers are more and more sensitised but people who are actually in favour of stricter measures for drink-driving remain people who already do not drink and drive.

We have analysed the situation of the different European countries regarding these problems (drink-driving and speeding) and the problem of not wearing the seatbelt. There are some countries in which the situation is not optimal yet. Too much people declare to drink and drive, to drive above the speed limit and not to wear their seatbelt. The situation is still improvable – e.g. by better awareness raising measures, more efficient enforcement and sanctions.

These findings suggest that harmonising traffic rules in Europe will be a difficult process. Reaching the objective of harmonisation in order to improve traffic safety will only be possible through changing driver's attitudes for example via information and sensitising campaigns. Mentalities are changing but the process is slow and the countries seem to be attached to their 'old' system.

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# Chapter 11

## Changes in individual countries

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### Introduction

The traffic system consists of road network, road users, vehicles, and regulations. As the years go by, the traffic system in European countries changes over time as a result of the development of new roads, the wear and tear of old roads, the introduction of new regulations, and the change in the composition and quality of vehicles. The age composition of the population of road users also changes slowly over time, with a general trend that road users over 60 years old will be more strongly represented in the total population in the years to come. Moreover, changes in the economic and social climate have a strong influence on the traffic system. In countries with strong dynamic economic growth, the road network must cope with a sizeable increase of economic traffic. Over time, road users have new experiences in the traffic system that lead them to a change in the way they feel and think about traffic matters. This chapter studies the changes of European road users with respect to attitudes towards regulations, measures, and self-reported behaviour.

To describe changes in attitudes and self-reported behaviour over time is the main aim of the chapter. The chapter is arranged as follows. In paragraph 1.2 we explain the method of analysing and describing the results. In paragraph 2 we present a summary overview for those readers who want to get a quick comprehension of the major changes between 1996 (SARTRE 2) and 2002 (SARTRE 3) in norms and attitudes regarding road safety and self-reported behaviour. This paragraph also contains a short conclusion for each separate country (Paragraph 2.3). For the readers who are particularly interested in the changes in separate countries, we have described these changes in paragraphs 3.2. to 3.21. The description of the changes in individual countries follows an alphabetical sequence with Austria being first (Paragraph 3.2) and United Kingdom being last (Paragraph 3.21).

The verbal description of results for each separate country is for the most part qualitative and most often does not mention precise results. We have not mentioned percentages in every sentence in order to preserve the general readability of these

paragraphs. However, for those readers who wish to get a view of the exact results, we have summarized these results in Table 1 in the Appendix.

For nearly all countries we report on the changes between SARTRE 2 and SARTRE 3 (abbreviated in the text as SARTRE 2 and SARTRE 3). The one exception is Denmark, which participated in SARTRE 1 and SARTRE 3, but not in SARTRE 2.

## Method

For each separate country we will present the main differences in attitudes and opinions between 1996 (SARTRE 2) and 2002 (SARTRE 3). For several reasons we have chosen not to include the results of SARTRE 1 into the comparison over time. Firstly, the SARTRE 1-SARTRE 2 comparison has already been dealt with in earlier publications of the SARTRE project. Secondly, the number of similar questions between SARTRE 2 and SARTRE 3 is much greater than the number of identical questions between SARTRE 1 and SARTRE 3 with as a result that the SARTRE 1-SARTRE 2-SARTRE 3 comparisons can only be made for a subset of questions. Finally, the sheer number of results from the SARTRE 2-SARTRE 3 comparison alone is so large that inclusion of further results from SARTRE 1-SARTRE 2 would make it very difficult to write a clear overview of results

In order to select the main differences we have added an additional criterion to standard significance testing. This criterion is that the change in percentage between SARTRE 2 and SARTRE 3 is at least eight percentage points for one answer category. With a sample sizes of about 1000 car drivers, differences of five-six percentage points in one answer category could be significant, but these seem to us not psychologically significant. To study the differences over time we made use of weighted data, since the weighted data represent the most representative sample.

In interpreting changes over time there is also the methodological issue of comparability of samples over time. There are some quality safeguards in the SARTRE project to ensure as much as possible that samples are comparable over time. One safeguard is that the criteria for the sampling procedure have not changed from 1991 to 1996 to 2003. Another safeguard is that each sample is carefully checked for deviant or missing data before the sample is made part of the SARTRE database. A last safeguard is that some samples are weighted to make them more representative for the population of license holders.

Populations of license holders will change in composition over time and therefore there will also be some changes in the composition of samples. Over a period of five years these changes are small, but still they could exert an influence.

To check for these changes we have performed Variance Analyses using the two variables "countries" and "saversi" (characterizes person as SARTRE 2 or SARTRE 3 participant) as independent factors and age as covariate. Using age as covariate means, that variance which is explained by age will be extracted before starting the analysis with the above mentioned factors "countries" and "saversi". Looking at the "explained variance" for each factor, we will be able to describe and evaluate their general effects on attitudes and self-reported behaviour. Due to the large sample ( $N = 62,528$ ) we expect that nearly all effects are significant. So explained variance (eta-square) will be the adequate basis for the interpretation of general effects.

If the dependent variable is categorical we will perform either Chi-Square-Test or Log Linear Modelling. Log Linear Modelling is used to look at significant interactions between more than two categorical variables. If there is a significant interaction between "saversi" (SARTRE 2 or SARTRE 3 participants) and the dependent variable (e.g. "I enjoy fast driving"), we will speak of a general change.

Apart from describing changes in every country in terms of percentages, variance analysis, Chi-Square-Test and Log Linear Modelling was used to look at general effects. Analysis of variance was performed with the two factors "countries" and "saversi" (characterizes person as SARTRE 2 or SARTRE 3 participant) and age as covariate. Using age as covariate means, that variance which is explained by age will be extracted before starting the analysis with the above mentioned factors "countries" and "saversi". The table in Appendix 2 summarises the results of these analyses. In paragraph 3.21 we will discuss these findings.

## Overview of results

### General analysis

The variance, which is explained by factor "saversi" (SARTRE 2 or SARTRE 3-participants), is very small. Regarding a set of relevant questions, it lies between zero and four percent. This means, that there is no general change. Also the interactions between the change variable "saversi" and the country variable show no relevant effect. The explained variances lie between zero and seven percent. There are two exceptions. The interaction between the change-variable and the country-variable explains sixteen percent of estimating the frequency of taking medicine being cause of accident, and the same interaction explains thirteen percent of estimating the frequency of taking drugs as being a cause of accidents. These results indicate that a large change has occurred in thinking about these two accident causes over time. Inspection of the percentages show that in many countries there has been an increase in the perception of these accident causes.

We used Chi-Square-Test to find correlations between change-variable "saversi" and relevant variables of the questionnaires. These tests delivered a large amount of significant results. However, most of these results actually only represent weak correlations. With survey data of this kind, Cramer-V rarely goes much beyond .25. It is common to speak of a remarkable effect if a Cramer-V of at least .20 is found. Most of Cramer-V lie between .01 and .07, which are values indicating a weak relationship. A Cramer-V of .20 and .35 are exceptions and are given for the correlation between "saversi" and "having seat belts fitted" and "saversi" and "driving over the legal alcohol limit". Cramer-V is a correlation coefficient ranging from 0 to 1. The higher the value for V the stronger the association between the two variable. It is nearly impossible to reach the "1".

As far as the results of Log Linear Modelling are concerned, no significant interactions between the change-variable "saversi" and the categorical variable of the questionnaire have been found. This means, there is no general change.

To sum up, although we find some large differences between SARTRE 2 and SARTRE 3 in terms of percentages for separate countries, we do not find meaningful general effects of change.

## Synopsis of results per country

In this paragraph we present a summary overview of results. To summarize results for each country, we calculated an change index based on the answers for eighteen opinion attitude questions (questions 21 to 2d, 3c, 3d, 10a, 10b, 10d, 17 to 17d, 22, 28a to 28e) and another index based on the answers for fourteen behaviour questions (questions 8, 9a to 9d, 13a to 13e, 15a, 15b, 15d, 20, 21). For each question on which a country changed between eight and eleven percentage points, we assigned a change score of one or minus one to the country, dependent upon the direction of the change (positive or negative). If a country changed more than one eleven percentage point on a question, we assigned a change score of two or minus two, again dependent upon the direction of the change. By summing the total of change scores for the set of behaviour questions and the set of opinion questions, and then dividing the sum by the number of questions and multiplying the result by five, we produced a change index score for opinions and behaviour that ranged from minus ten to plus ten.

Table 11.1 present the change index scores for opinion/attitudes and behaviours for each country. The table shows the following:

The change index scores for opinions and attitudes tend to be higher than those for self-reported behaviour, which seems to attest to the fact that it is easier to change attitudes and pinions than to change behaviour.

There is a group of countries, which shows no overall change on both opinion/attitude questions and self-reported behaviour questions: Austria, Belgium, Hungary, and the Netherlands.

Another group of countries shows a moderately large and positive score on the index for opinions/attitudes but a low or even negative score for the index for behaviour questions. This group included Czech Republic, Finland, France, Sweden, Switzerland and United Kingdom,

There are three countries, which show both a moderately large change, score for both opinions/attitudes and behaviours: Ireland, Italy and Portugal. To a what lesser extent also Poland shows positive scores on both sets of questions.

Spain is the only country with a negative change index for both sets of questions, and with a moderately large negative change index for self-reported behaviour.

**Table 11.1: Change index scores for opinion/attitudes and behaviours**

Country	Change index score based on eighteen attitude/opinion. Scale ranging from -10 to +10 points.	Change score index behaviour questions. Scale ranging from -10 to +10 points.
Austria	+0.5	+0.4
Belgium	+0.3	+0.7
Czech Republic	+2.8	0.0
Finland	+3.8	0.0
France	+2.8	+0.4
Germany	+0.8	0.0
Greece	+1.1	+1.4
Hungary	+0.5	+0.4
Ireland	+5.8	+2.8
Italy	+2.8	+2.5
Netherlands	0.0	-0.4
Poland	+2.2	0.0
Portugal	+4.7	+1.8
Slovakia	+1.1	-1.1
Slovenia	+1.1	+2.1
Spain	-0.6	-5.0
Sweden	+3.6	+0.7
Switzerland	+4.2	-1.4
United Kingdom	+4.7	+0.4

See also Table 3 in Appendix. Change index calculated by summing change scores on opinion/attitude questions (questions 2a to 22d, 3c to 3d, 10a, 10b, 10d, 17a to 17d, 22, 28a to 28e) and then dividing the sum score by the number of questions (18) and multiplying thus result by five to achieve a scale, ranging from a minimum -10 and a maximum +10. For each percentage difference 8-11 percentage points, a 1 score was assigned; for changes larger than eleven percentage points two change point were assigned. Changes in negative direction received a negative sign. Change index for behaviour questions calculated in the same way for questions about behaviour (questions 8, 9a to 9d, 13a to 13e, 15a, 15b, 15d, 20, 21).

## Discussion and conclusions

Before we go back to our results, we would like to make some remarks about the different ways results can be interpreted. Changes in self-reported behaviour or opinions can mean different things. For example, if the interest in a particular road safety measure lessens over time, this could mean that the measure is already operative and does not need any more attention. On the other hand, a different explanation might be that experiences with the measure are not positive and therefore enthusiasm has slackened over time. The changes in self-reported behaviour also invite multiple meanings. We may critically question whether drivers really change their behaviour or whether they are merely presenting a more positive image of themselves because they are more aware of the social norms regarding traffic. An alternative explanation for

changes in self-reported behaviour is that, over time, publicity about a specific makes drivers more aware of their own behaviour and being more aware of their behaviour they report a better estimate of that behaviour. Thus, the reality could be that the behaviour actually has not changed that much, but that drivers are more aware of their behaviour and therefore tend to report it more frequently. Likewise, if a certain traffic behaviour is reported less frequently, this could be the result of more severe social norms, which forbid the behaviour instead of an actual change of the behaviour.

We will go over the result again and formulate general findings and conclusions.

- From SARTRE 2 to SARTRE 3, in general, there is more change in opinions and attitudes than change in self-reported behaviour. That is not so surprising since it is easier to change an opinion than to change behaviour, which may be rooted in habit or strong personal preferences.

- In almost all countries (except Spain), the change in opinions and attitudes tends to be in the positive direction as regards road safety awareness. This suggests that at least opinions and attitudes concerning road safety and road safety measures in general have not deteriorated.

- We found that attitudes and self-reported behaviour were in general quite stable in certain countries: Austria, Belgium, Germany, and Netherlands. This is not to deny that some changes in thinking and behaviour have taken place in these countries. But the changes are too few or not consistent with one another to suggest a structural/deeper shift in collective mentality.

- In over half of the countries in the SARTRE 3 survey, there has been a change towards less willingness to use public transport more often in order to reduce air pollution. It seems that, over the years, public transport is increasingly perceived less as a reasonably good substitute for car driving.

- From SARTRE 2 to SARTRE 3, drivers in almost all European countries are showing more positive attitudes towards seat belt use. In most countries many more driver report to have a car with seat belts fitted in the rear and in the front. In many countries drivers report a better wearing behaviour. The SARTRE 2-SARTRE 3 results for speeding and drinking and driving show a far more mixed pattern with both positive and negative developments. It seems that seat belt wearing is the area with the greatest potential for better attitudes. In a report by ICF Consulting (2003) enforcement and campaigns in the area of seat belt use show better cost-benefit estimates than those in the areas of enforcement of speeding and drinking and driving.

- From SARTRE 2 to SARTRE 3, drivers in about half of the survey countries are showing more positive attitudes towards new technology in the car such as a navigation system, an alcohol-meter, or a system that prevents them from exceeding the speed limit. It remains to be seen whether this attitude will stay positive if a larger part of the population actually experiences driving with these systems.

- In many countries drivers have changed towards a more negative attitude towards speeding and high limits. However, in some countries (e.g. Hungary, Netherlands, Czech Republic) the attitudes towards speeding and speed limits differ for higher and lower order roads.

- It is rather surprising that even in countries with a high safety orientation like Finland, Sweden, and Denmark we find a stronger call for road safety measures such as

more police enforcement. A long road safety tradition does not necessarily "saturate" the wish for more road safety action and better safety results.

- In a few countries there seem to be more comprehensive changes in attitudes and behaviour, namely Ireland, Portugal, and Italy. In regard to Ireland there is strong evidence of an impact of a mass media campaign about the introduction of a penalty points system. Presumably media campaigns in Italy and Portugal have also played an important role in the stronger road safety orientation in these countries.

- In a few countries we observed developments in attitudes and behaviour, which are contrary to the ideal of road safety. For example, Spanish drivers report more often driving faster than the limit on several types of roads, including roads within urban areas. Also, more Spanish drivers have come to accept the statement that people should be free to decide for themselves how much they drink before driving. More Spanish drivers report dangerous overtaking and warning other drivers of speed traps. Disappointingly, Spain is the single country in the SARTRE-3 sample which reports less seat belt wearing. Maybe Spanish drivers realize that these developments tend to be negative for road safety since Spain is the one country with the strongest call for more police enforcement.

- Regarding the perception of accidents, drivers in many countries have come to think of taking drugs and driving as a frequent accident cause. In many countries, the thinking about traffic congestion as an accident cause has changed. In most countries there has been a decrease in the number of drivers who think that traffic congestion is a frequent accident cause. However, Danish, Dutch and German drivers have changed in the opposite direction; in these countries more drivers tend to view traffic congestion as a frequent accident cause.

## Results by country

### Introduction

In this paragraph we describe the changes in attitudes, opinions and self-reported behaviour for each country. We have tested the significance of changes by Chi-square tests, assuming that the answers on most questions have ordinal scale characteristics rather than interval scale characteristics. For the sake of readability, we will not mention the particular test outcomes of these tests in the text, and we will simply state here that all the described results are significant at a confidence level of 95 percent. As we have already noted in the Method section (Par. 1.1), we have added an additional criterion to standard significance testing. This criterion is that the change in percentage between SARTRE 2 and SARTRE 3 is at least eight percentage points for one answer category. With a sample sizes of about 1000 car drivers, differences of five-six percentage points in one answer category are often significant, but many of these differences seemed to us rather small and we doubted whether these differences represented true "psychological" significance. To study the differences over time we made use of weighted data, since the weighted data represent the most representative sample.

In analysing and describing the result in the next paragraphs, we have followed the following rules:

- For the set of questions about accident causes we have combined the answers "often", "very often" and "always" into one category before analysing and describing the results for these questions.

- In describing the results we mention the answer, or combination of answers, which includes the largest or all of the change in percentages. For example, if on a particular question, the change is that nineteen percent more respondents give the "very" answer, without hardly any change in answers on the "fairly" category, we will only mention the "very" answer in describing this difference. If, on the other hand, the change in percentage is divided over both answers "very" and "fairly", we describe the result with reference to both these answers.

- If on certain questions respondent change from a "positive" answer (e.g. "fairly agree") to a very positive answer (e.g. "very much agree"), without a change in the percentage of respondents, who give negative answers we will note this in describing the result.

- In describing the result about drinking and driving we always explain whether the change towards less drinking and driving comes from either persons who regularly drank and drove, but do so less now, or from persons who never drank and drove but do so occasionally now.

- If the results could be described in more than one way, then we often chose the kind of description, which was most readable or most consistent with the description of other results.

For each country we described the differences under seven headings, namely: "General issues", "Risk perception", "New technology", "Drinking and driving", "Seat belt use", "Speeding", and "Other behaviour". SARTRE 3 contains many questions about what drivers think about road safety measures, about other travel modes besides cars and how they feel towards other road users. The findings for these questions are put under "General issues". The heading "New technology" covers the questions about the navigation system, the alcohol-meter and a system that prevents drivers from exceeding the speed limit. The questions concerning the perception of accident causes are listed under the heading "Risk perception". All questions about norms, measures and behaviour in regard to drinking and driving, seat belt use and speeding are put under the headings "Drinking and driving", "Seat belt use" and "Speeding". Under the heading "Other behaviour" the questions about traffic behaviour, which could not be classified under "Seat belt use", "drinking and driving and speeding", are presented. We remind the reader that the questions, which we cover in this paragraph, are the questions that are identical from SARTRE 2 to SARTRE 3. For example, in SARTRE 3 new questions have been asked about new technology, but the results for these questions are not presented in this paragraph since a comparison over time is not possible.

In paragraph 3.2 to 3.20 the result are presented according to the alphabetical sequence of the country names, starting with Austria (Par. 3.2) and ending with United Kingdom (Par. 3.20).

## **Austria**

### General issues

Compared to SARTRE 2, more drivers in SARTRE 3 state that they are very or fairly concerned about road accidents and with traffic congestion. In SARTRE 3 more

drivers report that they are in favour, or strongly in favour, of government taking action to improve the standards of the roads.

In SARTRE 3 more drivers report that we should fairly or very much consider motorcyclists, cars, and lorries when we are making plans for the future. Compared to SARTRE 2, more drivers in SARTRE 3 report that they very or fairly much agree with the statement that they sometimes get very annoyed with other drivers. In SARTRE 3, more drivers state that they are not much, or not at all, willing to reduce the usage of their car or to use public transport more often in order to reduce air pollution.

#### New technology

In SARTRE 3, more drivers state that a guidance or navigation system would be very or fairly useful to them.

#### Risk perception

More drivers in SARTRE 3 than in SARTRE 2 state that taking drugs and driving is a frequent cause of accidents.

#### Drinking and driving

In SARTRE 3, the group of drivers which states that drivers should be allowed to drink as much alcohol as the current limit or more alcohol than the current limit, has increased at the expense of a decrease in the group of drivers which states that drivers should be allowed to drink less alcohol. Interestingly, the group of drivers, which states that they never drive after drinking a small amount of alcohol, has increased by nine percentage points.

#### Seat belt use

Compared to SARTRE 2, more drivers in SARTRE 3 state that they do not agree at all with statement that seat belts are not really necessary if one drives carefully.

#### Speeding

In SARTRE 3, less drivers state that they have been fined in the past three years for breaking the speed limit.

### Other behaviour

Compared with SARTRE 2, less drivers state that they drive a lot less dangerously than other drivers

## Belgium

#### General issues

Compared to SARTRE 2, less drivers in SARTRE 3 state that they are very much concerned about road accidents, traffic congestion and unemployment. With respect to road accidents and unemployment, this shift is largely due to a change from "very concerned" to "fairly concerned" answer.

In SARTRE 3, more drivers are in favour, or strongly in favour, of the government making sure that there is more enforcement of traffic laws. With respect to our plans for the future, more drivers in SARTRE 3 state that we should very much consider motorcyclists and lorries. For the category of motorcyclists, this change is due to shift from "fairly concerned" to "very concerned". For the category of lorries there is also partly a shift from "not much + not at all" to the "very" answer.

#### Drinking and driving

In SARTRE 3, the group of drivers that according to self-report never drinks alcohol, has increased by ten percentage points. However, at the same time in SARTRE 3, the group of drivers which states that they never drive after drinking, has increased at the expense of a decrease in the group of drivers which states that they drive after drinking less than one day a week.

#### Speeding

In SARTRE 3, less drivers state that the limit in urban areas should be higher. Compared to SARTRE 2, more drivers in SARTRE 3 report that they never signal other drivers to warn them of a speed trap ahead.

#### Seat belt use

In SARTRE 3, less drivers very much agree with the statement that not wearing the belt feels uncomfortable. Less drivers very much agree with the statements that seat belts will reduce injury in most accidents.

#### Other behaviour

In SARTRE 3, more drivers state that they often, very often or always follow the vehicle in front too closely

## Czech Republic

#### General issues

Compared with SARTRE 2, more Czech drivers in SARTRE 3 are very or fairly much concerned about traffic congestion and unemployment. In SARTRE 3, more drivers are in favour, or strongly in favour, of having more road safety publicity campaigns. With regard to plans for the future, less drivers state that we should very much consider public transport. However, this shift of opinion is not present when the answers "very" and "fairly" are considered together.

Compared with SARTRE 2, more drivers in SARTRE 3 state that they would be willing to share their car with other drivers in order to lessen pollution. With respect to harmonisation of European measures, less drivers do not agree at all with an European requirement that car manufacturers modify the top speed of their cars.

#### New technology

In SARTRE 3, there is larger group of drivers that finds a guidance or navigation system, a system that prevented them exceeding the speed limit, and an alcohol-meter very or fairly useful.

#### Risk perception

In SARTRE 3, more drivers mention following the vehicle in front too closely, bad weather conditions, poor brakes and bald tyres as frequent causes of accidents. On the other hand, in SARTRE 3 traffic congestion is mentioned less as a frequent cause of accident.

#### Drinking and driving

The question about the alcohol limit changed from SARTRE 2 to SARTRE 3 in Czech Republic. The answers "no alcohol at all" (in SARTRE 3 56% agreed) , "less alcohol" and "as much as in present"(23% in SARTRE 3) were in SARTRE 2 summarised in one answer "no alcohol at all as in present", agreed by 81%. Taking this

into account there is no change on this question. In SARTRE 3, the group of drivers which states they drink alcohol less than one day per week has increased at the expense of both the groups of drivers which states they never drink alcohol and the group of drivers which states to drink alcohol most days per week. So there seem to be more drivers who sometimes drink, instead of drivers who never drink and drivers who drink several days of the week.

#### Speeding

In SARTRE 3, more drivers agree, or strongly agree, that car manufacturers should not be allowed to stress the speed of cars in their advertisements. Also, in SARTRE 3 more drivers state that they very, or fairly much, agree with a requirement that car manufacturers modify the top speed of their cars.

With respect to speed limits, more drivers in SARTRE 3 than SARTRE 2 state that the limit on motorways should stay the same (instead of higher or no limit at all). On the other hand, more drivers in SARTRE 3 state that the limit should be higher within urban areas. In SARTRE 3, less drivers state that they never, or rarely, will be checked for speed on a typical journey.

#### Seat belts

In SARTRE 3, more drivers report that they feel uncomfortable when they are not wearing the seat belt. Also, more drivers do not agree at all with the statement that wearing a belt is not necessary if you drive carefully.

#### Other behaviour

In SARTRE 3, more drivers state they often, very often, or always give way to a pedestrian at a pedestrian crossing. Also, more drivers report that they sometimes or often signal others to warn them of a speed trap ahead.

## Denmark

Denmark did not participate in SARTRE 2. Thus for Denmark we have compared questions from SARTRE 1 with SARTRE 3. Since the SARTRE 3 questionnaire is much more different from SARTRE 1 than from SARTRE 2, the comparison includes a smaller set of questions.

#### General issues

Compared to SARTRE 1, more drivers in SARTRE 3 are very much or fairly much concerned about road accidents, about traffic congestion, and about the standard of health care. In SARTRE 3, more Danish drivers state that they are very strongly in favour of government undertaking action to improve driver training, to provide more enforcement of traffic laws, and to improve the standards of the roads.

#### Risk perception

Regarding the perception of accident causes in SARTRE 3, more drivers state that driving when tired, traffic congestion, poor brakes, and bald tyres are often, very often or always the cause of accidents.

#### Drinking and driving

In SARTRE 3, the group of drivers that states that drivers should be allowed less alcohol than present, has decreased, with as a consequence that more drivers in SARTRE 3 state that the limit should stay the same, or should be higher. This is

probably a reflection of the fact, that Denmark changed the legal alcohol limit from 0,8 g/l to 0,5 g/l in 1998, thus satisfying the group wanting a lower limit. Compared to SARTRE 1, more drivers in SARTRE 3 state that they never drive after drinking a small amount of alcohol. The earlier mentioned change in alcohol limit could also be the background for the fact that - compared to SARTRE 1 – more drivers in SARTRE 3 state that they never drive after drinking a small amount of alcohol.

## Finland

### General issues

Compared to SARTRE 2, more drivers in SARTRE 3 report to being very much concerned about road accidents, and about the standard of health care, and fewer drivers report to being very much concerned about unemployment. It should be noted that the shift of concern about road accidents is hardly present anymore if the answers "very much concerned" and "fairly concerned" are taken together.

In SARTRE 3, more drivers strongly favour government to undertake action to have more enforcement of traffic laws and to improve the standards of roads. However, the shift in opinion about the necessity of improvement of roads is not present anymore when the answers "strongly in favour" and "in favour" are taken together.

In SARTRE 3, more drivers state that they sometimes get very much annoyed with other drivers, and that they worry when their family members are out driving. More drivers state that for them the car is just a means of transport.

In SARTRE 3, more drivers are willing to share a car with other drivers in order to lessen air pollution. More drivers in SARTRE 3 consider a guidance or navigation system, and an alcohol-meter very or fairly useful.

### Risk perception

Compared to SARTRE 2, more drivers in SARTRE 3 perceive taking medicines, taking drugs, poor brakes, and bald tyres as frequent accident causes. In SARTRE 3, less drivers state that other drivers never, or rarely, break the speed limit.

### Drinking and driving

Drivers in Finland showed no changes on questions about opinions or behaviour in the area of drinking and driving.

### Seat belt use

In SARTRE 3, more drivers do not much agree, or not agree at all, with the statement that seat belts are not necessary when you drive carefully. In SARTRE 3, more drivers very, or fairly much, agree with the statement that there is a risk of being trapped by the belt in an emergency.

### Speeding

Regarding different speed limit, in SARTRE 3 less drivers state a preference for a higher limit on motorways, and on main roads, and more drivers state a preference for a lower limit in urban areas. With respect to measures for all European countries in SARTRE 3, more drivers are very, or fairly, in favour of a requirement that manufacturers modify their vehicles to restrict the top speed. In SARTRE 3, more Finnish drivers agree, or strongly agree, with the statement that car manufacturers should not be allowed to stress the speed of cars in their advertisement. More drivers

state that they never, or rarely, will be checked for speeding on a typical journey. Also, more drivers state that they do not agree at all with the statement that they enjoy driving fast.

#### Other behaviour

In SARTRE 3, more drivers state that they never or rarely drive through a traffic light that is on amber. Compared to SARTRE 2 more drivers in SARTRE 3 think they drive a bit less dangerously than other drivers.

## France

#### General issues

Compared to SARTRE 2, more drivers in SARTRE 3 state that they are very much concerned about road accidents. In SARTRE 3, less drivers report that they are very much concerned about unemployment. In SARTRE 3 more drivers state they are in favour or strongly in favour of the government stimulating more enforcement of traffic laws. With respect to planning for the future, more drivers state that we should very much consider cars. In SARTRE 3, more drivers are very, or fairly, much in favour of the introduction of a penalty points system as a European measure.

#### New technology

In SARTRE 3, more drivers would find a system that prevents the driver from exceeding the speed limit and an alcohol-meter very useful.

#### Risk perception

Regarding the perception of accident causes, taking drugs and driving is more often mentioned as a frequent cause of accidents in SARTRE 3 than in SARTRE 2. Less drivers in SARTRE 3 mention traffic congestion as a frequent accident cause.

#### Drinking and driving

Compared to SARTRE 2, more drivers in SARTRE 3 state that drivers should not be allowed to drink any alcohol before driving, or less alcohol than present. Compared to SARTRE 2, the group of drivers which states that drivers should not be allowed to drink any alcohol or less alcohol than present, has increased by fifteen percentage points (double).

Also, more drivers in SARTRE 3 are very much in favour of a European measure that forbids any alcohol before driving for novice drivers

#### Seat belt use

In SARTRE 3, more drivers very, or fairly much, agree with the statement that they feel uncomfortable when they are not wearing the belt. Also, more drivers do not agree at all with the statement that wearing a seat belt is not necessary if you drive carefully. Compared to SARTRE 3 more drivers state that they always wear the seat belt in urban areas.

#### Speeding

In SARTRE 3, less drivers state that the limit on main roads should be higher. In SARTRE 3 more drivers state that they drive a little bit slower or much slower than other drivers.

## Germany

### General issues

Compared to SARTRE 2, less drivers in SARTRE 3 are very, or fairly much, concerned about the rate of crime. In SARTRE 3, more drivers state they are in favour, or strongly in favour, that the government pays attention to improving the standards of the roads. In regard to our plans for the future, more German drivers state that very or fairly much consideration should be given to lorries, and less drivers state that very much consideration should be given to public transport. In SARTRE 3, less drivers state that they are very, or fairly much, willing to reduce the usage of their car or to use public transport more often in order to reduce air pollution.

### New technology

Compared to SARTRE 2, more drivers in SARTRE 3 would find a guidance or navigation system very or fairly useful for themselves.

### Risk perception

With regard to the perception of accidents, more drivers in SARTRE 3 state that taking drugs and driving, driving when tired, traffic congestion, and bad weather conditions are often, very often, or always causes of accidents.

### Drinking and driving

Compared to SARTRE 2, more drivers in SARTRE 3 state that they drink alcohol less than one day per week, and less drivers state that they never drink any alcohol. However, since the group of drivers who drink alcohol 3-4 or 5-6 days a week, has also decreased by about four percentage points from SARTRE 2 to SARTRE 3, it can be concluded that on the one hand there are more persons who sometimes drink alcohol (instead of never) but, on the other hand, there are less persons who drink alcohol several days a week.

### Seat belt use

In SARTRE 3, more drivers state that they do not agree at all with the statement that seat belts are not really necessary if you drive carefully.

### Speeding

More drivers state that other drivers often, very often or always break the speed limit.

### Other behaviour

Compared to SARTRE 2, more drivers in SARTRE 3 state that they drive a lot less dangerously than other drivers. In SARTRE 3, less drivers state that they never or rarely drive through a light that is amber.

## Greece

### General issues

Compared to SARTRE 2, more drivers in SARTRE 3 state that they are strongly in favour of improvement of roads. This is very likely due to the fact that more than five-hundred kilometres of motorways were delivered since 1996 and the Greek drivers experienced the important safety improvements in these roads, in comparison to hundreds other kilometres of national network, which are still in a problematic state.

Less drivers report that they are very, or fairly, willing to share a car or use public transport in order to lessen air pollution. This result is understandable given recent Greek developments. In Greece, the high increase of car ownership (about 50% since 1998), together with limited performance of public transport, makes Greeks increasingly dependent on car use. At the same time, Greek drivers have become aware of the fact that air pollution shows some improvement due to cleaner vehicles. More drivers report that they very, or fairly, much agree with the statement that they worry when members of their family are out driving.

### **Risk perception**

In SARTRE 3, traffic congestion is less often mentioned as a frequent (often/very often/always) cause of accidents and taking medicine is more often mentioned as a frequent accident cause. The first result is understandable given the fact that extended congestion periods in most Greek cities result in much lower speeds and less road accidents.

#### **Drinking and driving**

Compared to SARTRE 2, in SARTRE 3 less drivers agree or strongly agree with the statement that people should be free to decide for themselves how much they drink before driving. At the same time, in SARTRE 3 the group of drivers which states that drivers should be allowed to drink as much alcohol as present or more alcohol than present, has considerably increased at the expense of a decrease in the group of drivers which states that drivers should not be allowed to drink any alcohol or less alcohol than present. This attitude change may be explained by the fact that the number of alcootests has been multiplied by five since 1998 and at the same time the BAC limit was reduced from 0,8 to 0,5. The result may be that Greek drivers feel as if they are under an "alcootest siege".

Compared to SARTRE 2, there is a larger group of drivers, which states never to drive after drinking a small amount of alcohol, and a smaller group of drivers, which states to have driven after drinking one day or more. Also, in SARTRE 3 the group of drivers which states to have driven with more alcohol than permitted on one or more days per week has decreased, due to an increase in the group of drivers which to have driven less than one day per week with perhaps more alcohol than legally permitted. Very likely the intensification of enforcement of drinking and driving (four times more infringements were recorded since 1998) is responsible for these results since in SARTRE 3, less drivers state that they will never or rarely be checked for alcohol on a typical journey.

#### **Seat belt use**

In SARTRE 3, more drivers very, or fairly, agreed with the statement that they feel uncomfortable not wearing a belt. In SARTRE 3, more drivers state that they disagree with the statement that there is a risk of being trapped by the seat belt in the case of an emergency. Compared to SARTRE 2, more drivers in SARTRE 3 state that they always wear belts on motorways, on main roads between towns, and in urban areas. The massive enforcement of seat belt usage during 2002, as well as the net improvement of Greek drivers road safety culture explain this positive change in Greek driver's attitude towards seat belt wearing.

#### **Speeding**

In SARTRE 3, more drivers state that they were fined for breaking the speed limit, which in fact is attributed to the steep increase of speed infringements recorded (five times more since 1998). In agreement with this experience, less drivers in SARTRE 3 state that they will never, or rarely, be checked for speeding on a typical journey, which in fact constitute a direct proof of speed enforcement effectiveness in generating driver behaviour improvement.

#### Other behaviour

In SARTRE 3, more drivers state they think they drive a lot less dangerous than other drivers. A less positive finding is that fewer drivers in SARTRE 3 report that they never or rarely follow a vehicle in front too closely. Likewise, fewer drivers in SARTRE 3 report that they never or rarely overtake when they think they can just make it. Both findings are likely related to the fact that there is a fifty percent increase of new cars in Greece since 1998 and Greek drivers may feel more confident on the road with these newer higher performance cars.

## Hungary

#### General issues

Compared to SARTRE 2, less drivers in SARTRE 3 state they are very concerned about the rate of crime, and unemployment, and more drivers state they are very, or fairly concerned, about traffic congestion. In SARTRE 3, more drivers are very or fairly willing to share their car with other drivers in order to lessen pollution. In SARTRE 3, more drivers state that they are very much worried when their family is out driving. Also more drivers tend to feel that a car is just a means of transport.

#### New technology

In SARTRE 3, less drivers find a system that prevents violations of the speed limit very or fairly useful for themselves.

#### Risk perception

In SARTRE 3, less drivers mention taking medicines, taking drugs, poor brakes, faulty lights and defective steering as frequent causes of accidents.

#### Drinking and driving

In SARTRE 3, there are less drivers who state that drivers should be allowed to drink no alcohol at all or less alcohol than present. Compared to SARTRE 2 the group of drivers which states to drink alcohol less than one day per week has increased at the expense of a decrease in the group which states never to drink alcohol and also at the expense of a decrease in the group which states they drink alcohol on three or more days per week.

#### Seat belt use

In SARTRE 3, more drivers very much agree with the statement that seat belts reduce accident risk in an accident, and more drivers do not agree at all with the statement that seat belts are not necessary if you drive carefully. Compared to SARTRE 2, less drivers in SARTRE 3 report that they always wear a belt on motorways, on main roads and in urban areas.

#### Speeding

With respect to speed limit, more drivers in SARTRE 3 state that the speed limit in urban areas and on main roads should be lower. On the other hand, more drivers in SARTRE 3 state that the speed limit on motorways should be higher. Possibly there is a trade-off involved in the Hungarian attitude towards speed limits. Hungarian drivers seem to be willing to accept lower limits in urban areas and on main roads in exchange for a higher limit on motorways.

In regard to European measures, more drivers in SARTRE 3 cannot agree at all with a requirement that manufacturers modify the top speed of their cars.

Compared to SARTRE 2, more drivers in SARTRE 3 report that they think other drivers only rarely or sometimes (as opposed to often/very often/always) break the speed limits. In SARTRE 3, more drivers report that they will never or only rarely be checked for speed on a typical journey. More drivers report that they often, very often, or always signal other drivers to warn them of a speed trap ahead.

## **Ireland**

### General issues

Compared with SARTRE 2, more Irish drivers in SARTRE 3 are very much concerned about road accidents, traffic congestion, and the standard of health care. This shift of opinion is not present when the categories "very" and "fairly concerned" are taken together. In SARTRE 3 less drivers are very much concerned about unemployment.

In SARTRE 3, more drivers are strongly in favour of government taking action to improve driver training and to have more enforcement of traffic laws. This change of opinion is largely due to a shift of "in favour" answers to "strongly in favour" answers. In SARTRE 3, more drivers very, or fairly much, agree with the introduction in Europe of a penalty points system.

Compared to SARTRE 2, more drivers in SARTRE 3 state that they are very, or fairly, willing to reduce the usage of their car in order to lessen air pollution. In SARTRE 3, more drivers state they are very much worried when members of the family are out driving. Also, more drivers very much agree with the statement that a car is just a means of transport. These changes are mainly due to a shift from the "fairly" to the "very" answer. With respect for plans for the future, in SARTRE 3 less drivers state that we should very much consider pedestrians and cyclists. This change is mostly due to a switch from "very much consider" to "fairly much consider" answers.

### New technology

In SARTRE 3, more drivers state that they would find a navigation or guidance system, a system that prevent the driver from exceeding the speed limit and an alcohol-meter very useful for themselves. The change in interest in the navigation system is mainly due to a shift from "fairly" to "very". The other changes (speed system, alcoholmeter) also include a shift away from the "not much", "not at all" answers.

### Risk perception

With respect to the perception of accidents causes, more drivers in SARTRE 3 state that drinking and driving is very often or always a cause of accidents; and more drivers state that taking drugs and driving is often, very often, or always an accident cause. In

SARTRE 3, less drivers mention that poorly maintained roads and traffic congestion as frequent accident causes.

#### Drinking and driving

Compared to SARTRE 2, in SARTRE 3 the group of drivers which states that the alcohol limit should be lower or zero, has increased by twenty one percentage points. Also, more drivers in SARTRE 3 strongly disagree with the statement that people should be allowed to decide for themselves how much they drink before driving.

Compared to SARTRE 2, more drivers in SARTRE 3 state that they expect to be never, or rarely, checked for alcohol on a typical journey. In SARTRE 3, more drivers very, or fairly much, agree with the introduction in Europe of a zero alcohol limit for novice drivers.

#### Seat belt use

On all questions concerning seat belt use the Irish drivers show positive change. In SARTRE 3, more drivers report that they do not agree at all with the statement that seat belts are not really necessary if you drive carefully. More drivers report that they do not agree at all, or not much, with the statement that there is a risk of being trapped by a seat belt in an emergency. More drivers report that they very much agree with the statements that seat belts reduce the risk of serious injury in most accidents, and that not wearing a belt makes them feel uncomfortable.

In SARTRE 3, more drivers report that they always wear the seat belt on motorways, on main roads, and in urban areas. The changes in self-reported seat belt wearing on main roads and urban areas are quite large.

#### Speeding

In SARTRE 3, more drivers state that the limit within urban areas should be lower. In SARTRE 3, a lot more drivers strongly agree with the statement that car manufacturers should not be allowed to stress the speed of cars in their advertisement. In SARTRE 3, more drivers report that they never or rarely drive faster than the speed limit on motorways, and on main roads. More drivers report that they never warn other drivers of a speed trap ahead. Less drivers state that they will never be checked for speed on a typical journey. In SARTRE 3, more drivers state that they have been fined for breaking the speed limit. Compared to SARTRE 2, more drivers in SARTRE 3 state that they do not enjoy driving fast at all. This change partly derives from a reduction in drivers who very or fairly much agree that they enjoy driving fast. In SARTRE 3, more drivers very, or fairly, much agree with the introduction in Europe of a requirement that manufacturers modify the top speed of their cars.

In SARTRE 3, more drivers state that they find a system that prevents the driver from exceeding the speed limit very useful for themselves. The change in interest in the navigation system is mainly due to a shift from "fairly" to "very" answers. The changes also include a shift away from the "not much", "not at all" answers.

#### Other behaviour

Compared to SARTRE 2, a lot more drivers in SARTRE 3 state that they drive a lot less dangerously than others.

## Italy

### General issues

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Compared to SARTRE 2, in SARTRE 3 more drivers state that they are very much concerned about road accidents, and unemployment, and less drivers state that they are very much concerned about the rate of crime. In SARTRE 3, more drivers are strongly in favour that the government should improve driver training and promote more enforcement of traffic laws and more road safety campaigns. Compared to SARTRE 2, in SARTRE 3 more Italian drivers state they are very much willing to reduce the usage of their car in order to lessen air pollution. More drivers state they sometimes get very annoyed with other drivers.

#### Risk perception

In SARTRE 3, traffic congestion is less often mentioned as a frequent cause of accidents.

#### Speeding

In SARTRE 3, more drivers report that they very, of fairly much, agree with the statement that they enjoy driving fast. At the same time, awareness of the dangers of speeding seems to be increasing. In SARTRE 3, more Italian drivers very much agree with the statement that manufacturers should not be allowed to stress the speed in car advertisements, and more drivers are very much in favour of a European requirement that car manufacturers limit the top speed of cars. Also, in SARTRE 3 less drivers state that the limit on main roads should be higher.

#### Seat belt use

Compared to SARTRE 2, more drivers report that they very much agree with the statement that seat belt reduces the risk of injury in accidents. Likewise, more drivers state they do not agree at all with the statement implying that seat belts are not really necessary. More drivers in SARTRE 3 report that they feel uncomfortable when they are not wearing a belt. Compared to SARTRE 2 more driver report that they always wear the seat belt on motorways, main roads between towns and in urban areas

#### Drinking and driving

Less drivers report that they will never be checked for alcohol on a typical journey.

#### Other behaviour

In SARTRE 3, more drivers report that they always give way to a pedestrian, and more drivers report that they drive a lot less dangerously than others.

## Netherlands

#### General issues

Compared to SARTRE 2, more drivers in SARTRE 3 are very much concerned about the rate of crime and the standard of health care, and less drivers are very much concerned about unemployment. In SARTRE 3, less drivers are in favour of having more enforcement of traffic laws. In SARTRE 3, less drivers think that we should very much consider pedestrians, cyclists, motorcyclists, lorries and public transport when we are making plans for the future. However, this opinion shift is not present anymore when the two answers "very much consider" and "fairly much consider" are taken together. In SARTRE 3, less drivers very much agree with the statement that they sometimes get very annoyed with other drivers.

#### New technology

Compared to SARTRE 2, more drivers in SARTRE 3 would find a guidance or navigation system, and an alcohol-meter very or fairly useful for themselves.

#### Risk perception

A lot more drivers in SARTRE 3 than in SARTRE 2 perceive traffic congestion as a frequent cause of accidents.

#### Drinking and driving

Compared to SARTRE 2, more drivers state that they never will be checked for alcohol on a typical journey.

#### Seat belt use

Compared to SARTRE 2, more drivers in SARTRE 3 do not agree at all with the statement that seat belts are not really necessary if you drive carefully. In SARTRE 3, more drivers very or fairly much agree with the statement that they feel uncomfortable when they are not wearing the belt. In SARTRE 3, more drivers report that they always wear the belt on main roads between towns and in urban areas.

#### Speeding

Compared to SARTRE 2, less drivers state that they never or rarely will be checked for speeding on a typical journey. In SARTRE 3, a lot more drivers state they were fined for speeding in the past three years. Less drivers report that they never, or rarely, warn other drivers for a speed trap ahead. More drivers in SARTRE 3 prefer a higher limit on motorways.

#### Other behaviour

In SARTRE 3, less drivers report that they never or rarely overtake when they think they can just make it.

## Poland

#### General issues

Compared with SARTRE 2, more drivers in SARTRE 3 state that they are very much concerned about unemployment. In SARTRE 3 more drivers state that they are strongly in favour that the government pays attention to having more road safety publicity campaigns. With regard to our plans for the future, far less Polish drivers in SARTRE 3 state that very much attention should be given to pedestrians, cyclists, motorcyclists, cars, lorries, and public transport. This shift of opinion is not apparent anymore when the answer "very much consider" and "fairly much consider" are taken together.

In SARTRE 3, more drivers state they are very or fairly willing to reduce the usage of their car or to share with other drivers the use of their cars in order to lessen air pollution. In SARTRE 3, less drivers report that they worry when family members are out driving. With respect to harmonisation of European legislation, more drivers are very or fairly in favour of a requirement that car manufacturers modify the top speed of their vehicles.

#### New technology

In SARTRE 3, more drivers find an alcohol-meter very useful for themselves, and less drivers find a system that prevents one from exceeding the speed limit, very or fairly useful to themselves.

### Risk perception

In SARTRE 3, more drivers mention taking drugs and driving, and poorly maintained roads as circumstances that lead very often or always to road accidents. Traffic congestion is less often mentioned as a frequent (very often/always) accident cause.

### Seat belts

Compared to SARTRE 2, more drivers in do not much agree, or not agree at all, with the statement that seat belts are not necessary if you drive carefully. In SARTRE 3, more drivers agree that there is a risk of being trapped by the belt in an emergency situation. Surprising is the finding that, from SARTRE 2 to SARTRE 3, the group of drivers that state they never wear a belt on motorways has increased from less than one percent to seventeen percent.

### Speeding

In SARTRE 3, far less drivers state that the speed limit on motorways and on main roads should be higher. In SARTRE 3 a lot more drivers agree, or strongly agree, with the statement that car manufacturers should not be allowed to stress the speed of cars in their advertisements. In SARTRE 3, less drivers report that they enjoy driving.

Compared to SARTRE 2, more drivers in SARTRE 3 state that they never, or only rarely, drive faster than the speed limit on motorways, on main roads and on country roads. Also, more drivers in SARTRE 3 report that they never warn other drivers of speed trap ahead. In SARTRE 3, less drivers would find a system that prevents the driver from exceeding the speed limit very or fairly useful for themselves.

### Other behaviour

In SARTRE 3, more drivers report that they never, or only rarely, follow the vehicle in front too closely. Very surprisingly, in SARTRE 3, quite a large group of drivers (over half of the Polish respondents) reports to overtake when it is just possible, whereas in SARTRE 2 hardly any of the Polish drivers reported this. This seems to be more an awareness effect than a real behavioural effect. In other words, we interpret this finding to mean that drivers have become more aware of how dangerous overtaking can be and therefore report more dangerous overtaking rather than an actual change in this behaviour.

## Portugal

### General issues

Compared to SARTRE 2, in SARTRE 3 Portuguese drivers report to be less concerned about the crime rate, pollution, road accidents, the state of health care, and unemployment. However, these differences are all based on a shift from the "very concerned" to the "fairly concerned" answer. If both answers were taken together, the amount of concern would be the same for these questions. A same shift to less extreme answers is present in the answers to questions about how much we should take different travel modes into account when we are planning for the future. In SARTRE 3, less drivers state that we should very much consider pedestrians, motorcyclists, cars, or public transport when we are planning for the future. Again, if we take the answers "very" and "fairly" together, there is no shift in opinion.

In SARTRE 3, a lot more drivers are strongly in favour that the government promote more enforcement of traffic laws. With regard to harmonized measures for all European countries, more Portuguese drivers in SARTRE 3 report to be very or fairly in favour of a penalty points system.

In SARTRE 3, drivers report that they are less annoyed with other drivers, and are less worried when other family members are out driving. However, this change in opinion is not present anymore when the two answers "very" and "fairly" are taken together.

In SARTRE 3, more drivers report that they would be very, or fairly, willing to reduce the usage of their car or share their car with other drivers in order to lessen pollution. If answers "very" and "fairly" are combined, there is also a larger group in SARTRE 3, which is willing to use more often public transport (despite a decrease in the group which states to be very willing to do this).

#### New technology

Compared to SARTRE 2, more drivers in SARTRE 3 would find a navigation system and an alcohol-meter very or fairly useful.

#### Risk perception

In SARTRE 3, less drivers mention traffic congestion as a frequent cause of accidents. On the other hand, following a vehicle in front too closely, and bad weather conditions are more often mentioned as a frequent cause of accidents.

#### Drinking and driving

Compared to SARTRE 2, less drivers in SARTRE 3 report that the legal alcohol limit for drivers should be lower and more drivers report that the limit should stay the same. This finding should be viewed in the context of the introduction of a lower alcohol limit in 2001 in Portugal (max. BAC 0.2 g/l) as a temporary measure for one year.

In SARTRE 3, there is a decrease in the group of drivers who state they never drive with a little amount of alcohol due foremost to an increase in the group of drivers which states to drive after drinking for less than one day per week.

#### Seat belt use

In SARTRE 3, less drivers state they very much agree with the statements that seat belts reduce the risk of injuries in most accidents and that there is a risk of being trapped by the seat belt in the case of an emergency. When the answers "very" and "fairly" are taken together there is no difference. A more clear finding is that in SARTRE 3, a lot more drivers state that they do not much, or not at all, agree with the statement that seat belts are not really necessary if you drive carefully. In SARTRE 3, more drivers state they very or fairly agree with the statement that they feel uncomfortable when they are not wearing a seat belt. More drivers state they very often or always wear the belt in urban areas.

#### Speeding

Compared to SARTRE 2, in SARTRE 3 a lot more drivers strongly agree or agree with the statement that car manufacturers should not be allowed to stress the speed of cars in advertisements. With regard to harmonised measures for all European countries, more drivers in SARTRE 3 report to be very or fairly in favour of a requirement that manufacturers modify the top speed of their cars. Regarding the preferred speed limit,

in SARTRE 3 less drivers than in SARTRE 2 state that the speed limit on motorways and the speed limit on main roads should be higher.

Compared to SARTRE 2, more drivers in SARTRE 3 report that they do not enjoy driving fast very much or at all. In SARTRE 3 more drivers state they drive a little slower, or a lot slower, than other drivers. Regarding speeding on different road types, in SARTRE 3 more drivers state that they never or rarely violate the speed limit on motorways, on main roads, and on country roads.

#### Other behaviour

More drivers in SARTRE 3 report that they drive a lot less, or a bit less dangerously, than other drivers. In SARTRE 3, a larger group of drivers reports that it never or rarely signals to other drivers to warn them of a speed trap ahead.

## Slovakia

Unfortunately, a different answer format for questions 28a to 28e (European measures) and questions 29a-29d (enjoyment of driving fast, irritation at others, worry about family driving, car just means transport) was used in SARTRE 2 and SARTRE 3. Therefore reliable comparisons between SARTRE 2-SARTRE 3 were not possible for these questions.

#### General issues

Compared with SARTRE 2, more drivers in SARTRE 3 are very much concerned about unemployment. In SARTRE 3, less drivers are strongly in favour of improving driver training and improving the standards of roads. Also, less drivers are in favour, or strongly in favour, of having more road safety publicity campaigns. Compared to SARTRE 2, less drivers in SARTRE 3 express they are willing to use public transport more often in order to reduce pollution.

#### New technology

More drivers in SARTRE 3 state they would find a guidance or navigation system, a system that prevents the driver from exceeding the speed limits, and an alcohol-meter very or fairly useful.

#### Risk perception

In respect to perception of accident causes, in SARTRE 3 less drivers mention traffic congestion as a frequent cause of accidents.

#### Drinking and driving

Compared to SARTRE 2, in SARTRE 3 less drivers strongly disagree with the statement that people should be free to decide for themselves how much they drink before driving.

#### Seat belt use

More drivers do not agree at all or much with statement that wearing belts is not necessary if you drive carefully. Also, more drivers very or fairly much agree with the statement that not wearing a belt makes them feel uncomfortable. Compared to SARTRE 2 in SARTRE 3 more drivers state to have been fined for not wearing a seat belt in the past three years. Despite these developments, less drivers state that they always wear the seat belt on main roads between towns.

#### Speeding

In SARTRE 3, less drivers disagree or strongly disagree with the statement that car manufacturers should not be allowed to stress the speed of cars in advertisements. In respect to the speed limit, less drivers in SARTRE 3 state that the limit should be higher on motorways, on main roads, and in urban areas. The largest shift has occurred in the thinking about the speed limit in urban areas. One out of twenty Slovakian drivers preferred a lower limit in SARTRE 2; in SARTRE 3 almost one out every five drivers preferred a lower limit in urban areas.

More drivers in SARTRE 3 state they find a system that prevented one from exceeding the speed limit, very or fairly useful. Compared with SARTRE 2, in SARTRE 3 more drivers state to have been fined for speeding in the past three years. In line with this, in SARTRE 3 more drivers state that they expect to be often, very often, or always checked for speed on a typical journey. The intensified speed checks seem to evoke some counteraction by Slovakian drivers, since less drivers in SARTRE 3 state they never or rarely warn other drivers for a speed trap ahead.

#### Other behaviour

Compared to SARTRE 2, less driver state that they never or rarely overtake when they think they can just make it.

## Slovenia

#### General issues

Compared to SARTRE 2, less drivers in SARTRE 3 state that they are very much concerned about road accidents. Less drivers in SARTRE 3 are strongly in favour that the government stimulate more enforcement of traffic laws and better road standards.

In SARTRE 3, more drivers state that they are very or fairly much willing to share the use of their cars with other drivers in order to lessen air pollution. On the other hand, in SARTRE 3, less drivers are very or fairly willing to reduce the usage of their car in order to reduce air pollution, and also less drivers indicate they are willing to use public transport more often in order to reduce air pollution.

In SARTRE 3 more drivers very much agree with the statement that they sometimes get very annoyed with other drivers.

#### New technology

Compared to SARTRE 2, less drivers in SARTRE 3 would find a system that prevents the driver from exceeding the speed limit, and an alcohol-meter a very or fairly useful device for themselves.

#### Risk perception

Compared to SARTRE 2, more drivers in SARTRE 3 mention taking medicines and driving as a frequent accident cause. Also, bad weather conditions, poor brakes, bald tyres, and defective steering are more frequently mentioned as often occurring accident causes. On the other hand, less drivers in SARTRE 3 consider poorly maintained roads as a frequent accident cause.

#### Drinking and driving

Compared to SARTRE 2, more drivers in SARTRE 3 state that the alcohol limit should stay the same (instead of no alcohol at all )

In SARTRE 3 more drivers disagree or strongly disagree with the statement that people should be free to decide for themselves how much they drink before driving. In SARTRE 3, the group of drivers, which state that they never drive with a small amount of alcohol, has increased at the expense of a decrease in the group of drivers, which states to drive with alcohol less than one day per week. Likewise, the group of drivers, which states not to have driven with perhaps more alcohol than is legally permitted in the past week has increased.

#### Seat belt use

In SARTRE 3, less drivers very or fairly much agree with the statement that seat belts are not necessary if you drive carefully. Also, in SARTRE 3 less drivers very or fairly much agree with the statement that there is a risk of being trapped by the belt in an emergency situation. In SARTRE 3, a lot more drivers state that they always wear the seat belt on main roads between towns and in urban areas.

#### Speeding

Compared to SARTRE 2, in SARTRE 3, less drivers state that the limit in urban areas should be lower. In SARTRE 3, less drivers state that other drivers very often or always break the speed limit. In SARTRE 3, more drivers state that they drive a little bit slower than other drivers. More drivers state that they never or rarely drive faster than the speed limit on motorways.

#### Other behaviour

Compared to SARTRE 2, more drivers in SARTRE 3 state that they often, very often, or always give way to a pedestrian at a pedestrian crossing.

## Spain

#### General issues

Compared to SARTRE 2, more drivers in SARTRE 3 report to be very concerned about the rate of crime and the standard of health care, and less drivers report to be very concerned about unemployment. In SARTRE 3, more drivers are strongly in favour of government promoting improvements in driver training, and quite a lot more drivers strongly favour or favour that government promotes more enforcement of traffic laws.

In SARTRE 3, more drivers than in SARTRE 2 state that they are very much willing to reduce the usage of their car as much as possible in order to lessen air pollution.

#### New technology

Compared to SARTRE 2, more drivers in SARTRE 3 report to find a guidance or navigation system, and an alcohol-meter very useful.

#### Risk perception

More Spanish drivers in SARTRE 3 than in SARTRE 2 perceive weather conditions as a frequent cause of accidents. On the other hand, in SARTRE 3, less drivers perceive traffic congestion and taking drugs as a frequent accident cause.

#### Drinking and driving

On several alcohol questions, the Spanish drivers show a shift towards a less strict approach to drinking and driving. It should be kept in mind that there were some important changes in legislation in 1999 (change maximum limit from 0.8 g/l to 0.5 g/l and for novice drivers from 0.8 g/l to 0.3 g/l) which may have influenced the answers to

these questions. Compared to SARTRE 2, the group of drivers which states that drivers should be allowed to drink more alcohol than present or even as much as they like, has increased by thirteen percentage points. In SARTRE 3, less drivers strongly disagree with the statement that drivers should be free to decide themselves how much they drink before driving. In the same vein, more drivers state that drivers should be allowed to drink more alcohol before driving than present. In SARTRE 3, more drivers do not much agree with an European measure forbidding any alcohol for novice drivers. Finally, less drivers report never to drink alcohol.

#### Seat belt use

In SARTRE 3, less drivers report that they always wear a belt on motorways, on main roads, and in urban areas.

#### Speeding

Less drivers report that they do not agree at all with the statement they enjoy driving fast. Regarding violations of speed limits on different roads, in SARTRE 3 less drivers report that they never or rarely violate the speed limit on motorways, on main roads, on country roads, and in urban areas. Compared to SARTRE 2, more drivers in SARTRE 3 report to find a system that prevents one from exceeding the speed limit, very useful. If the answers "very useful" and "fairly useful" are taken together, the shift in opinion about a system that prevents speed violations is not present anymore.

#### Other behaviour

In SARTRE 3, less drivers report that they never overtake when they think they can just make it, and less drivers state they never warn other drivers for a speed trap ahead.

## Sweden

#### General issues

Compared to SARTRE 2, less drivers in SARTRE 3 are very or fairly concerned about rate of crime, pollution, the standard of health care, and unemployment. In SARTRE 3, more Swedish drivers are strongly in favour that the government promote improvements in driver training, more enforcement of traffic laws, and improvements in the standards of roads.

With regard to plans for the future, less drivers in SARTRE 3 than in SARTRE 2 state that public transport should be very much considered, and more drivers state that cars should be very much considered. In SARTRE 3 more Swedish drivers state they sometimes get very annoyed with other drivers. Also, more drivers state that they see a car just as a means of transport. Regarding mobility preferences in SARTRE 3 less drivers are very or fairly willing to share their cars with other drivers or to use public transport more often in order to lessen pollution.

#### New technology

In SARTRE 3, more drivers estimate a guidance or navigation system, an alcohol-meter, and a system that prevents the driver from exceeding the speed limit, as very or fairly useful.

#### Risk perception

Compared to SARTRE 2, more drivers in SARTRE 3 mention taking medicines, taking drugs, and poorly maintained roads as frequent causes of accidents.

### Drinking and driving

With regard to measures for Europe, in SARTRE 3, more drivers are very much in favour that novice drivers are not allowed to drink any alcohol before driving.

### Seat belt use

With regard to seat belt use, more drivers in SARTRE 3 state that they do not much or not at all agree with the statement that there is a risk of being trapped by the seat belt in case of an emergency.

### Speeding

With regard to measures for Europe, in SARTRE 3 more drivers are very much in favour of a requirement that manufacturers modify the top speed of their cars. In SARTRE 3, less drivers strongly disagree with the statement that car manufacturers should not be allowed to stress the speed of cars in their advertisements, and more drivers express a neutral opinion about this issue. In SARTRE 3, more drivers state that the speed limit on main roads should be higher; less drivers state that the speed limit in urban areas should be lower. Compared to SARTRE 2, less drivers state that other drivers often or very often break the speed limit.

### Other behaviour

Compared to SARTRE 2, more drivers in SARTRE 3 state they never or only rarely drive through a traffic light that is amber, and more drivers state they often, very often, or always give way to a pedestrian at a pedestrian crossing.

## Switzerland

### General issues

Compared to SARTRE 2, more drivers in SARTRE 3 state they are very or fairly concerned about road accidents, traffic congestion, and the standard of health care. The stronger concern with road safety seems also to be reflected in a stronger call for government action to promote road safety. In SARTRE 3, more drivers are in favour or strongly in favour that government promote improvements in driver training, improvements in the standards of the roads, more enforcement of traffic rules, and more road safety publicity campaigns.

With regard to plans for the future, more drivers in SARTRE 3 state that we should very or fairly much consider pedestrians, cyclists, motorcyclists, cars, and lorries. The changes for the categories motorcyclists, cars, and lorries are quite large (twenty percentage points or more over the two categories). In SARTRE 3, more driver state that they are very or fairly worried when family members are out driving. Also, more drivers in SARTRE 3 than in SARTRE 2 very or fairly much agree that the car is just a means of transport.

### New technology

Compared to SARTRE 2, more drivers in SARTRE 3 find a guidance, or navigation system, very or fairly useful.

### Drinking and driving

Compared to SARTRE 2, less drivers report that they will never or rarely be checked for alcohol on a typical journey.

In SARTRE 3, a lot more drivers state that drivers should not be allowed to drink any alcohol at all before driving or less alcohol than present. In the same vein, more drivers are very or fairly much in favour of an European measure of zero alcohol for novice drivers. Compared to SARTRE 2, less drivers state that they drink three or more days per week.

#### Seat belt use

Compared to SARTRE 2, drivers in SARTRE 3 agree less with the statement that seat belts are not necessary, and agree more with the statement that seat belts reduce injury risk in most accidents. However, this change is not found when answers "very" and "fairly" are taken together. In SARTRE 3, more drivers report that they very much agree that they feel uncomfortable when they are not wearing their belt. This difference is not present when the two answers "very" and "fairly" are taken together. Less drivers agree not at all with the statement that there is a risk of being trapped by the belt in an emergency. Again, this difference is not apparent anymore when the answers "not at all" and "not much" are taken together.

#### Speeding

Compared to SARTRE 2, less drivers report that they will never or rarely be checked for speeding on a typical journey. Regarding speeding on different road types, fewer drivers in SARTRE 3 than in SARTRE 2 report that they never or rarely violate the speed limit on motorways. Also, fewer drivers in SARTRE 3 report that they never violate the speed limit on main roads between towns.

#### Other behaviour

In SARTRE 3, more Swiss drivers report that they drive a bit, or a lot less, dangerously than other drivers. With regard to specific types of violations in SARTRE 3, less drivers report that they never follow a vehicle in front too closely, and less drivers report that they often, very often or always warn other drivers of a speed trap ahead. Also, more drivers report that they often, very often or always give way to a pedestrian at a pedestrian crossing.

## United Kingdom

#### General issues

Compared to SARTRE 2, less UK drivers in SARTRE 3 are very much concerned about the rate of crime and unemployment. In SARTRE 3, a larger group of drivers is strongly in favour that government promotes improvements in driver training, more enforcement of traffic laws, more road safety publicity campaigns, and better standards of roads. However, this shift of opinion is not apparent when the answer categories "strongly in favour" and "in favour" are taken together.

In SARTRE 3, less drivers state that the government should very much consider pedestrians and cyclist when it is making plans for the future. When the answers "very much consider" and "fairly much consider" are taken together, this difference is no longer found. In SARTRE 3, more drivers (eighty-three percent) report that they have had no damage only accidents in the last three years than in SARTRE 2 (seventy-six percent).

In SARTRE 3, less drivers are very or fairly willing to reduce the usage of their car or to use public transport more often in order to reduce air pollution.

In SARTRE 3, less drivers state they very or fairly much agree with the statement that they get very annoyed sometimes with other drivers. More drivers in SARTRE 3 very much agree with the statement that a car is just a means of transport.

#### New technology

In SARTRE 3, more drivers report that they would find a system that prevents drivers from exceeding the speed limit, and an alcohol-meter, very useful.

#### Risk perception

Regarding the perception of causes of accidents, more drivers in SARTRE 3 state that taking drugs and driving is a frequent cause of accidents. Compared to SARTRE 2, traffic congestion is less often mentioned as a frequent accident cause.

#### Drinking and driving

Compared to SARTRE 2, in SARTRE 3 more drivers strongly disagree with the statement that people should be free to decide for themselves how much they drink and drive.

#### Seat belt use

In SARTRE 3, more drivers very much agree with the statements that seat belts reduce the risk of serious injury and that not wearing the belt feels uncomfortable. Also, more drivers in SARTRE 3 do not agree at all with the statements that seat belts are not really necessary when you drive carefully and that there is a risk of being trapped by the belt in an emergency.

#### Speeding

In SARTRE 3, more British drivers strongly agree with the statement that car manufacturers should not be allowed to stress the speed of cars in their advertisements. In SARTRE 3, less drivers state that the limit should be higher on main roads and more drivers state that the limit should be lower in urban areas.

In SARTRE 3, more drivers report that they never or rarely drive faster than the speed limit on main roads. Also, more drivers in SARTRE 3 report that they never drive faster than the limit in urban areas. In SARTRE 3 less drivers state that they drive a little faster or much faster than others.

#### Other behaviour

In SARTRE 3, more drivers report that they always give way to a pedestrian at a pedestrian crossing. Compared to SARTRE 2, more drivers in SARTRE 3 report that they drive a lot less dangerously in comparison to other drivers.

## References

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## Appendix

**Table 1: Change in percentage points from SARTRE 2 to SARTRE 3 per question. Only percentage changes > 8 percentage points described**

	Answer categories	Change in percentage points
1a. How concerned are you about... rate of crime	Very	D: -13%, H: -13%, I: -8%, NL: +9%, P: -19%, E: +11%, SLO: -13%, UK: -10%
	Very+Fairly	S: -9%, CH: +13%
1b. How concerned are you about ... pollution	Very	P: -22%
	Very+Fairly	S: -14%
1c. How concerned are you about .. road accidents	Very	B: -10%, FIN: +11%, F: +16%, IRL: +14%, I: +11%, P: -11%, SLO: -14%
	Very+fairly	A: +10%, DK: +15%, CH: +10%
1d. How concerned are you about ... standard health care	Very	FIN: +9%, D: +9%, IRL: +15%, NL: +14%, P: -15%, E: +10%
	Very+fairly	DK: +9%, FIN: +15%, D: +13+15%, NL: +21%, S: -10%, CH: +14%
1e. How concerned are you about .. traffic congestion	Very	B: -12%, IRL: +11%
	Very+Fairly	A: +21%, CZ: +12%, DK: +10%, H: +13%, I: -16%, CH: +14%
1f. How concerned are you about .. unemployment	Very	B: -11%, CZ: +17%, FIN: -30%, F: -24%, H: -12%, IRL: -21%, I: -13%, NL: -9%, PL: +22%, P: -17%, E: -13%, SK: +14%, SLO: -8%, S: -21%, UK: -19%
	Very+Fairly	CZ: +28%, S: -37%
2a. Would you be in favour, or against, the Government devoting more effort to... improving driver training	Strongly	DK: +10%, IRL: +18%, I: +9%, SK: -9%, E: +9%, S: +11%, CH: +14%, UK: +11%
	Strongly+In favour	DK: +14%, CH: +15%
2b. Would you be in favour, or against, the Government devoting more effort to.. more enforcement traffic laws	Strongly	DK: +9%, FIN: +12%, IRL: +10%, I: +12%, SK: -11%, SLO: -11%, S: +10%, UK: +11%, E: +13%, P: +16%
	Strongly+In favour	B: +11%, F: +11%, NL: -11%, P: +17%, E: +19%, CH: +16%, SLO: -13%
2c. Would you be in favour, or against, the Government devoting more effort to.. more road safety campaigns	Strongly	PL: +9%, UK: +13%, I: +9%
	Strongly+In favour	CZ: +16%, SK: -9-12%, CH: +17%
2d. Would you be in favour, or against, the Government devoting more effort to.. improve the standards of roads	Strongly	A: +12%, DK: +14%, FIN: +14%, D: +11%, GR: +10%, SLO: -11%, S: +24%, SK: -11%, UK: +16%
	Strongly+In Favour	D: +15%, CH: +12%
3c Do you agree or disagree with the following statement .. Car manufacturers not be allowed stress speed in their advertisement	Strongly agree	UK: +13%, IRL: +20%
	Strongly agree +agree	CZ: +15%, FIN: +16%, IRL: +11%, PL: +21%, P: +18%, SLO: +12%
	Strongly disagree+disagree	SK: -12%, S: -12%, CZ: -19%
3d. Do you agree or disagree with the following statement .. People should be allowed to decide for themselves how much they can drink an drive	Strongly disagree	IRL: +14%, SK: -9%, UK: +11%, E: -14%
	Disagree+strongly disagree	P: -16%, E: -15%, SLO: +13%
	Strongly agree+Agree	B: -8%, GR: -10%
4a How often do you think the following factor is a cause of road accidents...?, driving when tired	Often/very often/always	DK: +13%, D: +9%
4c. How often do you think the following factor is a cause of road accidents ..?following too closely	Often+very often+always	CZ: +18%, P: +9%
4e. How often do you think the following factor is a cause of road accidents ...? taking medicine	Often+very often+always	FIN: +9%, GR: +14%, H: -20%, SLO: +11%, S: +11%
4f. How often do you think the following factor is a cause of road accidents ....? taking drugs	Often+very often+always	A: +10%, FIN: +19%, F: +10%, D: +12%, H: -29%, PL: +10%, SLO: +29%, E: -9%, S: +16%, UK: +12%, IRL: +18%
4g. How often do you think the following factor is a cause of road accidents...?, poorly maintained roads cause	Often+veryoften+always	IRL: +8%, PL: +13%, SLO: -13%, S: +26%
4j. How often do you think the following factor is a cause of road accidents ...? traffic congestion	Often+veryoften+always	CZ: -18%, DK: +15%, F: -56%!! IRL: -21%, I: -39%, D: +11%, GR: -39%, H: -39%, NL: +24%, PL: -12%, P: +3%, SK: -25%, E: -28%, UK: -22%, SLO: -14%
4k. How often do you think the following factor is a cause of road accidents ...? bad weather conditions	Often+veryoften+always	D: +11%, P: +20%, E: +12%, SLO: +10%, CZ: +24%
4l. How often do you think the following factor is a cause of road accidents...? poor brakes cause	Often+veryoften+always	DK -10%, FIN: +12%, H: -20%, SLO: +19%, CZ: +9%
4m. How often do you think the following factor is a cause of road accidents...? bald tyres	Often+veryoften+always	CZ: +12%, DK: -13%, FIN: +10%, SLO: +12%, CH: +10%, PL: +10%
4n. How often do you think the following factor is a cause of road accidents...? faulty lights	Often+veryoften+always	H: -23%
4o. How often do you think the following factor is a cause of road accidents...? defective steering cause	Often+veryoften+always	H: -32%, SLO: +23%
5a. When planning for the future, how much	Very	IRL: -9%, I: +10%, NL: -20%, PL: -17%, P: -23%, UK: -

Changes in individual countries

	Answer categories	Change in percentage points
consideration do you think Government should give to ..pedestrians		16%
	Very+Fairly	CH: +8%
5b. When planning for the future, how much consideration do you think Government should give to ..cyclists	Very	IRL: , -12%, NL: -22%, PL: -18%, P: -10%, UK: -14%
5c. When planning for the future, how much consideration do you think Government should give to ..motorcyclists	Very	A: +12%, B: +13%, NL: -9%, PL: -10%, P: -11%
	Very+Fairly	CH: +19%
5d. When planning for the future, how much consideration do you think Government should give to .. cars	Very	A: +14%, F: +9%, PL: -26%, P: -16%, S: +10%
	Very+Fairly	CH: +22%,
5e. When planning for the future, how much consideration do you think Government should give to ..lorries	Very	A: +24%, B: +8%, D: +11%, NL: -8%, PL: -15%
	Very+Fairly	CH: +23%
5f. When planning for the future, how much consideration do you think Government should give to .. public transport	Very	CZ: -13%, D: -11%, NL:-15%, PL: -29%, P: -23%, S: -10%
6. Compared to other drivers, do you think your driving is .. dangerous	A lot less dangerous	A: -8%, GR: +8%, GR: -10%, IRL: +18%, UK: +13%
	A bit+ a lot less dangerous	FIN: +10%, I: +10%, P: +8%, CH: +11%
7. How often do you think other drivers break speed limits?	Rarely+sometimes	FIN: -8%, D: -9%
	Very often+always	H: -28%, SLO: -11%
	Often+very often+Always	FIN: +8%, S: -9%, D: +8%, H: -17%
8. Compared to other drivers, do you generally drive...than average speed?	Much faster+a little faster	UK: -8%, F:-8%, P:-10%
	A little+much slower	F: +9%, P +9%, SLO: -17%
9a. In general, how often do you drive faster than the speed limit on motorways?	Never	CH: -12%, PL: +17%,
	Never+rarely	IRL: +13%, PL: +16%, P: +11%, SLO: +13%, E: -12%, CH: -18%
9b. In general, how often do you drive faster than the speed limit on main roads between towns?	Never	E:-13%, CH:-12%
	Never+rarely	IRL: +9%, PL: +11%, P: +16%, UK: +12%
9c. In general, how often do you drive faster than the speed limit on country roads?	Never	E: -15%
	Never+rarely	PL: +9%, P: +10%
9d. In general, how often do you drive faster than the speed limit in built-up areas?	Never	E: -15%, UK: +12%
10a. Compared to the present limits, what do you think the speed limit should be on motorways?	Higher	CZ: -25%, FIN: -11%, F: -13-6%, H: +34%, NL: +15%, PL: -27%, P: -11%, SK: -18%
	No limit	CZ: -7%
10b. Compared to the present limits, what do you think the speed limit should be in on main roads between towns?	Higher	CZ:-11%, FIN: -18%, H: -46%, I: -10%, PL: -20%, P: -17%, SK: -10%, S: +12%, UK: -10%
10d. Compared to the present limits, what do you think the speed limit should be in built-up residential areas?	Higher	B: -10%, CZ: +13%, H: -49%, SK: -33%, SLO: +9%
	Lower	FIN:+9%, GR: -8%, IRL: +9%, S: -14%, UK: +17%, CZ: -22% , H:+56%, SK: +13%, SLO: -9%
11. On a typical journey how likely is it that your speed will be checked for?	Never+Rarely	CZ: -13%, FIN: +9%, GR: -25%, H: +31%, IRL: -12%, NL: -10%, CH: -9%
	Often+veryoften+always	SK: +8%
12. In the last 3 years, have you been fined, or punished in any other way , for breaking the speed limit?	Only fines	A: -8%, GR: +8%, NL:+18%, SK: +11%, IRL:+10%
18. In the last 3 years, , have you been fined, or punished in any other way for not wearing the seat belt?	Only fines	SK: +8%
24. In the last 3 years, have you been fined, or punished in any other way for drink-driving?	Only fines,	SK: +4%
13a. How often do you follow the vehicle in front too closely?	Never	CH: -12%
	Never+rarely	PL: +18%, FIN +7%, GR: -22%
	Often+veryoften+always	B: +8%, GR: +14%
13b. How often do you give way to a pedestrian at a pedestrian crossing?	Always	I: +15+13%, UK: +8%
	Often+veryoften+always	CZ: +10%, CH:+11%, S:+14%
13c. How often do you drive through traffic light that is on amber?	Never+rarely	FIN: +13%, D: -8%, SLO: -26%, S:+17%
13d. How often do you overtake when you think you can just make it?	Never	E: -12% GR:-16%, PL: -48%
	Never+Rarely	GR:-15%, NL: -8%, PL: -57%, SK: -10%
13e. How often do you signal other drivers to warn them of a police speed trap ahead?	Never	B: +9%, CZ: -18%, IRL: +17%, PL: +10%, E: -16%, NL:-9%
	Never+Rarely	NL: -12%, PL: +11%, P: +18%, SK: -19%
	Often+veryoften+always	H: +11%, SK: +12%, CH:-11%, P:-17%
14. Does the car that you drive most have seat belts fitted?	Both front/rear	A: +9%, GR: +30%, H: +18%, IRL: +24%, I: +31%, NL: +13%, PL: +36%, P: +15%, SK: +18%, , SLO: +33%, E:+38% , CZ:+24%
15a. How often do you wear the seat belt when making a journey on motorways?	Always	GR:+15%, H: -7%, IRL: +9%, I:+17%, PL: -10%, SLO: +7%, E:-8%
15b. How often do you wear the seat belt when making a journey on main roads between towns?	Always	H: -7%, IRL: +16%, I: +20%, GR: +19%, SLO: +13%, E: -10%, NL:+9%, SK:-7%
15d How often do you wear the seat belt when making a journey in built-up areas?	Always	F: +8%, H: -9%, IRL: +24%, I: +19%, GR: +22%, NL: +14%, SLO: +19%, E: -9%
	Very often+always	P: +9%
17a. How much do you agree with the	Not at all	A: +10%, D: +14%, H: +19%, IRL: +12%, I: +23%, PL:

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	Answer categories	Change in percentage points
following statement. If you drive carefully seat belts aren't really necessary		+13%, SLO: +12%, S: +18%, CH: +14%, UK: +31%, F:+9%, NL:+13%, CZ:+10%
	Not much+not at all	FIN: +9%, NL: +10%, PL: +15%, P: +22%, SK:+13%
17b. How much do you agree with the following statement. In most accidents seat belts reduce the risk of serious injury for drivers and passengers	Very	B: -8%, H: +15%, I: +15%, P: -21%, CH: +14%, UK: +30%, IRL:+13%
17c. How much do you agree with the following statement. When I'm not wearing my belt I feel less comfortable; as though something was missing	Very	D: +11%, I: +16%, CH: +11%, UK: +32%, B:-10%, IRL:+21%, NL:+11%
	Very+Fairly	CZ: +14%, F: +8%, GR:+14%, NL: +13%, P: +16%, SK:+9%
17d How much do you agree with the following statement There is a risk of being trapped by the belt in case of emergency	Very	P: -19%
	Very+fairly	FIN: +8%, IRL: -11%, PL: +10%, SLO: -18%, S: -41%!, UK: -28%
	Not at all	GR: +10%, CH:-16%
19. In general how many days per week do you drink alcoholic beverages?	never	B: +10%, E: -8%
	< 1day	CZch:+13%, D: +11%, H: +8%
	3-5 days	CH: -9%
20. How many days per week do you drive after drinking even a small amount of alcohol?	Never drink (non-drinkers included)	A: +9%, B: +8%, GR:+10%, P: -10%, SLO:+8%, E -9%,
21 Over the last week, how many days did you drive, when you may have been over the legal limit for drinking and driving?	Never drink (non-drinker included)	SLO+12%
	Less than one day per week	GR: +8%
22 Do you think drivers should be allowed to drink?	Not at all+Less alcohol	A:-11-10%, F: +15%, IRL: +20%, I: -20-22%, GR: -43%, NL: -8%, P: -9%, SLO: -15%, E: -17%, CH: +18%, H:-12%
	Less alcohol	A: -14%
	As much alcohol as present	P:+10%
25. On a typical journey, how likely is it that you will be checked for alcohol?	Never	GR: -31%, I: -12%, CH: -16
	Never+rarely	IRL: +8%
27a. In order to reduce air pollution, how much would you accept the following propositions: Reduce usage of car	Very	A: -9%, I: +12%, E: +8%
	Very+Fairly	D: -12%, IRL: +12%, PL: +16%, P: +9%, SLO: -20%, UK: -18%
27b. In order to reduce air pollution, how much would you accept the following propositions Share with other drivers	Very	FIN: +10%
	Very+fairly	CZ: +18%, GR: -24%, H: +18%, PL: +20%, P:+13%, SLO: +13%, S: -8%
27c. In order to reduce air pollution, how much would you accept the following propositions: Use most often public transport	Very	A: -10%, PL: -12%, P: -10%, UK: -9%, SK: -10%, GR: -21%
	Very+fairly	D: -13%, GR: -19%, P: +8%, SK: -11%, SLO: -20%, S: -10%, UK: -20%
28a. There is a possibility of having similar laws throughout Europe. How much would you be in favour of a penalty points system for traffic offences which results in loss of licence when exceeded	Very	S:+27%, SK:-49%, SLO:+16%, , IRL:+27%, F: +14%
	Very+fairly	F: +20%, IRL: +14%, P: +20%, SLO:+23%, ,
28b There is a possibility of having similar laws throughout Europe. How much would you be in favour of a requirement that manufacturers modify their vehicles to restrict maximum speed	Very	I: +9%, IRL: +21%, S: +15%
	Very +fairly	FIN: +9%, IRL: +16%, P: +18%
	Not at all	H: +18%, PL :-16%, CZ :-14%, P :-20%
28e. There is a possibility of having similar laws throughout Europe. How much would you be in favour of not allowing new drivers to drink any alcohol before driving	Very	F: +10%, GR: -19%, IRL: +17%, E: -17%, S: +15%, CH:+14%
	Very+fairly	P: +8%, CH: +20%
	Not at all	P: -15%, CH:-16%
29a. How much do you agree with the following statement: I sometimes get very annoyed with other drivers	Very	FIN: +19%, GR: -10%, P: -12%, SLO: +16%, I:+8%
	Very+Fairly	A: +10%, S: +22%, UK: -10%
29b. How much do you agree with the following statement: I enjoy driving fast	Very	FIN: -16%, P:-13%
	Very+fairly	I: +10%, PL: -17%, P: -17%, FIN: -36%
	Not at all	IRL: +12%, I:-17%, UK:-15%, FIN :+32%, E :-11%
29c. How much do you agree with the following statement: I worry family out driving	Very	FIN:+9%, H: +14%, IRL: +10%, P:-21%, PL:-22%
	Very+fairly	H: +12%, PL: -28%, CH: +12% GR:+10%
29d. How much do you agree with the following statement I think a car is just a means of transport	Very	FIN: +10%, GR: -18%, H: +24%, IRL: +11%, P: -16%, S: +11%, UK: +26%
	Very+fairly	CH: +17%, FIN: +13%
30a Would you find it useful to have a device on your car like ... a guidance or navigation system to help you find your destination.	Very	IRL: +9%, E:+22%, D:+10%
	Very+Fairly	A: +19%, CZ: +14%, NL: +11%, P:+15%, SK: +16%, S: +24%, CH: +18%
30c. Would you find it useful to have a device on your car like ... a system that prevented you exceeding the speed limit?	Very	Slight change in wording question SARTRE 2 and SARTRE 3, F: +13%, IRL: +13%, SK: +10%, , UK: +10%
	Very+fairly	S: -8%, SLO: -18%, PL:-11%, H: -11%, SK: +20%, CZ: +10%
30d Would you find it useful to have a device on your car like ...an alcohol-meter to check if you had been drinking and that prevented you driving if you were over the limit	Very	CZ: +14+4%, FIN: +19%, F +14%, IRL: +20%, UK: +12%
	Very+fairly	CZ: +14%, NL: +13%, PL: +22%, P: +11%, SK: +11%, SLO: -25%, S: +23%
42 In that last 3 years how many damage	0 accidents	UK:+7%

	Answer categories	Change in percentage points
only accidents involved in, as the driver of a vehicle?		

**Table 2: Results of statistical analyses**

Questions,	Explained variance, in percent for SARVERSI (AGE/COUNTRY/Interaction SAVERSI and COUNTRY)	Chi-square-Test significance (Cramver-V)	Log linear modelling, (interactions with p=.000)
1a. Concern rate of crime	0 (2/4/1)		
1b. Concern pollution	0 (0/2/0)		
1c. Concern road accidents	0 (1/7/1)		
1d. Concern standard health care	0 (0/13/1)		
1e. Concern traffic congestion	0 (0/10/1)		
1f. Concern unemployment	0 (0/7/3)		
2a. Favour improve driver training	0 (0/6/1)		
2b. Favour more enforcement traffic laws	0 (2/8/1)		
2c. Favour more road safety campaigns	0 (0/5/1)		
2d. Favour improve the standards of roads	0 (0/18/1)		
3d. Agree people allowed for themselves decide drink-drive	0 (0/13/1)		
3c. Agree car manufacturers not be allowed stress speed	1 (2/9/1)		
4a. How often driving when tired cause	0 (0/3/1)		
4b. How often drink-driving cause	0 (0/4/1)		
4c. How often following too closely cause	0 (1/3/0)		
4d. How often driving too fast cause	0 (0/6/0)		
4e. How often taking medicine cause	1 (0/18/16)		
4f. How often taking drugs cause	0 (0/21/13)		
4g. How often poorly maintained roads cause	0 (0/21/1)		
4j. How often traffic congestion cause	5 (0/10/1)		
4k. How often bad weather conditions cause	0 (0/4/1)		
4l. How often poor brakes cause	0 (0/16/1)		
4m. How often bald tyres cause	0 (1/13/1)		
4n. How often faulty lights cause	0 (1/15/1)		
4o. How often defective steering cause	0 (1/18/1)		
5a. When planning consider pedestrians			
5b. When planning consider cyclists			
5c. When planning consider motorcyclists			
5d. When planning consider cars			
5e. When planning consider lorries			
5f. When planning consider public transport			
54 How often driver faster than limit on motorways	0 (6/6/1)		
6. Compared to others your driving is..., dangerous	0 (2/2/1)		
7. How often others break speed limit	0 (0/5/1)		
8. Compared to others your driving is .. faster	0 (5/4/1)		
9b. How often driver faster than limit on main roads between towns	0 (7/1/1)		
9c. How often driver faster than limit on country roads	0 (7/2/0)		
9d. How often driver faster than limit in residential areas	0 (4/2/0)		
10a. What should limit be on motorways	0 (2/2/2)		
10d. What should limit be in built-up residential areas	1 (0/4/7)		
10b. What should limit be on main roads between towns	1 (1/2/3)		
10d. What should limit be in built-up residential areas	1 (0/4/7)		
11 On a typical journey how likely you will be checked	0 (0/7/1)		

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Questions,	Explained variance, in percent for SARVERSI (AGE/COUNTRY/Interaction SAVERSI and COUNTRY)	Chi-square-Test significance (Cramver-V)	Log linear modelling, (interactions with p=.000)
12. the last 3 years fined or punished for speeding		.02 (.014)	Age and Q12
24. In the last 3 years fined or punished for drinking-driving			
18. In the last 3 years fined or punished for not wearing seat belt			
13a. How often follow too closely	0 (2/4/1)		
13b. How often give way to pedestrian	0 (2/6/1)		
13c. How often drive through traffic light that is amber	0 (5/8/1)		
13d. How often overtake when you just can make it	1 (1/13/6)		
13e. How often signal other drivers to warn of speed trap	0 (3/7/1)		
14. Does car have seat belts fitted		.00 (.20)	
15a. How often wear belts on motorways	0 (0/5/2)	.00 (.04)	
15b. How often wear belts on main roads between towns	1 (1/12/2)	.00 (.08)	
15d. How often wear belts in towns	1 (1/12/2)	.00 (.09)	
17a. Drive carefully seat belts not necessary	0 (0/6/0)	.00 (.09)	
17b. Seat belts reduce risk in accident	0 (0/5/1)	.00 (.034)	
17c. Feel less comfortable when not wearing belt	1 (0/9/1)	.00 (.06)	
17d. Risk of being trapped by belt in case of emergency	0 (0/8/1)	.00 (.05)	
19. How many days drink alcohol		.00 (.05)	Age and Q19
20. How many days drive after drinking small amount alcohol		.00 (.028)	Age and Q20
21. Over the last week how many days drive over the legal limit		.00 (.354)	Age and Q21,
22. Do you think drivers should be allowed		.00 (.08)	Age and Q22
25. On a typical journey how likely to be checked for alcohol	0 (0/9/1)	.00 (.056)	Age and Q25
27a. Willing to reduce usage of car	0 (0/9/1)	.00 (.028)	
27b. Willing to share with other drivers	0 (0/8/2)	.00 (.046)	
27c. Willing to use most often public transport	1 (0/8/1)	.00 (.073)	
28a. Favour penalty points system	0 (1/5/1)	.00 (.06)	
28b. Favour requirement that manufacturers modify speed	0 (2/6/1)	.00 (.07)	
28e. Favour not allowing new drivers to drink any alcohol before driving	0 (1/8/1)		
29a. Sometimes get very annoyed	0 (1/5/1)	.00 (.042)	Age a. Q29_A
29b. I enjoy driving fast	0 (6/3/2)	.00 (.077)	Age a. Q29_B
29c. I worry family out driving	0 (1/10/1)	.00 (.065)	Age a. Q29_C
29d. Car is just means of transport	0 (1/4/1)	.00 (.043)	Age a. Q29_D
30a. How useful navigation system	1 (1/5/1)	.00 (.111)	Age a. Q30_A
30c. How useful speed assistance system	0 (0/5/1)	.00 (.054)	Age a. Q30_C
30d. How useful alcohol-meter	1 (0/13/2)	.00 (.097)	Age a. Q30_D
41. In the last 3 years how many injury accidents involved in?	0 (1/2/0)	.399 (.007)	Age a. Q42_CL
42. In that last 3 years how many damage only accidents involved in?	0 (1/1/0)	.004 (.017)	Age a. Q41_CL

Table 3

Questions	1, Au	2, Be	3, CR	4, Fi	5, Fr	6, Ge	7, Gr	8, Hu	9, Ir	10, It	11, Ne	12, Po	13, Pr	14, SI	15, Sve	16, Sp	17, Swe	18, Swi	19, UK
2a Favour improve driver training									2	1				-1		1	1	2	1
2b Favour more enforcement traffic laws		1		2	1				1	2	-1		2	-1	-2	2	1	2	1
2c Favour more road safety campaigns			2							1		1		-2				2	2
2d Favour improve the standards of roads	2			2		2	1							-1	-1		2	2	2

Changes in individual countries

3c Agree car manufacturers not be allowed stress speed			2	2					2			2	2	2	2		2		2	
3d Agree people allowed for themselves decide drink-drive		1					1					-2		-1	2	-2			1	
8 Compared to others your driving is .. faster					1							1			-2				1	
9a How often drive faster than limit on motorways									2			2	1		2	-2		-2		
9b How often drive faster than limit on main roads between towns									1			1	2			-2		-2	2	
9c How often drive faster than limit on country roads												1	1				-2			
9d How often drive faster than limit in built-up areas																	-2		2	
10a What should limit be on motorways?			2	1	2				-2			-2	2	1	2					
10b What should limit be on main roads between towns?			1	2				2		1		2	2	1				-1	1	
10d What should limit be in built-up residential areas?		1	-2	1				-1	2	1					2	-1		-2	2	
13a How often follow too closely		-1										2							-2	
13b How often give way to pedestrian		1									2						2		1	1
13c How often drive through traffic light that is amber			2			-1											-2		2	
13d How often overtake when you just can make it																		-2		
13e How often signal other drivers to warn of speed trap		1	-2						1	2			-2	1	2	-2		-2	1	
15a How often wear belts on motorways								2		1	2						1		-1	
15b How often wear belts on main roads between towns								2		2	2	1					-1	2	-1	
15d How often wear belts in built-up areas						1		2		-1	2	2	2				2		-1	
Opinion Change Index Sum score	2	1	10	12	10	3	4	2	21	10	0	8	17	4	4	-3	13	15	17	
Standardised Opinion/Attitude Change index	0,5	0,3	2,8	3,3	2,8	0,8	1,1	0,5	5,8	2,8	0	2,2	4,7	1,1	1,1	-0,8	3,6	4,2	4,7	
Reported Behaviour Change Index Sum Score	1	2	0	0	1	0	4	1	8	7	-1	0	5	-3	6	-14	2	-4	1	
Reported Behaviour Change Standardised Index	0,4	0,7	0	0	0,4	0	1,4	0,4	2,8	2,5	-0,4	0	1,8	1,1	2,1	-5	0,7	-1,4	0,4	
Assignment of change scores per question. Positive change < 12 percentage points 1 point; positive change 12 points or more 2 points. Negative change < 12 percentage points: minus 1 change point; negative change 12 points or more: minus 2Behaviour/Opinion Index sum score (All behaviour or opinion scores summed), ranging between minimum -40 and maximum +40. Standardised index score: (Sum of scores divide by number of questions and multiplied by five) between -10 and +10																				

**Table 4: Change index scores for opinion/attitude questions and behaviour questions**

Questions	1, Au	2, Be	3, CR	4, Fi	5, Fr	6, Ge	7, Gr	8, Hu	9, Ir	10, It	11, Ne	12, Po	13, Pr	14, Sl	15, Sve	16, Sp	17, Swe	18, Swi	19, UK
17a Drive carefully seat belts not necessary	1		1	1	1		1	2	2	2	2	2	2	2	2		2	2	2
17b Seat belts reduce risk in accident		-1						2	2	2			2					2	2
17c Feel less comfortable when not wearing belt		-1	2		1	1	2		2	2	2		2	1				1	2
17d Risk of being trapped by belt in case of emergency				-1			1		1			-1	2		2		2	-2	2
20 How many days drive after drinking small amount alcohol	1	1					1						-1		1	-1			
21 Over the last week how many days drive over the legal limit							1								2				
22 Do you think drivers should be allowed	-1				2		-2	-2	2	-2	-1		-1		-2	-2		2	
28a Favour penalty points system					2				2					*	2		2		
28b Favour requirement that manufacturers modify speed			2	1				-2	2	1		2	2	*			2		
28e Favour not allowing new drivers to drink any alcohol before driving					1		-2		2				1	*		-2	2	2	
Opinion Change Index Sum score	2	1	10	12	10	3	4	2	21	10	0	8	17	4	4	-3	13	15	17
Standardised Opinion/Attitude Change Index	0,5	0,3	2,8	3,3	2,8	0,8	1,1	0,5	5,8	2,8	0	2,2	4,7	1,1	1,1	-0,8	3,6	4,2	4,7
Behaviour Change Sum score	1	2	0	0	1	0	4	1	8	7	-1	0	5	-3	6	-14	2	-4	1
Standardised Behaviour Change Index	0,4	0,7	0	0	0,4	0	1,4	0,4	2,8	2,5	-0,4	0	1,8	-1,1	2,1	-5	0,7	-1,4	0,4
* comparison SARTRE 2-SARTRE 3 not possible for this country on these questions. Assignment of change scores per question. Positive change < 12 percentage points 1 point; positive change 12 points or more 2 points. Negative change < 12 percentage points: minus 1 change point; negative change 12 points or more: minus 2. Behaviour/Opinion Index sum score (All behaviour or opinion scores summed), ranging between minimum -40 and maximum +40. Standardised index score: (Sum of scores divide by number of questions and multiplied by five) between -10 and +10																			

# Chapter 12

## Contextual data

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### Introduction

The survey data from European car drivers forms the core of the SARTRE 3 project. In addition to this data, further information, the contextual data as it is known, was gathered to describe key aspects of road traffic in the participating countries. The contextual data covers various topics of interest for road safety research in Europe such as:

- Population
- Road network
- Vehicles
- Exposure
- Legislation
- Enforcement
- Behavioural data on alcohol consumption and seat belt wearing
- Road fatality data

The purpose of this additional information data is twofold: on the one hand, the data is intended to provide a background for interpreting the survey data on European car drivers, i.e. to explain any differences between countries, taking different road traffic conditions into consideration. On the other hand, the contextual data information itself is useful for comparing the countries' current status in road traffic. For countries taking part in the SARTRE project on a regular basis, comparisons over time are also possible because a comparable contextual data analysis was conducted in 1995/96 within the SARTRE 2 project.

Contextual data was obtained from a questionnaire completed by participating partners in the SARTRE 3 project, who collected the requested information for their country, mainly from three sources of information:

National and international statistics (e.g. National Office of Statistics, International Road Traffic and Accident Database [IRTAD])

Legislative and research literature

Personal information from road safety experts

The purpose of the SARTRE 3 contextual data questionnaire was, on the one hand, to ensure comparability with the contextual data established in SARTRE 2. On the other hand, the survey was adapted to current topics of road traffic safety, i.e. the context information was to adhere as closely as possible to the thematic issues of the SARTRE 3 survey of car drivers. Although the major core variables were kept identical to the previous contextual data survey, some questions in the SARTRE 2 contextual data questionnaire were deleted, mainly due to an inadequate amount of data or an inadequate degree of comparability between countries in the previous study, and new questions were included according to the additional topics in the driver survey.

A complete overview of all contextual data of each country can be found on the SARTRE website. In this section, we largely base the countries with two categories in accordance with a WHO classification (cf. Murray & Lopez, 1996)

Established Market Economies (EME), which includes the countries of the European Union, Switzerland and Cyprus<sup>33</sup> (originally classified by the WHO as Middle East Crescent). The term EME may also be regarded as a synonym for European Union or Western Europe.

Former Socialist Countries (FSC) that include all future European Union members plus Croatia. This may be regarded as a synonym for Eastern European Countries or non-European Union countries.

The authors consider this to be the most comprehensive classification that integrates current political and economic status with historical backgrounds.

## Road fatalities

To compare road fatality risks in European countries, the most reasonable indicators are fatality rates (i.e. fatalities per inhabitant, per vehicle kilometre or per motor vehicle) because the rates of injured persons or of crashes are largely incomparable due to nationally varying definitions and registration procedures.

All participating countries except France (six days) have a 30-day definition of “fatality”, i.e. death is causally attributed to a road traffic accident if it occurs within 30 days<sup>34</sup>. For France, the figures given in the following paragraphs were corrected for a 30-day definition.<sup>35</sup>

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<sup>33</sup> All results reported for Cyprus are restricted to the Greek part of the country.

<sup>34</sup> This information was given by the national project partners. Via an external source it was found out that this information is not totally correct. In Greece, Portugal and Spain the period for the definition of road fatality is only 24 hours and in Italy it is 7 days.

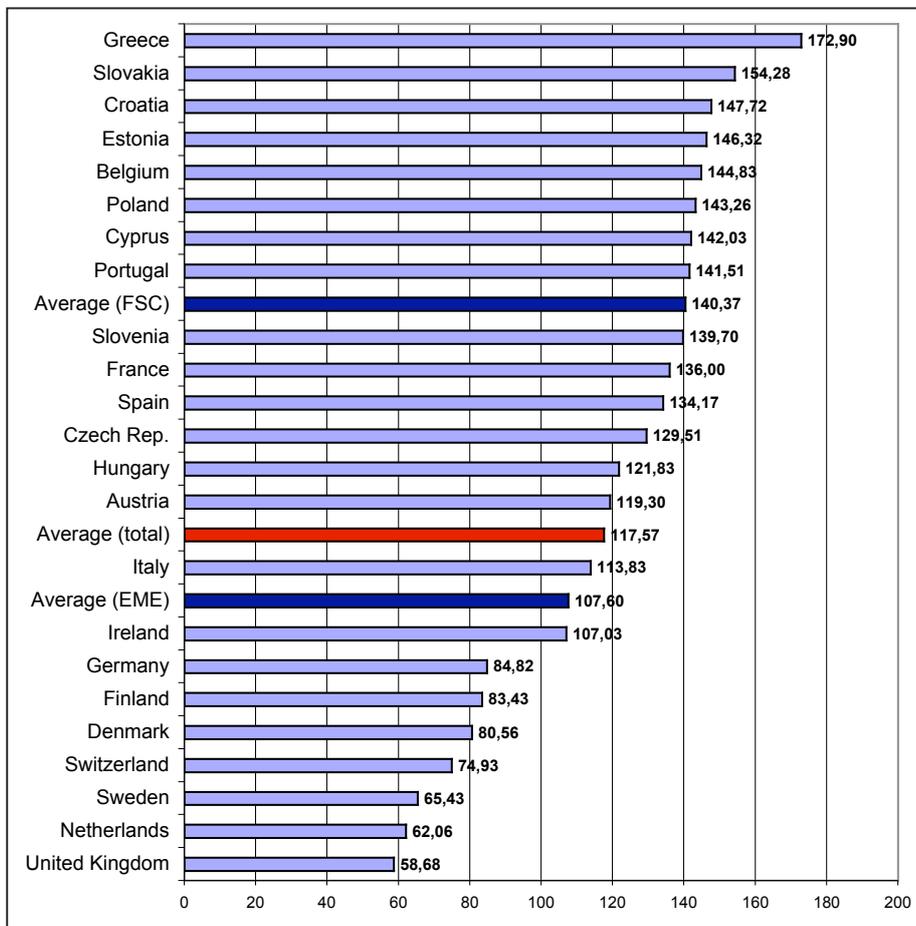
However, the reported fatalities were weighted so that they should be a good estimate of a 30 day mortality due to road traffic crashes.

<sup>35</sup> 30 days = 6 days x 1.057

## General

As shown in figure 12.1, the three safest countries in Europe are the United Kingdom, the Netherlands and Sweden with fewer than 70 fatalities per 1 million inhabitants, followed by Switzerland, Denmark, Finland and Germany (75-85 fatalities/1 million inhabitants). In the vast majority of countries, more than 100 persons per 1 million inhabitants died in road traffic incidents in 2001. The countries with the highest fatality rates are Greece and Slovakia. The general trend is that fatality rates are higher in FSC (Former Socialist Countries) than in EME (Established Market Economies).

**Figure 12.1: Fatality rates (fatalities per 1 million inhabitants)**



## Fatality rate related to motor vehicles

With regard to fatality rates by vehicle densities, about twice as many persons are killed in road traffic in FSC as in EME countries (42 vs. 20 fatalities/100,000 motor vehicles). In addition, the rate of occupants killed per car is typically higher in FSC than in EME countries: on average, about one third more car occupants are killed in FSC (22 vs. 14 car occupants/100,000 cars). With respect to individual countries, the safety of

car occupants is worst in Portugal, Croatia, Greece and Estonia with more than 25 occupants killed/100,000 cars and best for Italy, Switzerland and the United Kingdom with fewer than 7 fatalities. Conclusively, the lower the vehicle density level (here: the number of cars per inhabitant), the higher the fatality rates in general ( $r = -0.44$ ,  $p \leq 0.05$ ) and, in particular, the higher the rate of car occupants killed ( $r = -0.73$ ,  $p \leq 0.01$ ).

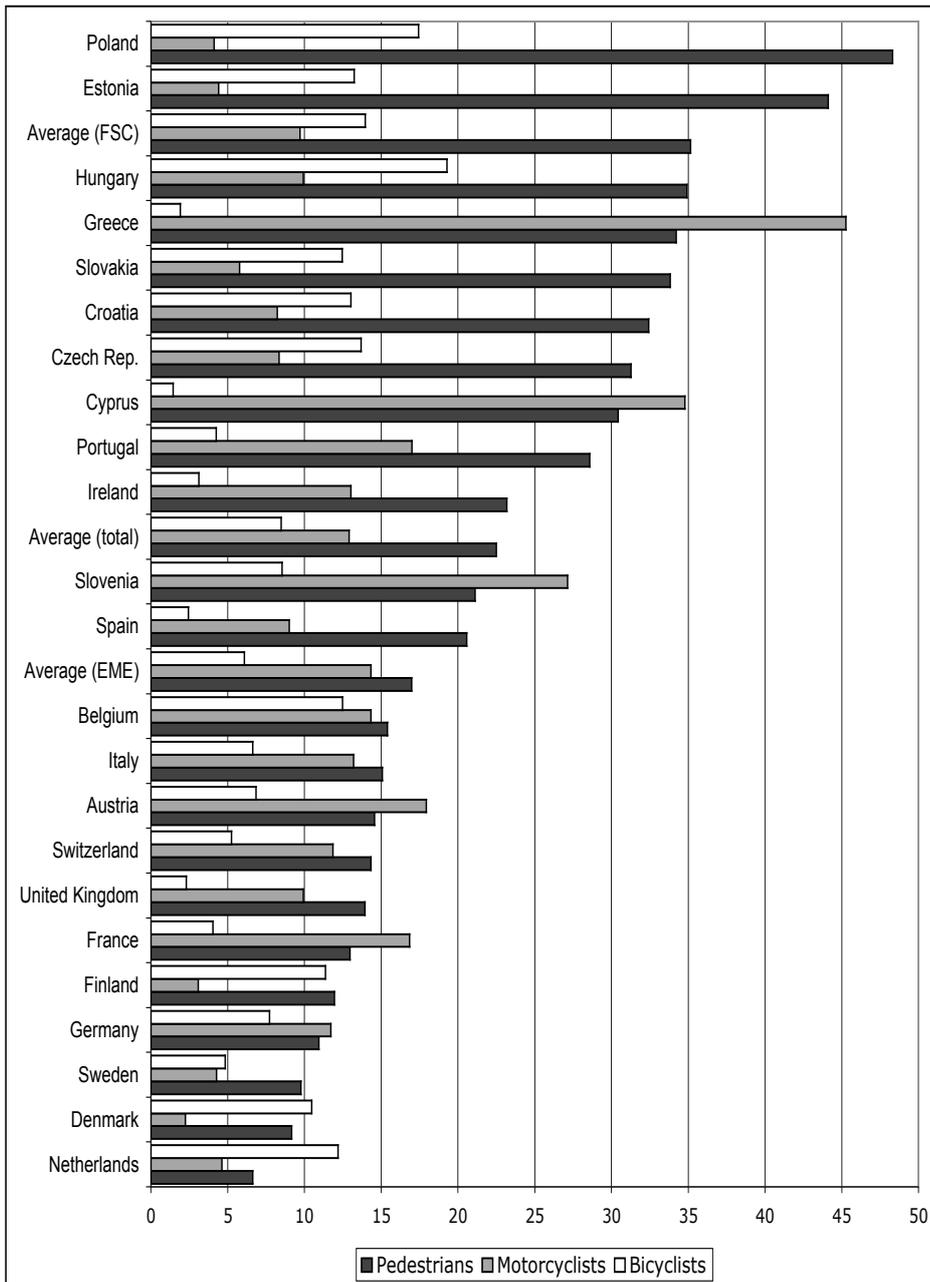
## Fatality rate of different road users

With regard to the safety of different types of road users, the safest countries for pedestrians are the Netherlands, Denmark and Sweden with fewer than 10 pedestrians killed per 1 million inhabitants. Countries with the highest rate of pedestrian fatalities are Poland and Estonia with more than 40 pedestrians killed per 1 million inhabitants. Generally, FSC pedestrian safety is rather low compared to the EME: in these countries, pedestrian fatalities are over 30 per 1 million inhabitants, except for Slovenia (see figure 12.2). If one calculates the rates per motor vehicle, the rate is even three times higher in FSC than EME (10 vs. 3 pedestrians killed/100,000 motor vehicles).

For motorcyclists, the lowest fatality rates are found in Denmark, Finland, Poland, Estonia and the Netherlands, all below 5 motorcyclist fatalities per 1 million inhabitants (figure 12.2). The situation is worst in Greece, Cyprus and Slovenia. FSC have lower fatality rates for motorcyclists than EME in terms of fatalities per inhabitants. However, fatality rates for this group of traffic participants are strongly influenced by the number of motorcycles and, accordingly, by exposure. Corrected for vehicle density, the picture changes: fatality rates for motorcyclists based on the number of motorcycles are about 60% higher for FSC than for EME (128 vs. 53 fatalities/100,000 motorcycles). The situation is worst in Slovenia with 448 motorcyclists killed per 100,000 motorcycles, and best for Finland, Denmark, Switzerland, the Netherlands and Poland (< 20 fatalities/100,000 motorcycles).

Fatality rates for cyclists are lowest in Cyprus, Greece, the United Kingdom, Spain and Ireland with fewer than 4 and highest in Hungary and Poland with 17 and 19 cyclists killed per 1 million inhabitants. For EME, fatality rates for cyclists are, on average, half as high as for FSC. As is the case with motorcyclists, fatality rates for cyclists are seriously affected by exposure. Unfortunately, there is no exposure data available for cyclists. In this respect, however, the Netherlands, a country that is known to have a lot of bicycle traffic, is relatively safe with 12 cyclists killed per 1 million inhabitants (figure 12.2).

**Figure 12.2: Fatality rates for different groups of traffic participants (fatalities per 1 million inhabitants).**



## Main risk factors

Concerning the proportion of road traffic fatalities influenced by specific circumstances (BAC over legal limit, not wearing seat belts, speeding), data quality is not equally good in all countries. One reason is that many countries do not have official

statistics on these risk factors for crashes or injury severity, as they are often not specifically noted in police crash reports. Additionally, the available data varies widely due to different reporting methods and data sources. Because of these interpretative difficulties, no data analysis was conducted on these important crash risk factors.

## Conclusions

Between 1995/96 and 2001/2002, almost all countries that participated in SARTRE 2 and 3 improved their road safety. Austria, Germany, the Netherlands, Poland, Portugal, Slovenia and Switzerland reduced their fatality rates (fatalities per inhabitant) by 25% or more. In countries that already had a relatively high level of road safety in the mid-1990s (Sweden and the United Kingdom), fatality rates remained stable with only slight reductions in absolute figures. Slovakia is the only country with a rising fatality rate (+ 32.8%).

Austria, the Czech Republic, France, Germany, the Netherlands, Poland, Portugal and Slovenia have achieved reductions in pedestrian fatality rates of 25% or more. The only country with a slight rise in its pedestrian fatality rate is Sweden.

## Alcohol

The majority of European Union countries have introduced a maximum blood alcohol concentration (BAC) limit of 0.5 g/l for car drivers. Compared with 1995/96, some countries have lowered their BAC limits in the meantime from 0.8 g/l to 0.5 g/l, as is the case for Austria, Denmark, France, Germany, Greece and Spain. However, at the time of the SARTRE 3 survey three European Union countries still had a higher BAC of 0.8 g/l, namely Italy, Ireland and the United Kingdom. The only European Union country with a BAC limit lower than 0.5 g/l is Sweden with a legal BAC of 0.2 g/l. In FSC countries, the legal BAC for car drivers is usually lower than in EME countries. The Czech Republic, Hungary, and Slovakia have a 0.0 g/l limit; the limit in Estonia and Poland is 0.2 g/l. In Croatia and Slovenia, the legal BAC for car drivers equals those in most European Union countries (0.5 g/l). Cyprus (0.9 g/l) and Switzerland (0.8 g/l) still have a relatively high BAC limit.

Some countries have implemented special BAC limits for novice car drivers or professional drivers (commercial/heavy goods vehicle, bus or taxi drivers) that are lower than those for drivers of passenger cars. Current legislation in five countries includes a specific BAC limit for novice drivers (Austria, Greece, the Netherlands, Slovenia, Spain) and/or for professional drivers (Austria, Croatia, Greece, Slovenia, Spain) ranging from 0.0 to 0.3 g/l.

Table 12.1 gives an overview of general BAC limits in the participating countries and the officially recorded alcohol consumption per capita (WHO, 2003). According to World Health Organisation data, alcohol consumption decreased in most of the participating countries from 1995/96 to 1999/2000. In Belgium, Cyprus, France, Greece, Italy and Portugal, alcohol consumption decreased by 1 litre or more. An increase in alcohol consumption can be found for Croatia, Estonia, Finland, Ireland, the Netherlands, Poland and the United Kingdom where, for the first four countries, the increase is more than 1 litre. There is little difference between the average alcohol consumption in EME vs. FSC countries (11.49 vs. 11.03 litres). As can also be seen in table 12.1, there is no significant association between the legal BAC limit and alcohol

consumption. This result is not surprising as per capita alcohol consumption is not primarily related to road traffic and thus does not give any information about a population's drinking-and-driving habits. Additionally, it is worth noting that, according to the World Health Organisation, there is a proportion of not officially recorded alcohol consumption for many countries, especially in Eastern Europe (WHO, 2003a).

**Table 12.1: European countries by legal BAC limit and alcohol consumption**

General BAC limit (g/l)	Alcohol consumption per capita <sup>36</sup> (1999/2000)	
	< 11 litres	≥11 litres
0.9	Cyprus 8.96	
0.8	United Kingdom 9.73	Ireland 15.80
	Italy 9.16	Switzerland 11.45
0.5		Austria 12.00
		Croatia 12.20
	Belgium 9.64	Denmark 11.30
	Finland 9.72	France 13.31
	Greece 9.16	Germany 12.45
	Netherlands 9.45	Portugal 16.59
		Slovenia 12.60
		Spain 11.17
0.2	Estonia 8.81	
	Poland 8.26	
	Sweden 6.71	
0.0		Czech Republic 14.94
		Hungary 11.50
		Slovakia 12.11

The BAC at which driving licences are immediately withdrawn as well as the administrative procedures involved vary widely. In most countries, licences are withdrawn when the driver is convicted of driving with a BAC that is substantially above the legal limit. Some countries differentiate between first-time and repeat DUI offences or involvement in motor vehicle crashes. Usually, tolerance is lower for repeat offenders, meaning that their licences are withdrawn at lower BACs than for first-time offenders. Finally, some countries apply milder forms of punishment like driving bans - the driver keeps the licence, but is not allowed to drive for a certain period of time - before licences are withdrawn. Such milder punishments are usually applied to lower BAC levels than for licence withdrawal.

17 countries allow random breath testing as a method of collecting evidence, i.e. drivers can be randomly checked for alcohol by the police without any suspicion that they have consumed alcohol. Random breath testing is not allowed in Germany, Ireland, Italy, Poland, Switzerland and the United Kingdom. Evidential breath testing means that the driver is tested for alcohol only when there is reason to suspect that they are driving

<sup>36</sup> Per adult per year (15 years+) (WHO, 2003)

under the influence of alcohol. All countries except the Czech Republic and Denmark accept evidential breath testing as proof in court.

Regarding the assessment of the driver aptitude of DUI offenders, the situation in Europe varies: 13 countries require a medical and/or psychological assessment for DUI offenders. These include seven European Union countries (Austria, Belgium, Germany, the Netherlands, Portugal, Spain, Sweden) and six non-European Union countries (Croatia, Cyprus, Hungary, Slovakia, Slovenia, Switzerland). The Czech Republic, Denmark, Estonia, Finland, Greece, Ireland, Italy, Poland and the United Kingdom do not require such assessments. Nine countries provide rehabilitation courses for DUI offenders. In the European Union, these are Austria, Belgium, Denmark, Germany, the Netherlands, Portugal, Spain and the United Kingdom. In non-European Union countries, only Hungary provides for a measure of this kind.

The contextual data survey also investigated enforcement activities with respect to alcohol (breath and blood test) and the number of drivers convicted for alcohol-related offences. However, information on the number of drivers checked is not available in most countries and the data from the remaining countries is largely incomparable due to different reporting methods and data sources.

The rate of drivers convicted for excess alcohol varies widely, which might be caused by different interpretations of the word “conviction”. For example, it can include licence withdrawal or court conviction. There seems to be a tendency for FSC to have a higher rate of drivers convicted for DUI than EME countries, on average 11.9 vs. 4.3 drivers per 1,000 licence holders. The reason for this difference is not clear. One possible explanation might be different or more severe enforcement practices, largely lower legal BAC limits or drinking-and-driving behaviour in Eastern European countries.

## Speed

Speed limits on motorways vary between 100 and 130 kph. In the EME, most countries have a speed limit of 120 kph. Cyprus, Denmark and Sweden provide for a lower speed limit of 100 kph. The United Kingdom and Ireland have 70 mph or 112 kph limits. A speed limit of 130 kph exists in Austria, France and Italy. In Germany, the only country without a general speed limit on motorways, there is only a “maximum speed recommendation” of 130 kph. All FSC have speed limits of 130 kph.

On highways, main or national roads, speed limits vary more widely, partly due to the different road types per country included in this category. Typically, speed limits on these types of roads vary between 80 and 112 kph and no systematic differences can be found between FSC and EME countries. The same is basically true for secondary/regional roads. In built-up areas, all countries provide for a speed limit of 50 kph (equivalent to: 30 mph in Ireland and the United Kingdom), except for Poland and Slovakia with 60 kph in built-up areas.

Almost all countries have legal provisions for a suspension or withdrawal of driving licences for excessive speeding on all kind of roads. In the most countries, milder forms of punishments such as fines and penalty points are applied before licences are withdrawn. Dependent on national legislation, licences can be suspended or withdrawn when speed limits are exceeded between 20 and 77 kph. Typically, tolerance is greater on higher-class roads with higher maximum speeds.

As was the case with the number of alcohol convictions, the data on the number of drivers convicted for speeding must be interpreted with caution because of vast differences in data sources. However, EME countries tend towards a higher rate of drivers fined per licence holder due to speeding than the FSC. The Netherlands has by far the highest rate of fines (583.3 fines per 1,000 licence holders), followed by Austria (258.0) and Slovenia (242.2). The lowest rate of fines for speeding was found for Cyprus (18.5), Sweden (24.7) and Spain (25.4).

## Seat belts

In all 23 participating countries, seat belt use is compulsory in front and rear seats. Non-usage is subject to fines. For front seats, the majority of countries introduced seat belt wearing laws in the 1970s and the obligation to wear seat belts in rear seats was introduced later - in most countries in the 1990s. Some countries first implemented compulsory seat belt wearing, but introduced penalties for non-use a few years later (Austria, Croatia, Finland, Germany, Slovenia). The use of child restraints is not yet compulsory in Croatia and Slovakia. The laws for child restraints vary between countries according to age group, road type and seating position.

Table 12.2 gives an overview of average seat belt wearing rates depending on different seating positions and road types. Most data is available for built-up area roads and for drivers. As can be seen, seat belt wearing rates are usually higher on roads with higher speed limits: wearing rates in built-up areas are lower than on country roads and these are lower than on motorways. Seat belt wearing rates are higher for front seats than for rear seats.

Countries with high wearing rates (> 90%) outside built-up areas are Finland, Germany and Sweden. Comparatively low wearing rates (< 80%) outside built-up areas are found in Austria, Belgium, the Czech Republic, Estonia, Hungary, Ireland and Switzerland.

Within built-up areas, Finland, Germany, Sweden as well as the United Kingdom again show high wearing rates (> 80%), while Austria, Belgium, the Czech Republic, Estonia, Hungary, Poland, Spain and Switzerland have relatively low wearing rates (< 70%).

**Table 12.2: Average seat belt wearing rates based on seating position and road type (in %)**

	Built-up areas	Secondary/ regional roads	Highways/main/ national roads	Motorways
Front seat				
Driver	68.7 (16*)	78.0 (14)	81.2 (13)	85.0 (12)
Passenger	70.3 (14)	78.2 (12)	81.7 (11)	84.5 (10)
Rear seat	40.6 (15)	44.8 (12)	48.4 (11)	47.8 (11)
Child restraints	70.1 (11)	71.3 (9)	78.8 (8)	79.8 (7)

*\*In brackets: the number of countries that provided data*

In Germany, Ireland, the Netherlands and Switzerland, seat belt wearing rates for front seats generally increased inside and outside of built-up areas by more than 5% between SARTRE 2 and 3. Rates decreased in Belgium and Hungary in the same

period. For rear seats within built-up areas, significant improvements were noted in Belgium, Germany, the United Kingdom and Hungary and, for outside built-up areas, in Austria, Sweden and Spain, too.

No meaningful conclusions can be drawn since very few countries provided information on the number of drivers penalised for not wearing seat belts. However, this and the fact that a number of countries do not even count seat belt wearing rates (cf. table 12.2) may indicate that seat belt wearing is not a primary target of enforcement in many countries.

## Additional road safety measures

As shown in table 12.3, about half the participating countries stated that they have *penalty (or demerit) point systems* for traffic offences. Germany was the first country to implement a penalty point system in 1974, while the majority of countries introduced systems of this type in the 1990s. From 1995/96 to 2001/02, penalty point systems were introduced in Cyprus, Finland, Portugal, Hungary, Slovenia and Ireland (only for speeding offences). Italy was the last country to implement a demerit point system in 2003.

About half the countries have a *provisional licence for novice drivers*. Ireland was the first country in 1964 while in Denmark and the Netherlands probationary licences were only implemented recently (in 2002). Croatia intends to introduce a temporary driving licence for novice drivers in 2003.

In all countries, except Croatia, Finland, Sweden and the United Kingdom, the use of *hand-held mobile phones* while driving is prohibited and subject to fines. However, this law is not applied on rural roads in Estonia. Croatia and Finland plan to introduce such a law in 2003. While a few countries introduced the law at a relatively early stage (Switzerland in 1989, Italy in 1993), the majority of countries followed in the late 1990s or the early 2000s with the spread of mobile phones. Although Switzerland introduced the prohibition first, offences have only been subject to fines since 1996.

Regular *medical check-ups for elderly car drivers* are compulsory in 14 countries. However, the age limits for check-ups to start as well as examination intervals vary from country to country. Check-ups regularly start between the ages of 60 and 70, with repeat check-ups every 2 to 5 years. Medical check-ups for elderly drivers seem to be a traditional, slowly spreading traffic safety measure. They were first introduced in Portugal in 1954 with other countries following suit in the last four decades.

*Daytime running lights (DRL)*, i.e. the usage of low beam headlights or dedicated lamps during the day, are compulsory in twelve of the 23 countries, predominantly in Eastern and Northern Europe. Sometimes, this requirement only applies in winter - as in the Czech Republic, Poland and Slovakia - or to certain road types - as in Hungary and only outside built-up areas. In Switzerland and Croatia, failure to use DRL is not subject to fines, but Croatia plans to introduce penalties in 2003. Sweden (1977) and Finland (1982) were the first countries to introduce DRL while the measure was only recently implemented in the Czech Republic, Slovakia and Switzerland.

**Table 12.3: Overview of additional legal road safety measures [“+” = in effect; “-” = not in effect; “(+)” = in effect for certain conditions].**

	Penalty / Demerit point system	Proba- tionary licence	Prohibition of mobile phones (hand-held) while driving	Check-up for elderly drivers	Daytime running lights
Austria	-	+	+	-	-
Belgium	-	-	+	-	-
Croatia	+	-	-	+	+
Cyprus	+	-	+	+	-
Czech Rep.	-	-	+	+	(+)
Denmark	-	+	+	+	+
Estonia	-	+	(+)	+	+
Finland	+	+	-	+	+
France	+	-	+	-	-
Germany	+	+	+	-	-
Greece	+	-	+	+	-
Hungary	+	+	+	+	(+)
Ireland	(+)	+	+	+	-
Italy	+	-	+	-	-
Netherlands	-	+	+	+	-
Poland	+	-	+	-	(+)
Portugal	+	+	+	+	(+)
Slovakia	-	+	+	+	(+)
Slovenia	+	-	+	-	+
Spain	-	-	+	+	-
Sweden	-	+	-	-	+
Switzerland	-	-	+	+	+
United Kingdom	+	-	-	-	-

## Measures of exposure

Rates as indicators of safety were often presented in previous sections. In this section, the basis is shown for the denominators.

## Population and drivers

The highest population densities are found in the Netherlands, Belgium, the United Kingdom and Germany, with over 200 inhabitants per km<sup>2</sup>. Germany, France, the United Kingdom, Spain and Poland are large European countries in terms of driver population, all having more than an estimated 10 million active car drivers. For the other countries, the number of active car drivers is put between 0.3 and 6.6 million. No

data on driver population was available for Belgium, Croatia, Denmark, Greece, Italy, Portugal and Slovakia.

On average, about 80% of the population is over the minimum age for a car driving licence. It is lowest for the United Kingdom and Cyprus (71.0% and 72.5%). However, the proportion of persons who actually own a driving licence varies to a certain degree between countries: while about 56% of the total population own a driving licence within the EME countries, the share is only 44% in FSC. Austria, Sweden, Switzerland, Finland, France, Germany and the Netherlands have the highest proportion of licence holders (60-67%), while less than 40% of the population possesses a driving licence in Estonia, Poland and Hungary.

In almost all European countries, the minimum age for driving a car is 18. Exceptions are Ireland, the United Kingdom and Hungary, where the minimum age is 17. Poland increased the minimum age for driving from 17 to 18 in 2002. France and Austria are an exception, as there is a model of “accompanied driving”, meaning that people of 16 years or older are allowed to drive under the supervision of a parent or a friend.

## Vehicles

Italy, Germany and Austria have the highest vehicle density rates with more than 500 cars per 1,000 inhabitants. Countries with the lowest density rates are Slovakia, Hungary, Poland, Croatia and Estonia, all with less than 300 cars per 1,000 inhabitants. Density rates are substantially higher in EME than in FSC (434 vs. 304 cars/1,000 inhabitants).

Greece, Switzerland and Cyprus have the highest rates for motorcycles (> 60/1,000 inhabitants), while it is lowest in Estonia, Croatia and Slovenia, with fewer than 8 motorcycles per 1,000 inhabitants.

Regarding the rates of commercial/heavy goods vehicles over 3.5 tons, Greece has by far the highest (31.7 commercial/heavy goods vehicles per 100 cars), followed by Italy (9.5). Apart from these two countries, the proportion of commercial/heavy goods vehicles is below 5 per 100 cars for all European Union countries. FSC have a comparatively large number of commercial/heavy goods vehicles (on average 9.8 commercial/heavy goods vehicles per 100 cars) while in Hungary, Slovakia, the Czech Republic, Estonia and Croatia the ratio is more than 10 commercial/heavy goods vehicles per 100 cars.

Vehicle densities in European countries indicate a West-East gradient: while vehicle densities in general and, in particular, for cars are considerably higher in EME, FSC have a significantly higher share of commercial/heavy goods vehicles.

## Road network

On average, road network densities in EME are higher than in FSC. This can partly be explained by the extremely dense road networks in Belgium and in the Netherlands (see figure 12.3). The vast majority of countries have road network sizes of between 1 and 2 km public roads per km<sup>2</sup> of country size. Croatia, Estonia, Sweden, Finland and Portugal have the least dense road networks, all with a maximum of 0.5 km public roads per km<sup>2</sup>

Regarding motorways, Belgium and the Netherlands are again the countries with the highest network density (5.3 km/100 km<sup>2</sup>) Cyprus, Switzerland and Germany also have comparably dense motorway networks of 3.3 to 4.4 km/100 km<sup>2</sup>. The EME with the least dense motorway networks are Spain, Sweden, Ireland and Finland, all of which have less than 1 km of motorways per 100 km<sup>2</sup>. FSC generally have motorway networks that are three times smaller than EME (0.7 vs. 2.2 km/100 km<sup>2</sup>). Estonia has no motorways at all.

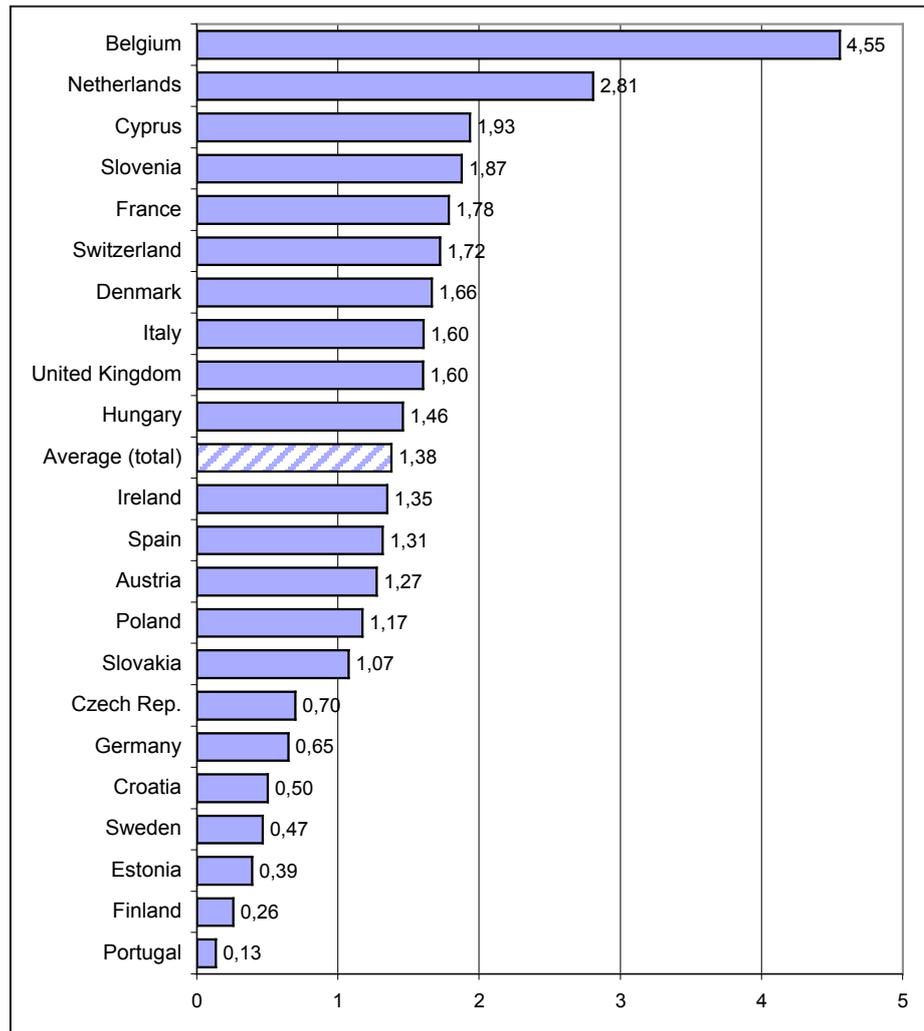
On average, the density of highways, main and national roads is about twice as high in EME than in FSC (12.4 vs. 7.0 km/100 km<sup>2</sup>), mainly because Belgium and Switzerland have an exceptionally large number of roads of that type (42.9 and 43.9 km/100 km<sup>2</sup>) while it is notable that regional roads are also included for Belgium.

Secondary or regional roads on average have a density of 55.6 km/100 km<sup>2</sup> throughout all the countries, whereby in EME the network of secondary/regional roads is almost three times more dense than in FSC (68.3 vs. 28.4 km/100 km<sup>2</sup>). The countries with the largest network of secondary/regional roads per area are Denmark, Italy, the Netherlands, Ireland and Switzerland while those countries with the least dense secondary/regional roads are Portugal and Poland, which have less than 10 km per 100 km<sup>2</sup>.

In accordance with the other road types, the density of built-up area roads is two and a half times higher in EME countries than in FSC (99.7 vs. 40.4 km/100 km<sup>2</sup>). Belgium, the Netherlands and France have the highest density of built-up area roads.

Austria and Switzerland have by far the most respectively longest road traffic tunnels of the countries participating, both with a total length of more than 170 km. In the United Kingdom, Belgium, Germany and Spain there are between 30 and 100 km of road traffic tunnels. In all the other countries, the total length of road tunnels is less than 20 km, and Estonia and Poland have no road tunnels at all.

In conclusion, road networks are of similar composition in EME and FSC countries with regard to the proportion of different road categories: the “lower” the road category, the higher its share in the total road network. However, it should be noted that the categorisation of road types is simplified since the definition of road types varies between countries. The Netherlands and Belgium have exceptionally dense road networks. Road networks in total and for single road types are typically denser in EME countries than in the FSC. Motorways and road tunnels are more common in EME, in particular.

**Figure 12.3: Density of road networks (km of public roads per km<sup>2</sup>)**

## National characteristics

*Austria* is a country with a major vehicle density and an average road network density, but many kilometres of road tunnels. Its fatality rate is above European Union average, but has improved substantially in recent years. For novice drivers, Austria has introduced the model of “accompanied driving“ meaning that people can start driving a car at the age of 16 under supervision and acquire full licences at the age of 17. Regarding drink-driving policies, Austria lowered the general BAC limit in 1998 and introduced lower BAC limits for novice drivers (1992) and lorry and bus drivers (1997). The new "multiphase driver education" was under construction in the past years and is mandatory since beginning of 2003. Seat belt wearing rates are comparatively low.

*Belgium* has an extraordinarily dense road network, but road safety is not yet at an optimum. Fatality rates are the second highest in the European Union and seat belt wearing rates are comparatively low.

*Croatia* is a country with a low vehicle density in general, but has a high share of commercial/heavy goods vehicles. Its road network is comparatively small. Fatality rates are high. There is no compulsory use of child restraint systems, and seat belt wearing rates are not recorded. The introduction of new legal measures to improve road safety is planned for 2003 (e.g. introduction of provisional licences for novice drivers, prohibition of hand-held mobile phones while driving).

*Cyprus* has a dense motorway network, but is generally a country with a low vehicle density. However, there are a large number of motorcycles. Fatalities are above European Union and Western countries' averages. Cyprus allows an exceptionally high legal BAC limit of 0.9 g/l. Seat belt wearing rates are not recorded.

The *Czech Republic* has achieved large reductions in pedestrian fatalities during the past few years. The fatality rates, although higher than those in Western Europe/the European Union, are below the Eastern European average. Seat belt wearing rates are comparatively low.

*Denmark* has low fatality rates and pedestrian and motorcyclist fatalities, in particular, are at a good level. The legal BAC has been lowered in recent years. In all other respects, Denmark is about European Union average.

*Estonia* is a country with a small road network without motorways and road tunnels. Generally, vehicle density and driving population are low, but Estonia has a high share of commercial/heavy goods vehicles. Fatality rates are fairly high, especially regarding pedestrians. Seat belt wearing rates are low.

*Finland* is a country with a high level of traffic safety as fatality rates are low and seat belt wearing rates are high. Its road network is relatively small considering the country's size, but many people have driving licences. At the time of data collection, the use of hand-held mobile phones was not prohibited while driving, but Finland plans to introduce such a law in 2003.

*France* has a large driving population and a large number of motor vehicles. Fatality rates are above European Union average although France has substantially reduced the number of pedestrian fatalities. For novice drivers, France introduced an "accompanied driving" model. France also reduced the legal BAC limit in recent years.

*Germany* is a country with a high vehicle density and many active car drivers. Fatality rates are below European Union average and large reductions in fatality rates were achieved in recent years. Germany is the only country with no general speed limit on motorways. The legal BAC limit was lowered in 1998. Seat belt wearing rates are high.

*Greece* has a high share of motorcycles and commercial/heavy goods vehicles. Fatality rates are the highest in the European Union. There are many motorcyclist, cyclist and car occupant fatalities. Greece lowered the legal BAC limit and provides specific BAC limits for novice and professional drivers. Seat belt behaviour is not recorded.

*Hungary* is a country with a low vehicle density and a low proportion of licence holders, but a rather large number of commercial/heavy goods vehicles. The minimum driving age is 17 years. Although fatality rates are low in comparison to most non-

European Union countries and comparable to the European Union, there are many cyclist fatalities. Seat belt wearing rates are low.

*Ireland* also has a minimum driving age of 17. Fatality rates are below European Union average and cyclist fatalities are low, in particular. With 0.8 g/l Ireland has a comparatively high legal BAC limit. While there has been an improvement in wearing rates in front seats, back seat wearing rates, especially outside urban areas, are still relatively low.

*Italy* is a country with a high vehicle density and a high number of commercial/heavy goods vehicles. Fatality rates are only slightly higher than the European Union/Western European average. Italy has recently reduced the legal BAC limit and implemented a demerit point system in the course of 2003. Seat belt wearing behaviour is not recorded. There are some doubts about Italy's road statistics. For example, the number of vehicle drivers is reported to be greater than the number of inhabitants.

The *Netherlands* is a country with an extremely dense road network and a high proportion of licence holders. Traffic safety is good in the Netherlands with fatality rates being the second lowest in the European Union, especially with regard to pedestrian and motorcyclist fatalities. Fatality rates as well as seat belt wearing rates have improved substantially during the past six years. A specific BAC limit for novice drivers was introduced in 2002.

*Poland* is a country with a low vehicle density. Although there has been a large improvement over the past six years, fatality rates are still above average. Pedestrian and the cyclist fatalities are particularly high. Poland is one of two countries with a speed limit of 60 kph in built-up areas. Poland increased the minimum age for licensing from 17 to 18 years in 2002. Seat belt wearing rates in built-up areas are very low.

*Portugal* is a country with a sparse road network. Fatality rates are high, although there was a substantial decrease of fatality rates in general, pedestrian and bicyclist fatalities in particular within the past years. The seat belt wearing rates are not observed.

*Slovakia* is a country with a low vehicle density but with an enormous proportion of commercial/heavy goods vehicles. Its fatality rates are the highest in non-European Union countries and second highest in all participating countries. It also appears that the rate has increased in recent years. Like Poland, Slovakia has a speed limit of 60 kph in built-up areas. Data on seat belt wearing is not collected.

*Slovenia* has improved its fatality rates substantially in recent years and these are now about average for Eastern European countries. Pedestrian safety, in particular, is higher than for other Eastern European countries. The BAC limit of 0.5 g/l is comparable to those in most European Union countries and a specific BAC limit applies to novice and professional drivers.

*Spain* is a country with many active car drivers and motor vehicles. Fatality rates are above European Union average. Spain lowered the legal BAC limit in 1999 and has a specific BAC limit for novice and professional drivers. Seat belt wearing rates in built-up areas are relatively low, however there has been an improvement in seat belt wearing in rural areas during recent years.

*Sweden* has a consistently high level of road safety. Fatality rates are also consistently low and seat belt wearing rates are high. Although the density of the road network is low, there are a high proportion of licence holders. Sweden has the lowest

BAC limit in the European Union of 0.2 g/l. So far, Sweden has not yet introduced a law prohibiting the use of hand-held mobile phones while driving.

*Switzerland* as well as *Austria* is the country with the most and the longest road traffic tunnels. There is a high proportion of licence holders and a high proportion of motorcyclists. Fatality rates are low and large improvements in fatality rates have been attained in recent years. Compared with most countries, the legal BAC in Switzerland is high (0.8 g/l). This will be lowered to 0.5 mg/l in 2004. Seat belt wearing behaviour is still not very good although wearing rates have improved.

The *United Kingdom*, with a high proportion of active car drivers has a high and stable level of road safety with the lowest fatality rates of all participating countries and high seat belt wearing rates. Minimum licensing age is 17. The legal BAC limit of 0.8 g/l is comparatively high. Currently, the United Kingdom has not introduced a mobile phone law.

## Conclusions and recommendations

In recent years, between the mid-1990s and 2001, many improvements in traffic safety were made all over Europe. Fatality rates, in particular, have decreased and seat belt wearing behaviour has improved. Furthermore, some countries have introduced additional measures to further increase traffic safety, such as lowering the legal BAC limit and the introduction of laws prohibiting the use of hand-held mobile phones while driving. In the light of European harmonisation, some important steps have been taken.

However, there are still some essential differences in the road traffic situation and in traffic safety in Europe. This is particularly true for road network densities, vehicle densities and fatality rates, but also for national legislation and the administration of enforcement and conviction practices. The last point is particularly salient regarding the treatment of drinking-and-driving. For example, some countries do not yet have a general BAC level of 0.5 g/l maximum, do not have specific BAC limits for novice and professional drivers or do not allow random breath testing although these measures have been recommended by the EC to combat drinking-and-driving (European Commission, 2001).

Regarding the development of traffic safety between 1995/96 and 2001, there are three groups of countries. The first group, *Austria*, *Germany*, the *Netherlands*, *Poland*, *Portugal*, *Slovenia* and *Switzerland*, substantially improved traffic safety during this period as mainly expressed by a clear reduction in fatality rates. Some of those countries introduced new policies or measures to increase road safety, such as a lower BAC limit or intensified enforcement.

The second group obviously remained at a more or less stable safety level, these being *Belgium*, the *Czech Republic*, *Finland*, *France*, *Greece*, *Hungary*, *Ireland*, *Italy*, *Spain*, *Sweden* and the *United Kingdom*. There is also a trend towards improvements in fatalities, but to a much lesser extent than for the first group. In some of those stable countries, a fairly high safety level was reached in the mid-1990s, as was the case for *Finland*, *Sweden* and *United Kingdom*. Road safety still needs further improvement in the remaining countries in this group.

Thirdly, the only country in which road traffic safety seems to have deteriorated in this period is *Slovakia* as fatality rates have increased. However, reasons and explanations for this development cannot be conclusively identified from the contextual

data, nor is it possible to identify whether this apparent trend is stable or can be generalised.

There is a clear tendency for the status quo of road traffic to differ predominantly between Western and Eastern European countries and not so much between the European Union and non-European Union countries. While the situation in Western non-European Union countries - Switzerland and Cyprus - is widely comparable to that in European Union countries, with Switzerland being closer to the situation in Northern and Western European Union countries and Cyprus closer to Southern European Union countries, the road traffic situation is different in Eastern European countries. These disparities largely refer to lower densities of road networks, lower vehicle density rates and a trend towards higher fatality rates. On the other hand, Eastern European countries have more and, to some extent, stricter legal road safety measures - especially regarding their regularly lower BAC limits.

The questionnaire on contextual data included valuable information on several different aspects of road safety. Although there was a selection on the most important variables no country was able to deliver all the information requested. On average 83% of the questionnaire was filled out (range of 60 to 99%). It was no problem to get information on traffic laws, population, fatal traffic accidents, and general country statistics. The largest lack of information was found on seat belt and child restraint usage rates and convictions for not wearing seat belts. This is somewhat surprising because seat belt wearing is one of the most important road safety measures.

Another category of information that was frequently lacking is the number of drivers that were controlled by the police. This information is important because it would help to show the intensity of police controls in the different countries for the different categories of violations. Additionally, the success of police controls could be estimated by calculating the proportion of controls that lead to a punishment of the driver or passenger.

Also the recorded details of motor vehicle crashes do not seem to be equal in all countries. For example the question if the motor vehicle was above the speed limit when it crashed can only be answered in about half of the countries and information on seat-belt use at the moment of the crash is only available in 15 of the 23 participating countries.

Finally there is also basic information not available in some countries. For example the engine sizes of the motor vehicles are frequently not known as well as the total kilometrage on different road types. This is important information for the denominator to calculate rates and risks that can be easily compared between countries.

Conclusively, the contextual data analysis gave an overview of similarities and differences in road safety in European countries. This information might be useful especially under the consideration that European harmonisation in various fields of road traffic (among other things regarding transport regulations and sanctions) is an explicit goal of the European Commission as laid down in the Road Safety Action Programme (2003).

It is generally recommended to further promote the harmonisation of legal measures and sanctions, as there still exist large differences in road safety among European countries. The harmonisation is especially relevant regarding the forthcoming European Union enlargement. But it is a long-term process that has to include cultural and regional differences in order to be sustainable. Therefore harmonisation should not be

misunderstood as elimination of differences, but it should be carefully checked in which areas and to what extent harmonisation makes sense and is necessary. Measures and practices that have proven to be successful in one country can be applied to other countries as well so that synergetic effects can be used with a positive impact on pan-European road safety.

An important basis in order to assess measures and to establish “best practices” would be to standardise the data to gather for analysing and comparing the road safety situation in the different countries as much as possible. This includes the road accident statistics as well as the police enforcement and the observation of road user behaviour. There are national and supranational institutions that would be able to tackle some of these problems and the European Union could take a leading role.

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# **Chapter 13**

## **General discussion and recommendations**

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### **Introduction**

The results presented in this report provide a valuable ‘portrait’ of the attitudes, opinions and behaviours of European drivers. The size of the sample (over 24,000 drivers were interviewed) and the length of the questionnaire (with well over 100 questions being asked) represent a unique source of data for providing a better understanding of a wide variety of driver behaviour and road safety issues. It is possible to analyse the data in a number of different ways. For example, it provides the opportunity to study driver demographics (such as age, gender, lifestyle), compare the results from different countries, and also to monitor how things may have changed since previous SARTRE surveys. Importantly, the ‘contextual’ data that was collected during the study provides valuable background information that can be called upon to help explain the findings.

However, a reader should remember the cautionary remarks presented in the introduction. These concerns need to be recognised when interpreting the findings and not too much weight should be given to any single statistic (e.g. a percentage score for a particular country). Nevertheless, many findings are so ‘strong’ that they clearly reflect important belief structures held by European drivers at this time.

The individual chapters presented earlier focus on a number of key safety issues that reflect the main research interests of those involved in the study, or particular interests

‘voiced’ by the funding agencies. This means that some issues (such as driver training, or the need for better engineering) are not covered to any great extent, while others (such as enforcement) are considered in more than one chapter.

The issues covered and the context in which they are considered and discussed also reflect the research interests and background of the researchers, dealing with "social attitudes". This is reflected in way the findings are presented and discussed. It is also worth stating that while this report is primarily intended for the research community, it is hoped that it will be of interest and value to a very wide range of safety practitioners; and a supporting report will also be available and aimed at a wider audience. Additionally, an ‘in-depth’ report will be published that provides details of a number of analyses of the database, using more sophisticated multivariate tools.

The results reveal a number of general findings. Many drivers are concerned about road accidents (or safety) and recognise that driver behaviour is a major contributory factor in accidents. In general they are supportive of government activities designed to promote safety and are also in favour of police enforcement activities. However, they do not have similar attitudes towards all such police enforcement activities. While drinking and driving is perceived as a major problem (requiring more enforcement and harsher penalties) speeding is not recognised as being equally dangerous - and anti-social – with many drivers reporting they frequently exceed speed limits (but more so on non-residential roads) even though it is recognised as being a major factor in causing accidents. However, it is perhaps unclear how drivers interpreted the questions about ‘speeding’. Some may have judged speeding to be driving well in excess of the legal limit, rather than driving just over the posted speed limit, since many reported frequently exceeding the speed limit themselves and certainly thought that large numbers of other drivers frequently exceeded speed limits – at the moment, it appears ‘normal’, and acceptable, to drive a little bit faster than the speed limit.

One other general finding is that there are often very major differences between individual countries. While it might have been anticipated that there would be such differences between, for example, the European Union old and recent member countries, or between ‘northern’ and ‘southern’ countries the results show that there are frequently very marked differences between countries that might have been considered, or expected, to be similar. This demonstrates the need to treat each country individually when designing safety interventions taking account of psycho-social factors (such as driver attitudes, opinions, reported behaviours and perceptions) as well as the prevailing context (e.g. economic circumstances and enforcement activities) when developing and introducing safety interventions.

This is one reason why the results of the SARTRE surveys are valuable in promoting road safety in Europe. Another is that it provides individual countries to compare their ‘performance’ against a benchmark of other similar (or dissimilar) countries. Equally important, is that by comparing the current situation with the results of earlier surveys it is possible to monitor changes over time and identify past successes and developing problems.

This ‘concluding’ chapter will briefly consider some of the main findings of the individual chapters – and then finally present a series of recommendations that the study has identified.

## Review of main findings

This section gathers the main findings from the conclusions of each chapter in the principal analyses report.

### From the chapter on drinking and driving (2)

The reported results indicate a high awareness for the problem of drinking and driving among European car drivers. Across all European countries surveyed there is a high consensus for alcohol as being a major cause for road accidents which is also reflected in the car drivers' attitudes towards policies and measures to prevent drinking and driving:

In all countries there is a wide agreement that penalties for drink-driving offences should be more severe.

The majority of drivers share the opinion that people should not be allowed to decide for themselves how much they could drink before driving.

The suggestion of a 0.0 BAC limit for novice drivers receives strong support from car drivers across all countries.

The majority of drivers favour an European Union wide introduction of a maximum alcohol limit of 0.5 g/l. However, the more the legal limit of a country differs from this value the less favoured is a maximum BAC of 0.5 g/l. Thus, the acceptance of legal measures seems to be strongly influenced by habituation effects, meaning that as a new legislation is introduced, the acceptance will grow as time passes.

The majority of European drivers support the possibility of rehabilitation measures for alcohol offenders and alcoholism tests for recidivists.

The acceptance regarding the use of alcohol-meters in cars to prevent drunk driving is heterogeneous: while in some countries this technical measure is supported by more than two thirds of the drivers, in other countries the vast majority of drivers objects to alcohol-meters.

Despite to the high awareness of the drink-and-driving problem among European car drivers, the results showed that enforcement activity of the police (alcohol checks) seems to be low all over Europe. The vast majority of drivers have not been checked for alcohol during the last three years and accordingly the likelihood is estimated to be very small. However, in countries that allow random breath testing drivers estimate the probability to be checked higher (as indeed it is) which indicates that random alcohol checks might be a good means of deterrence and of injury prevention.

Even though many of the participating countries have already introduced some important measures to better address the drink-driving problem, e.g. a lowered legal BAC limit, the introduction of specific BAC limits for certain target groups such as novice and professional drivers, there is a need to continue with the implementation and harmonisation of legal measures, such as lowering BAC limits and the allowance of random breath testing as well as the increase of enforcement. European car drivers seem to be quite aware that these steps are important, which represents a solid ground to develop further activities to improve drinking and driving all over Europe, not only regarding the „old“ member states of the European Union but also with respect to the joining countries.

### **From the chapter on attitudes to speed and speeding issues (3)**

In comparison with the last SARTRE survey European drivers present a clearly better understanding of the role of speeding in road accidents and are markedly more keen for all types of road safety measures focussing in decreasing speeding. Even though European drivers show safer attitude towards speed than six years ago, there is a lot still to change in their perception of risk of speeding and their speeding behaviour.

In general drivers do not appreciate that speed is associated with risk where their own driving is concerned. In agreement with their attitude in 1996, European drivers think that other drivers exceed speed limits most of the times. This perception of other driver's speeding behaviour is likely to strongly influence a driver's general speed behaviour. Generally, a clear contradictory behaviour of European drivers was identified as far as their own and other drivers' speed is concerned.

Drivers report exceeding speed limit more on faster roads and this is reflected also in their desire for higher limits. There appears to be a widespread recognition that speed should be low in built-up areas.

A widespread support for the installation of speed limiting devices and "black boxes" (which would record speed and could be used to prosecute speeders) in vehicles was identified. Additionally, this support for road safety countermeasures such as speed limiters and advertising restrictions appears to be increasing over time. However, the level of support varies widely by country.

There are major differences between countries both in terms of the perceived likelihood of being monitored for speed and in the actual experience of being "fined, or punished" for speed related offences. The correlation between the perceptions of speed enforcement and actual experience is not strong; with some countries reporting a high perceived likelihood of being monitored but where a low percentage of the driving population actually admitted to having incurred speed related sanctions (and vice-versa).

### **From the chapter on seat belt wearing (4)**

All countries involved in this study have implemented laws requiring seat belt use for all seats, but the survey revealed there is still room to improve.

According to drivers' answers, the proportion of cars having seat belts installed in the front seats was higher than 97% in every country, except Slovakia. However the percentage of cars having seat belts installed in the back seats (85%) was still too low in many countries (e.g. Slovakia, Hungary, the Czech Republic, Estonia, Poland, Croatia, Spain, Cyprus and Greece).

Reported seat belt use was highest on motorways, followed by main roads, country roads and built-up areas. Although the usage rate has increased in many countries, this is not a desirable result. The wearing rates were too low in built-up areas (especially in Italy, Croatia, Greece, Slovakia, Spain and the Czech Republic). Given that this problem has existed for a long time, the results suggest that previous programs were not very effective.

Overall, attitudes towards seat belts were positive. A great majority of drivers in each country agreed that in most accidents seat belts reduce the risk of serious injury for

drivers and passengers. However, too many drivers underestimate the necessity of wearing belts if one drives carefully and overestimate the risk of being trapped by the belt in case of emergency.

The percentage of drivers who were fined or punished in some way for not wearing seat belts in the last 3 years was very low. This finding suggests in general that – although there are sanctions for not using seat belts in every country involved in the survey – the enforcement is not very intense. This is the case especially in countries with relatively low wearing rates (i.e. Italy, Greece, Croatia, Hungary, Spain, Slovakia, Belgium and the Czech Republic).

Most countries involved in SARTRE 3 have implemented obligation to use child restraint systems for transport of children (except Croatia and Slovakia). However the usage rate in some countries was rather low and correlated quite strongly with the mean seat belt wearing rate.

## **From the chapter on reported behaviour (5)**

In many countries we can find some typical driving habits and widely spread attitudes that might be a serious problem in road safety. On the other hand you can find similarities between the countries:

The majority of drivers in most countries attribute dangerous driving behaviour to other road users and consider their own behaviour relatively safe. Especially in Italy, Ireland, Portugal, Germany, Hungary and Croatia, car drivers think their driving is less dangerous than the driving behaviour of other road users.

The proportion of drivers who indicated that they experienced aggression towards them is higher than the percentage of drivers that admitted own aggression towards other drivers. Especially in Estonia, Germany, Hungary, Austria, Slovakia, Switzerland and Czech Republic more than 50% of the surveyed people experienced aggressive behaviour on the road by another driver.

Following the vehicle in front too closely often reported by drivers in Greece, Cyprus, Belgium, Netherlands, Italy, Hungary and Croatia.

Frequent driving through amber lights can be found mostly in the results for Cyprus, Greece and Italy.

Dangerous overtaking is typical among samples in Croatia, Slovakia, Czech Republic, Greece and Cyprus.

Telephone use while driving concerns more or less most countries. Especially in Estonia, Cyprus and Italy it is usual to make a telephone call while driving.

There are three countries, in which risky driving can be noticed very often. Those countries are Italy, Cyprus and Slovakia. These are followed by Croatia, Sweden, Greece, Germany, Estonia, Czech Republic, Poland and France. This does not mean, that there are no problems in the remaining group of countries.

## **From the chapter on demographics and lifestyle (6)**

As expected, the demographic groups that have problematic attitudes concerning road traffic, included young and male drivers, but other groups could be identified that need special attention as well:

Singles enjoy driving fast more often than married people, are less concerned by road accidents and do not as much support governmental road safety measures. Less often they think that following too closely, using mobile phones while driving and driving when tired are causes of road accidents.

People with high income report more often that they enjoy driving fast and less often that they are concerned by road accidents. They support enforcement of traffic laws slightly less than people with low income.

Drivers with a high annual kilometrage enjoy driving fast more often than drivers with a lower exposure. They are not as much in favour of more enforcement of traffic laws as well. Furthermore they see the usage of mobile phones and driving fast less often as causes of road accidents.

Drivers from countries joining the European Union in 2004 have only a few different attitudes compared to the other drivers of the European Union. The new members report slightly less often to enjoy driving fast, support traffic law enforcement more and publicity campaigns less often. For them poorly maintained roads and poor breaks are far more often causes of road accidents. On the other hand current European Union members see drugs, mobile phones, following too closely and driving when tired more often as causes of road accidents.

*Drivers with elementary education* mentioned more often that "technical causes", such as bald tyres or poor brakes play a role in road accidents, than the people with further education.

## From the chapter on younger / older drivers (7)

In many countries younger and inexperienced drivers have a poor safety record and this study provided an opportunity to try and understand some of the factors that may influence their increased accident risk. The results found:

Marked differences in the attitudes, perception of road risk and self-reported behaviours among drivers from various age groups, with younger drivers typically revealing attitudes and reporting behaviours that can be considered to be more risky or dangerous.

Both male and female younger drivers admitted to engaging in more potentially risky behaviours – such as following the vehicle in front too closely, overtaking when they can just it, not giving way at pedestrian crossings and using a mobile phone while driving - than older drivers of the same sex. Younger drivers recognize the increased danger attached to their driving style since they report driving more dangerously than the older drivers. They also report driving faster.

With respect to drinking and driving, there were no significant differences among the younger and older drivers. However, not all countries, exhibit the same relationship with regard to age and drinking and driving behaviour. This may be understandable given both cultural and legislative differences.

In general younger males tended to exhibit more risky behaviour than females. However, importantly, the risky behaviour of males and females appear to be caused by different factors. Young females may be riskier because they lack of experience while, in many countries, young men report having driven as much as older drivers. Age thus makes a special contribution to such risk taking behaviour and can be considered as a separate factor to driving.

Younger drivers, as well as being riskier, also shared a number of demographic and sociological characteristics. For example, they were more likely to be unmarried, be students, have achieved a secondary level of education, be driving newer vehicles of 1300-1999 cc engine size and to have above average income levels.

When planning measures based on these findings to improve the safety of younger drivers it is also necessary to recognise that younger drivers (of both sexes) differ markedly from older drivers in terms of both life-style (such as going out at night and at week-ends) and life-cycle (having fewer responsibilities as they are more likely to be unmarried and have children).

With regard to changes since SARTRE 2 the results revealed that self-reported risk taking behaviours had increased most in both the male and female groups aged 18-24; and the male group aged 25-39. The change was particularly marked in the case of younger women feeling more dangerous than other drivers, reporting that they both drove faster and exceeded speed limits, as well as preferring higher speed levels.

## **From the chapter on enforcement of traffic legislation (8)**

European drivers are reasonably supportive of enforcement activity, although there are considerable differences depending on the individual country and on the kind of offence. This support extends to favouring more controls and higher penalties, especially for drink-drive offences.

The three main factors influencing the acceptance of enforcement are:

the level of enforcement activity, real or perceived, in the country: the results suggest that there is less general support for more enforcement in those countries where such activity is already high or perceived as being high.

the use of technology for enforcement purpose: there is a very marked difference between countries depending on how technology is currently used for enforcement purposes. This has a direct influence on attitudes about both enforcement and the use of technology

the social acceptance of the offence: in general European drivers support enforcement against drink driving than for speeding; this result is probably due to either the social intolerance against this offence and the much lower number of drivers punished for alcohol than those convicted for speeding

The SARTRE surveys made it possible to compare what proportions of drivers had experienced enforcement (European drivers actually detected and punished in the last three years) for different types of offence and to make a classification of the most frequent violations enforced by the police. Results show that:

speeding is the most frequent violation enforced, four times more than seat belt violation: a possible explanation to this results might be that police corps are targeting 'easy' violations rather than those that might be more directed towards safety

seat belt use is the second most frequent, but, understandably, with low rates in those counties having high wearing rates

drink driving is four times less than seat belt violation: this result could be explained by the difficulty of the police corps to recognise, stop and breathalyse a driver over the limit

If public support for enforcement is to be maintained it is important that it is perceived positively by road users as a way of improving safety and protecting them from dangerous driving – any public perception that it is simply a way of ‘raising revenue’ needs to be strongly countered. With this in mind it is important that enforcement activity is ‘transparent’ (and widely publicised) rather than being ‘secret’ (such as using speed ‘guns’ from hidden positions). Enforcement should be used to influence the many rather than to catch and punish the few. The use of enforcement is a vital ‘tool’ for improving road safety. However, it must be used appropriately and needs to have the general support of the public. This means that any enforcement activity should be accompanied by education and publicity programmes to alert and inform the public. This also means that enforcement programmes, if they are to be effective, should include surveys that collect and monitor information on public attitudes.

## **From the chapter on new technologies and advanced systems (9)**

There is a high potential to promote or introduce warning systems.

Although speed warning systems are in general supported only by one fourth of the drivers, alcohol and fatigue warning systems are in general supported only by one third of the drivers, the high support in some countries (50 and more than 60 percent) shows that there is a potential to convince drivers of the benefits of such systems

Even concerning conventional enforcement systems, like camera enforcement, the strong variation between countries shows that there is the chance to get to acceptance levels above 50 percent, although the general support is still low.

Similar potential is found for black box-systems, at least for accident analysis, less for enforcement purpose. In the case of black box systems, it is remarkable that the familiarity with black-box service systems needs not to result in a "saturation effect". In Slovenia and Italy - countries with respective toll collection systems - the support of such systems is very high.

The chapter authors stress that one should be aware that warning systems might have some undesired side effects not yet identified.

## **From the chapter on European Union-wide harmonisation of measures (10)**

The considered drivers recognize need for a European Union-wide road safety 'harmonisation' and accept the setting of targets (more radical if the risk in the country is higher).

However, the different road safety policies proposed are welcomed differently. The drivers seem to be in favour of harmonisation as long as it remains theoretical. When more concrete measures are proposed, the enthusiasm is lower.

With regard to the possible harmonisation of regulations, standards or road safety work, the drivers are more in favour of stricter measures in the area of drink driving than in the area of speed. But, in general, there remains a lot of work in order to change driver's opinions about the significance of speed and drink driving.

With regard to the problem of drinking and driving, drivers are more and more sensitised but people who are actually in favour of stricter measures for drink driving remain people who already do not drink and drive.

There are some countries in which the situation is not optimal yet, regarding drink driving, speeding and not wearing the seatbelt. Too much people declare to drink and drive, to drive above the speed limit and not to wear their seatbelt. The situation is still improvable – e.g. by better awareness raising measures, more efficient enforcement and sanctions.

Reaching the objective of harmonisation in order to improve traffic safety will only be possible through changing driver's attitudes for example via information and sensitising campaigns. Mentalities are changing but the process is slow and the countries seem to be attached to their 'old' system.

## **From the chapter on changes in individual countries (11)**

From SARTRE 2 to SARTRE 3, in general, there is more change in opinions and attitudes than change in self-reported behaviour. In almost all countries, the change in opinions and attitudes tends to be in the positive direction as regards road safety awareness.

We found that attitudes and self-reported behaviour were in general quite stable in certain countries: Austria, Belgium, Germany and the Netherlands.

At the same time, drivers in almost all European countries are showing more positive attitudes towards seat belt use, and in many countries they report a better wearing behaviour. The SARTRE 2-SARTRE 3 results for speeding and drink driving show a far more mixed pattern with both positive and negative developments.

In many countries drivers have changed towards a more negative attitude towards speeding and high limits. However, in some countries (e.g. Hungary, the Netherlands and Czech Republic) the attitudes towards speeding and speed limits differ for higher and lower order roads.

In a few countries there seem to be more comprehensive changes in attitudes and behaviour, namely Ireland, Portugal, and Italy. In a very few countries we observed developments in attitudes and behaviour which are contrary to the ideal of road safety. The most evident case is the Spanish sample. But maybe Spanish drivers realize that these developments tend to be negative for road safety since Spain is the one country with the strongest call for more police enforcement.

From SARTRE 2 to SARTRE 3, drivers in about half of the survey countries are showing more positive attitudes towards new technology in the car such as a navigation system, an alcoholmeter, or a system that prevents one from exceeding the speed limit.

In countries known for their high safety orientation like Finland, Sweden, and Denmark we find a stronger call for road safety measures such as more police enforcement. It seems that a long road safety tradition does not necessarily "saturate" the wish for more road safety action and better safety results.

## **From the chapter on contextual data (12)**

The additional information gathered on the so-called contextual data revealed that:

Fatality rates generally have decreased.

Seat belt wearing behaviour has improved in many countries.

Additional measures to further increase traffic safety such as lowering the legal BAC limit and the introduction of laws prohibiting the use of hand-held mobile phones while driving have been introduced.

The status quo of road traffic predominantly differs between Western and Eastern European countries and not so much between the European Union and non-European Union countries. These disparities largely refer to lower densities of road networks, lower vehicle density rates and a trend towards higher fatality rates in Eastern European countries. Simultaneously, Eastern European countries have more and, to some extent, stricter legal road safety measures - especially regarding their regularly lower BAC limits.

The information, gathered by the contextual data questionnaire, might be useful especially under the consideration that European harmonisation in various fields of road traffic (among other things regarding transport regulations and sanctions) is an explicit goal of the European Commission as laid down in the Road Safety Action Programme (2003).

## Recommendations

Deriving from the previous main findings, the authors suggest considering the following:

### **In reference to drink-driving**

- Lowering general maximum BAC limit.
- Specific lower BAC limits for target groups.
- Allowance of random breath testing.
- Intensification of alcohol enforcement.

### **Regarding speed and speeding issues**

- Intensification of speed enforcement is considered as a priority.
- Information campaigns should precede and accompany the enforcement intensification.
- Promote the introduction of speeding countermeasures (like speed limiters and advertising restrictions).
- Road safety campaigns on speeding specially designed for each country.
- Speeding related action should primarily focus on drivers on faster roads.

### **As for seat-belt wearing**

- Law requiring sanctions for not using child restraint systems to implement.
- Innovative ways to increase the wearing rates.
- Enforcement of seat belt-restraint to enhance.
- Automatic solutions to consider.

### **Concerning reported behaviours**

- Design and apply program to remedy overestimation of driving skills.

- Set specific programs "anti risky driving" for the identified specific countries (i.e. Italy Slovakia and Cyprus).
- Changes in legislation should be efficient, but as experiences in some countries show, enforcement, sanctions and education is needed in order to change drivers' telephone use.

**In relation to demographics and lifestyle**

- Governments could increase the effort, especially on measures for driver improvement. In the new European Union countries the measures should primarily be aimed at infrastructure and traffic laws.
- Young drivers, in particular single males, are those who should receive the most attention as they probably reflect the highest risk group with respect to road traffic.
- People with high annual income, and drivers with a high annual kilometrage should be made more aware of consequences of speeding and causes of traffic accidents.
- Development of specific strategies targeting drivers with high exposure - for example professional drivers.
- Enlarge a network of experts from both European Union member countries and countries joining in 2004.

**As regards younger drivers**

- Programs targeting younger drivers should focus on both male and female sub-groups.

**With respect to enforcement of traffic legislation**

- Enforcement activity should be made visible and publicised rather than secret.
- Enforcement should be used to influence the many rather than to catch and punish the few.
- Any enforcement activity should be accompanied by education and publicity programmes to alert and inform the public.
- Enforcement programmes, if they are to be effective, should include surveys that collect and monitor information on public attitudes.

**Regarding new technologies and advanced systems**

- Promote or introduce warning systems.
- Develop research to detect and prevent side effects.

**About European harmonisation of road safety measures**

- Better awareness raising measures.
- More efficient enforcement and sanctions.

**In relation to changes in individual countries**

- Promote program to put behaviour in conformity with more positive opinions.

**As to contextual data**

- Promote the harmonisation of legal measures and sanctions (has to include cultural and regional differences).
- Standardise the data to gather.
- Road accident statistics.
- Police enforcement.
- Road users behaviour.

# Appendix

## SARTRE 3 questionnaire



SOCIAL ATTITUDES TO ROAD TRAFFIC RISK IN EUROPE  
Phase 3

### Questionnaire

Revision X-1

International reference version in English after pilot test revision,  
plus further remark from DG TREN B3 (4/06/02)

**Firstly, do you have a full car driving licence (or permit)?**

Yes

No *Stop interview*

**Have you driven a car in the last 12 months?**

Yes

No *Stop interview*

Do not ask respondent questions a) to f). Print only information related to your case.

**a) Country**

Germany	01
Denmark	02
Austria	03
Belgium	04
Spain	05
Finland	06
France	07
United Kingdom	08
Greece	09
Ireland/Eire	10
Italy	11
Netherlands	12
Portugal	13
Sweden	14
Switzerland	15
Czech	16
Slovakia	17
Hungary	18
Poland	19
Slovenia	20
Estonia	21
Cyprus	22
Croatia	23

**b) Questionnaire number**

----

**c) Language of this questionnaire**

English	01
French	02
German	03
Italian	04
Spanish	05
Portuguese	06
Czech	07
Slovak	08
Dutch	09
Swiss German	10
Danish	11
Swedish	12
Hungarian	13
Finnish	14
Greek	15
Polish	16
Slovene	17
Estonian	18
Russian	19
Croatian	20

**d) Region:**

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**e) Size of town:**

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**f) Gender**

Male	1
Female	2

**g) Age last birthday?**

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**h) What is your occupation?**

Self employed	Farmer, Fisherman	01
	Professional lawyer, accountant, etc.	02
	Business-owner of shop, craftsman, proprietor	03
Employed	Manual worker	04
	White collar, office worker	05
	Middle management, trainee	06
	Executive, top management, director	07
Not employed	Retired	08
	Housewife, not otherwise employed	09
	Student, military service	10
	Unemployed	11

**i) In total about how many kilometres/miles have you driven in the last 12 months?**

\_\_ . \_\_ / Miles (rounded to hundreds)

\*\*\*\*\*

**I - In the following interview, after a general question, all other questions relate to you as a car driver**

*NB for poll agency: Include DK (Don't Know) response boxes (see SARTRE 2 questionnaire) answer, add DK with next value code, or 9 in all digit for continuous answer*

(SHOW CARD 1)

**Q01. How concerned are you about each of the following issues?**

	Very	Fairly	Not much	Not at all
a) Rate of crime	1	2	3	4
b) Pollution	1	2	3	4
c) Road accidents	1	2	3	4
d) Standard of health care	1	2	3	4
e) Traffic congestion	1	2	3	4
f) Unemployment	1	2	3	4

(SHOW CARD 2)

**Q02. Would you be in favour of, or against, the Government devoting more effort to the following road safety measures?**

	Strongly in favour	In favour	Neither	Against	Strongly against
a) Improving driver training	1	2	3	4	5
b) Have more enforcement of traffic laws	1	2	3	4	5
c) Have more road safety publicity campaigns	1	2	3	4	5
d) Improve the standards of roads	1	2	3	4	5
e) Increase number of cycling lanes in town	1	2	3	4	5

(SHOW CARD 3)

**Q03. Do you agree or disagree with the following statements?**

	Strongly agree	Agree	Neither	Disagree	Strongly disagree
a) Penalties for speeding offences should be much more severe	1	2	3	4	5
b) Penalties for drink-driving offences should be much more severe	1	2	3	4	5
c) Car manufacturers should not be allowed to stress the speed of cars in their advertisement	1	2	3	4	5
d) People should be allowed to decide for themselves how much they can drink and drive	1	2	3	4	5

(SHOW CARD 4)

**Q04. How often do you think each of the following factors are the cause of road accidents?**

Never Rarely Sometimes Often Very Often Always

a) Driving when tired	1	2	3	4	5	6
b) Drinking and driving	1	2	3	4	5	6
c) Following too closely to vehicle in front	1	2	3	4	5	6
d) Driving too fast	1	2	3	4	5	6
e) Taking medicines and driving	1	2	3	4	5	6
f) Taking drugs and driving	1	2	3	4	5	6
g) Poorly maintained roads	1	2	3	4	5	6
h) Using a mobile phone (hand held) and driving	1	2	3	4	5	6
i) Using a mobile phone (hand free) and driving	1	2	3	4	5	6
j) Traffic congestion	1	2	3	4	5	6
k) Bad weather conditions	1	2	3	4	5	6
l) Poor brakes	1	2	3	4	5	6
m) Bald tyres	1	2	3	4	5	6
n) Faulty lights	1	2	3	4	5	6
o) Defective steering	1	2	3	4	5	6

(SHOW CARD 1)

**Q05. When planning for the future, how much consideration do you think the Government should give to the following?**

	Very	Fairly	Not much	Not at all
a) Pedestrians	1	2	3	4
b) Cyclists	1	2	3	4
c) Motorcyclists	1	2	3	4
d) Cars	1	2	3	4
e) Lorries	1	2	3	4
f) Public transport	1	2	3	4

**II - Now some questions about your and other drivers' behaviour**

(SHOW CARD 8)

**Q06. Compared to other drivers, do you think your driving is...dangerous?**

Much more	1
A bit more	2
About the same	3
A bit less	4
A lot less	5

(SHOW CARD 4)

**Q07. How often do you think other drivers break speed limits?**

Never	1
Rarely	2
Sometimes	3
Often	4
Very Often	5
Always	6

(SHOW CARD 9)

**Q08. Compared with other drivers, do you generally drive...than average speed?**

Much faster	1
A little faster	2
About average	3
A little slower	4
Much slower	5

(SHOW CARD 4)

**Q09. In general, how often do you drive faster than the speed limit on the following types of road?**

	Never	Rarely	Sometimes	Often	Very Often	Always
a) Motorways	1	2	3	4	5	6
b) Main roads between towns	1	2	3	4	5	6
c) Country roads	1	2	3	4	5	6
d) Built-up areas	1	2	3	4	5	6

(SHOW CARD 5)

**Q10. Compared to the present limits, what do you think the speed limit should be...?**

	Lower	Same	Higher	No limit
a) On motorways	1	2	3	4
b) On main roads between towns	1	2	3	4
c) On country roads	1	2	3	4
d) In built-up areas	1	2	3	4

(SHOW CARD 4)

**Q11. On a typical journey, how likely is it that your speed will be checked for?**

Never	1
Rarely	2
Sometimes	3
Often	4
Very Often	5
Always	6

**Q12. In the last 3 years, have you been fined, or punished in any other way, for breaking the speed limit?**

No	1
Yes, only fined	2
Yes, fined and/or other penalty	3

(SHOW CARD 4)

**Q13. How often do you...?**

	Never	Rarely	Sometimes	Often	Very Often	Always
a) Follow the vehicle in front too closely	1	2	3	4	5	6
b) Give way to a pedestrian at pedestrian crossings	1	2	3	4	5	6
c) Drive through a traffic light that is on amber	1	2	3	4	5	6
d) Overtake when you think you can just make it	1	2	3	4	5	6
e) Signal other drivers to warn them of a police speed trap ahead	1	2	3	4	5	6

**Q14. Does the car that you drive most often have seat belts fitted?**

Only in the front	1
Both front and rear	2
No	3

(SHOW CARD 4)

**Q15. When driving this car, how often do you wear the seat belt when making a journey...?**

	Never	Rarely	Sometimes	Often	Very Often	Always
a) On motorway	1	2	3	4	5	6
b) On main road between towns	1	2	3	4	5	6
c) On country roads	1	2	3	4	5	6
d) In built-up areas	1	2	3	4	5	6

**Q16. When you carry a child (or children) in your car, how often do you make them wear seat belt or use appropriate restraint?**

Always	1
Usually	2
Sometimes	3
Never	4
Never carry child(ren)	5

(SHOW CARD 1)

**Q17. I'll read some statements to you concerning seat belts. Please tell me in each case how much you agree.**

	Very	Fairly	Not much	Not at all
a) If you drive carefully seat belts aren't really necessary	1	2	3	4
b) In most accidents seat belts reduce the risk of serious injury for drivers and passengers	1	2	3	4
c) When I'm not wearing my belt I feel less comfortable;				

as though something was missing	1	2	3	4
d) There is a risk of being trapped by the belt in case of emergency	1	2	3	4

**Q18. In the last 3 years, have you been fined, or punished in any other way, for not wearing seat belt?**

No	1
Yes, only fined	2
Yes, fined and/or other penalty	3

**III - Now some questions concerning drinking and driving**

(SHOW CARD 10)

**Q19. In general how many days per week do you drink alcoholic beverages?**

Most days	1
5 or 6	2
3 or 4	3
1 or 2	4
<1	5
Never	6

**Q20. How many days per week do you drive after drinking even a small amount of alcohol?**

Most days	1
5 or 6	2
3 or 4	3
1 or 2	4
<1	5
Never	6

**Q21. Over the last week, how many days did you drive, when you may have been over the legal limit for drinking and driving?**

Most days	1
5 or 6	2
3 or 4	3
1 or 2	4
<1	5
Never	6

(SHOW CARD 11)

**Q22. People have different opinions about what the legal limit should be. Which of the following statements best matches your opinion. Do you think that drivers should be allowed to drink?**

No alcohol at all	1
Less alcohol than at present	2
As much alcohol as at present	3
More alcohol than at present	4
As much as they want	5

**Q23. In the past 3 years, how many times were you checked for alcohol?**

Never	1
Only once	2
More than once	3

**Q24. In the last 3 years, have you been fined, or punished in any other way, for drink-driving?**

No	1
Yes, only fined	2
Yes, fined and/or other penalty	3

(SHOW CARD 4)

**Q25. On a typical journey, how likely is it that you will be checked for alcohol?**

Never	1
Rarely	2
Sometimes	3

Often	4
Very Often	5
Always	6

(SHOW CARD 6)

**Q26. In your opinion, how much alcohol can we drink before driving and still remain under the legal limit?** (Write in number of units)

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**IV - In the next part, you are asked questions on a variety of subjects**

**Q27. In order to reduce air pollution, how much would you accept the following propositions:**

	Very	Fairly	Not much	Not at all
a) Reduce the usage of your car	1	2	3	4
b) Share with other drivers the use of your respective cars	1	2	3	4
c) Use most often public transport	1	2	3	4
d) A car free day each month	1	2	3	4

(SHOW CARD 1)

**Q28. There is a possibility of having similar laws and regulations applied to driving throughout Europe. In order to achieve this 'harmonisation', various measures could be introduced throughout European countries. How much would you be in favour of each of the following ?**

	Very	Fairly	Not much	Not at all
a) A penalty points system for traffic offences which results in loss of licence when exceeded	1	2	3	4
b) A requirement that manufacturers modify their vehicles to restrict their maximum speed	1	2	3	4
c) A maximum alcohol limit of 0.5 g/l	1	2	3	4
d) Same speed limits for similar roads	1	2	3	4
e) Not allowing new drivers to drink any alcohol before driving	1	2	3	4

**Q29. How much do you agree with the following statements?**

	Very	Fairly	Not much	Not at all
a) I sometimes get very annoyed with other drivers	1	2	3	4
b) I enjoy driving fast	1	2	3	4
c) I worry when members of my family are out driving	1	2	3	4
d) I think a car is just a means of transport	1	2	3	4

**Q30. Would you find it useful to have a device on your car like...?**

	Very	Fairly	Not much	Not at all
a) A guidance, or navigation, system to help you find your destination	1	2	3	4
b) A congestion (traffic jam) warning device	1	2	3	4
c) A system that prevented you exceeding the speed limit	1	2	3	4
d) An alcohol-meter to check if you had been drinking and that prevented you driving if you were over the limit	1	2	3	4
e) A system that detected 'fatigue' and forced you to take a break	1	2	3	4

(SHOW CARD 1)

**Q31. How much would you be in favour of the following?**

	Very	Fairly	Not much	Not at all
a) Speed limiting devices fitted to cars that prevented drivers exceeding the speed limit	1	2	3	4
b) The use of a 'black box' to identify what caused an accident	1	2	3	4
c) The use of a 'black box' to record a driver's behaviour that could be used as evidence by the police to prove speeding/dangerous driving	1	2	3	4
d) Electronic identification of your vehicle that would give access to services	1	2	3	4

e) Electronic identification of your vehicle also for enforcement by the police	1	2	3	4
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**Q32. How important would each of the following be in improving road safety?**

	Very	Fairly	Not much	Not at all
a) Making drivers caught drink-driving more than once attend rehabilitation courses	1	2	3	4
b) Making drivers caught drink-driving more than once be tested for alcoholism	1	2	3	4
c) Making drivers have a compulsory psycho-medical check-up every ten years	1	2	3	4
d) Making drivers have a compulsory psycho-medical check-up only when they reach the age of 60	1	2	3	4

**Q33. How effective do you think the system of detecting and sanctioning traffic violations is with regard to each of the the following:**

	Very	Fairly	Not much	Not at all
a) Making the size of the punishment fits the seriousness of the offence	1	2	3	4
b) Treating all drivers equally for similar offences	1	2	3	4
c) Dealing with traffic offences quickly	1	2	3	4
d) Targeting road safety	1	2	3	4
e) Detecting and punishing most driving offences	1	2	3	4

**Q34. How much would you be in favour of the following?**

	Very	Fairly	Not much	Not at all
a) Automated cameras for red light surveillance	1	2	3	4
b) Surveillance of speed excess by automated cameras	1	2	3	4
c) Speed enforcement by public local authorities	1	2	3	4
d) Speed enforcement by private organisations	1	2	3	4
e) Punishing the car's owner when the offending driver is unknown	1	2	3	4

**Q35. In the last 12 months have you had an experience of aggressive behaviour on the road?**

	Yes	No
a) directed towards you by another road user	1	2
b) by yourself towards another road user	1	2

(SHOW CARD 1)

**Q36. Would you agree that:**

	Very	Fairly	Not much	Not at all
a) drivers from other European countries who commit driving violations in [your country] be prosecuted in their country	1	2	3	4
b) [your nationality] drivers will be prosecuted in [your country], if they commit offences in other European countries	1	2	3	4

(SHOW CARD 4)

**Q37. How often do you drive in [your country], or in the rest of Europe, through a long tunnel?**

Never	1	<i>Skip to Q39</i>
Rarely	2	
Sometimes	3	
Often	4	
Very Often	5	
Always	6	

(SHOW CARD 1)

**Q38. How frightened are you when driving through such a tunnel?**

Very	1
Fairly	2
Not much	3
Not at all	4

**Q39. How familiar are you with the safety measures that apply in the event of serious incidents (eg accidents or fires) in such tunnels?**

Very	1
Fairly	2
Not much	3
Not at all	4

(SHOW CARD 12)

**Q40. The recent European Union White Paper on transport wants to reduce the number of people killed each year on our roads by half, by the year 2010. In your opinion, the plan should be that, over the next 10 years, we should aim to? (Choose one)**

Reduce road deaths of 10%	1
Reduce road deaths of 50%	2
Reduce road deaths of 90%	3
Aim to have no deaths from road accidents	4
We shouldn't have any plan	5

**VI – And now can I ask you a few questions about yourself?**

**Q41. In the last 3 years, how many accidents have you been involved in, as the driver of a vehicle, in which someone, including yourself, was injured and received medical attention?**

--

**Q42. In the last 3 years, how many damage only accidents have you been involved in, as the driver of a vehicle?**

--

**Q43. Which of the following applies best to you at the moment?**

Single	1
Living as married	2
Married	3
Separated or divorced	4
Widowed	5

**Q44. What level of education did you achieve?**

Primary school	1
Secondary school	2
Further education	3
None	4

**Q45. How would you describe the area in which you live?**

Rural/village	1
Small town	2
Suburban/city outskirts	3
Urban/city/large town	4

**Q46. Do you regularly take medication, that you are warn may influence driving ability?**

Yes	1
No	2

**Q47. How many times on an average day do you make or answer a telephone call while driving?**

- a) You make a call:      \_\_ times  
b) You answer a call:    \_\_ times

**Q48. What applies most to you?**

I drive for my profession	1	
I need to drive during my work	2	
I drive to and from work	3	Go to Q50 "About the car you usually drive..."
None of these	4	Go to Q50

**Q49. The vehicle you drive for your profession, is it mainly:**

A car	1
A taxi	2



**Annexe of Questionnaire**

## A- Show cards

## CARD 1

Very  
Fairly  
Not much  
Not at all

## CARD 2

Strongly in favour  
In favour  
Neither in favour or against  
Against  
Strongly against

## CARD 3

Strongly agree  
Agree  
Neither agree or disagree  
Disagree  
Strongly disagree

## CARD 4

Never  
Rarely  
Sometimes  
Often  
Very often  
Always

## CARD 5

lower same higher no limit [DK]

CARD 6 (*adapt if needed*)

One unit of alcohol = 1/2 pint beer = 1 demi de bière  
= 1 glass wine = 1 verre de vin ~12 cl  
= 1 single spirit = 1 verre d'apéritif ou digestif

i.e. 1 PINT BEER or DOUBLE SPIRIT = 2 UNITS

## CARD 7

## ANNUAL FAMILY INCOME CLASSIFICATION

(in each country take min. and max. income level, either gross either net, then divide in 8 equal range classes; if more convenient ask monthly income)

## CARD 8

much more dangerous  
a bit more dangerous  
about the same  
a bit less dangerous  
a lot less dangerous

## CARD 9

much faster than average  
a little faster than average  
about average speed  
a little slower than average  
much slower than average

## CARD 10

Most days  
5 or 6 days a week  
3 or 4 days a week  
1 or 2 days a week  
Less than 1 day a week  
Never

## CARD 11

drivers should be allowed to drink :

...no alcohol at all  
...less alcohol than at present  
...as much alcohol as at present  
...more alcohol than at present  
...as much alcohol as they want

## CARD 12

We should aim to:  
reduce of 10%  
reduce of 50%  
reduce of 90%  
have no deaths  
No plan

## B- Local codes

## List of regions

01	SCHLESWIG-HOLSTEIN	45	NORTE
02	HAMBURG	46	SUL
03	NIEDERSACHSEN	47	NORTH
04	BREMEN	48	YORKSHIRE HUMBERSIDE
05	NORDRHEIN-WESTFALEN	49	NORTH-WEST
06	HESSSEN	50	EAST MIDLANDS
07	RHEINLAND-PFALZ	51	WEST MIDLANDS

08	BADEN-WUERTTEMBERG	52	EAST ANGLIA
09	BAYERN	53	LONDON
10	SAARLAND	54	SOUTH-EAST
11	BERLIN	55	SOUTH-WEST
12	SACHSEN	56	WALES
13	SACHSEN-ANHALT	57	SCOTLAND
14	THUERINGEN	58	WIEN
15	BRANDENBURG	59	OST
16	MECKLEMBURG-VORPOMERN	60	SUDEN
17	NOROESTE	61	WEST A
18	NORDESTE	62	MITTE
19	MADRID	63	CECHY
20	CENTRO E	64	MORAVA
21	ESTE	65	SLOVENSKO
22	SUR	66	VLAANDERS
23	ILE DE FRANCE	67	BRABANT
24	BASSIN PARISIEN	68	WALLONIE
25	NORD-PAS-DE-CALAIS	69	GOTALAND
26	EST	70	SVEALAND
27	OUEST	71	NORRLAND
28	SUD-OUEST	72	DEUTSCH SCHWEIZ
29	CENTRE-EST	73	SUISSE ROMANDE
30	MEDITERRANNEE	74	SVIZZERA ITALIANA
31	NORD-OVEST	75	IRELAND
32	LOMBARDIA	76	HOVEDSTADSOMRADET
33	NORD-EST	77	SJAELLAND
34	EMILIA-ROMAGNA	78	FYN
35	CENTRO I	79	JYLLAND
36	LAZIO	80	ULSTER
37	CAMPANIA	81	NYUGAT
38	ABRUZZI-MOLISE	82	KELET
39	SUD	83	BUDAPEST
40	SICILIA	84	ESTONIA
41	NOORD	85	CYPRUS
42	OOST	86	CROATIA
43	WEST NL	87	CANARIAS
44	ZUID		



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Dépôt légal juin 2004

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