

Comparison of noise annoyance surveys from different countries

Many countries have policies in place to reduce noise annoyance. It looks perfectly sensible to monitor annoyance in the population to verify if these policies (which lead often to substantial investments) are effective.

Up to now only 3 countries do this in a systematical way: Germany[12], Netherlands[1][9] and the UK[8]. Unfortunately in different ways, but similar enough to make comparisons. Other countries made one off surveys, or incorporated a question in national health survey. On EU level Eurostat[3] incorporated a noise question in the SILC-survey. This question is so clumsily formulated (see below) that it is almost unusable, but still better than nothing.

In the first table the data from 5 EU countries plus Canada are presented, plus the SILC-data for comparison.

Table 1. Percentages in population affected by noise from different sources						SILC (all noises) (2010)
	road traffic	neighbours	Air traffic	rail	industry	
Netherlands (2010) [1]	29	19	14	7	3	24
Germany (2010) [13]	27	12	11	9	12	26
UK (2012)[7]	25	26	13	2	2	20
Slovakia (2004)[10]	18	16	3	7		18
France (2010) [5]	30		7	2	4	20
Canada 2010 [6]	13	11	1	1		
Sweden 2007 [14]	12	9	2,7	2,8	0,7	13

The original data was adapted to make the percentages affected in the population more comparable. As the number of response categories and/or their meaning was very different they were added to arrive at a percentage "annoyed" as indicated below per study :

Netherlands: The question is: how often are you disturbed by noise from [source]? The classes "sometimes" and "often" are added.

Germany: The question is: how strong are you disturbed by noise from [source]? Moderate, strong and very strong added

UK: The question: To what extent are you annoyed, bothered or disturbed by noise from [source]? Moderate, very and extremely combined.

Slovakia: as in UK

France: Which noise sources are the most disturbing/how much are you annoyed by [source]. Percentage annoyed is taken.

Canada: almost like UK (slight changes in wording of response categories).

Sweden: Are you annoyed, somewhat annoyed or not at all annoyed? Annoyed and somewhat annoyed added.

Eurostat: The SILC-question is: *Do you have any of the following problems with your accommodation or the area you live in?*

(...)

30. Noisy Noise from neighbours or noise from the street (traffic, business, factories etc.)?

Yes.....1

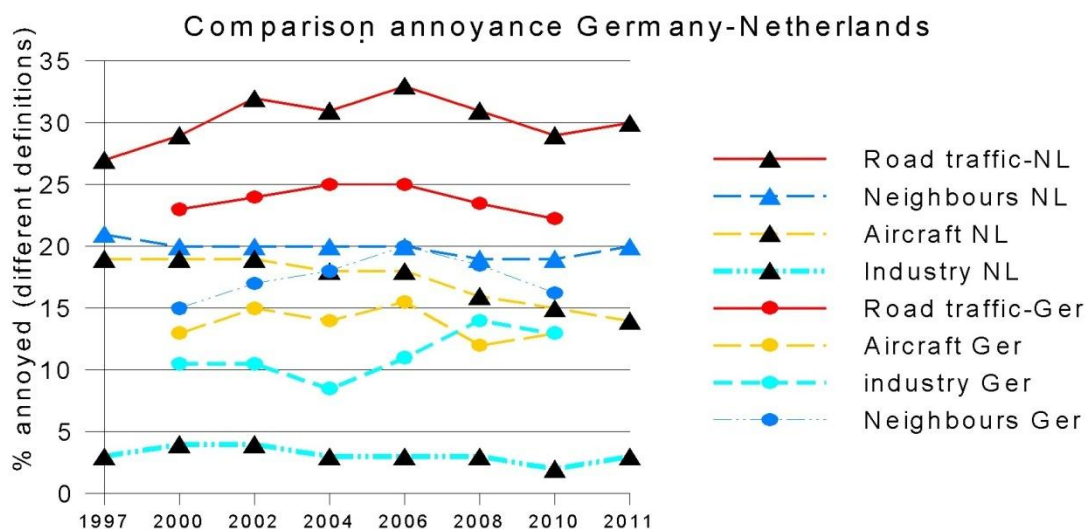
No.....2.

(...)

The "yes" category is taken as "annoyed".

Finland, Norway and Sweden score very low on the SILC-scale: 11-13%, perhaps for the same reason that Canada scores low: low temperatures so higher than average insulation.

Only Germany[12][13] and the Netherlands[1] have a yearly monitoring, which show a remarkable consistency (figure 1):



Although the answer categories are not strictly comparable, annoyance seems to be in the same order of magnitude, except the values for industrial noise, which is much higher in Germany. This may due to real differences in exposure.

Road traffic seems to be the most important source as expected, but neighbour noise follows up closely and in some countries the other transport modes taken together may exceed road transport. In the next table other sources relative to road traffic:

Table 2. Noise annoyance relative to road traffic

	road traffic	neighbours	air traffic	rail	industry
Netherlands (2010)	100%	66%	48%	24%	10%
Germany (2010)	100%	44%	41%	33%	44%
UK (2012)	100%	104%	52%	8%	8%
Slovakia (2004)	100%	89%	17%	39%	
France (2010)	100%		23%	7%	13%
Canada 2010	100%	85%	8%	8%	
Sweden 2007	100%	75%	22%	22%	6%

There seems to be no correlation at all between the SILC annoyance data and the EU noise mapping data. This is no surprise given the fact that the SILC-question comprises neighbour noise which is not (and cannot be) part of the mapping

Discussion

The annoyance data is difficult to compare between countries. Questions differ and answer categories differ. So no ranking can be made on the basis of this. A provisional ranking can be as to the relative importance of sources. So from table 2 it follows that in all cases road traffic is the most important, followed by neighbour noise. Industry is usually low, except in Germany. Air traffic noise is a substantial source of annoyance (17%-52%) , except in Canada. The last conclusion contrast sharply with the exposure > 55 Lden for airport noise which is only 3% of that reported for road traffic noise over 55 Lden according to the NOISE-database.

Sleep disturbance is monitored only in Netherlands[9] and UK[8]. The approaches differ so much that they are incomparable. The survey in the Netherlands reports (highly) sleep disturbed by several sub-sources as well as the response per unspecified group (coloured rows in the table).

Highly sleep disturbed by noise at night in the Netherlands, 2008	
Road traffic noise	3
Cars	3
Trucks	2
Vans	2
Motorbikes	2
Bus	1
Motorised 2wheelers	4
Commercial aircraft	1
Aircraft noise	1
Stereo/tv from neighbours	1
Neighbours	3
Disco	1
Entertainment	2
Rail traffic noise	0
Construction	1
Industry	1
Tractors	1

The UK-survey reports that 21% of the sample has a sleep-disturbance by noise at night. 5% states neighbours to be the cause, 3% road traffic and 1.5% aircraft. That seems to match to the NL-figures.

Martin van den Berg

24-6-2015

Chiaramonte Consult

www.chiaramonte-consult.eu

References

- [1] Centraal Bureau voor de Statistiek: Milieuhinder, milieugedrag en milieubesef van personen, www.cbs.nl
- [2] EEA. NOISE data repository, <http://noise.eionet.europa.eu/>
- [3] Eurostat Unit F-3: Living conditions and social protection, 2008 COMPARATIVE EU FINAL QUALITY REPORT Version 3 – July 2011, Doc. LC 60/11/EN rev.1
- [4] European Commission, Eurostat, Statistics on Income and Life Conditions (SILC). <http://ec.europa.eu/eurostat/data/browse-statistics-by-theme>
- [5] Lambert, J. Perception and attitudes to transportation noise in France: A national survey. ICBEN, 2009
- [6] Michaud, DS, Noise annoyance in Canada, Noise and Health, 2005
- [7] Notley e.a, The UK national noise attitude survey 2012– the sample, analysis and some results. Internoise 2013, Innsbruck
- [8] Notley, H. [National Noise Attitude Survey 2012 \(NNAS2012\)](http://randd.defra.gov.uk/Document.aspx?Document=12378_SummaryReportV1.0.pdf), Defra, UK. http://randd.defra.gov.uk/Document.aspx?Document=12378_SummaryReportV1.0.pdf
- [9] Poll, van, R ea., Hinder, bezorgdheid en woontevredenheid in Nederland Inventarisatie verstoringen 2008, RIVM, Bilthoven, Netherlands
- [10] Sobotová, L ea., Community noise annoyance assessment in an urban agglomeration., Bratisl Lek Listy 2006; 107(5):214-216
- [11] TNS-sonores, 2010, Les Français et les nuisances sonores Principaux résultats - Mai 2010
- [12] Umweltbundesamt, <http://www.umweltbundesamt.de/laermumfrage> , 2012
- [13] Umweltbundesamt , Auswertung der Online-Lärmumfrage des Umweltbundesamtes, 2011
- [14] Institute of Medicine, Miljöhälsörapport, 2013, Stockholm

