Statens vegvesen

Norwegian
Public Roads Administration

Users' attitudes towards road tolls - a cross section assessment

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Background

1. An understanding of road users' attitudes towards road tolls is important for a successful implementation of user charging systems
2. There are reasons to believe that many users charging systems may have failed due to the lack of understanding of users' attitudes or incorporating users' attitudes in the planning process.
3. Norway has many toll projects of different characteristics. A study of users' attitudes here may offer knowledge on the magnitude of attitudes by project types, factors determining those attitudes and how to deal with users' attitudes in the planning process

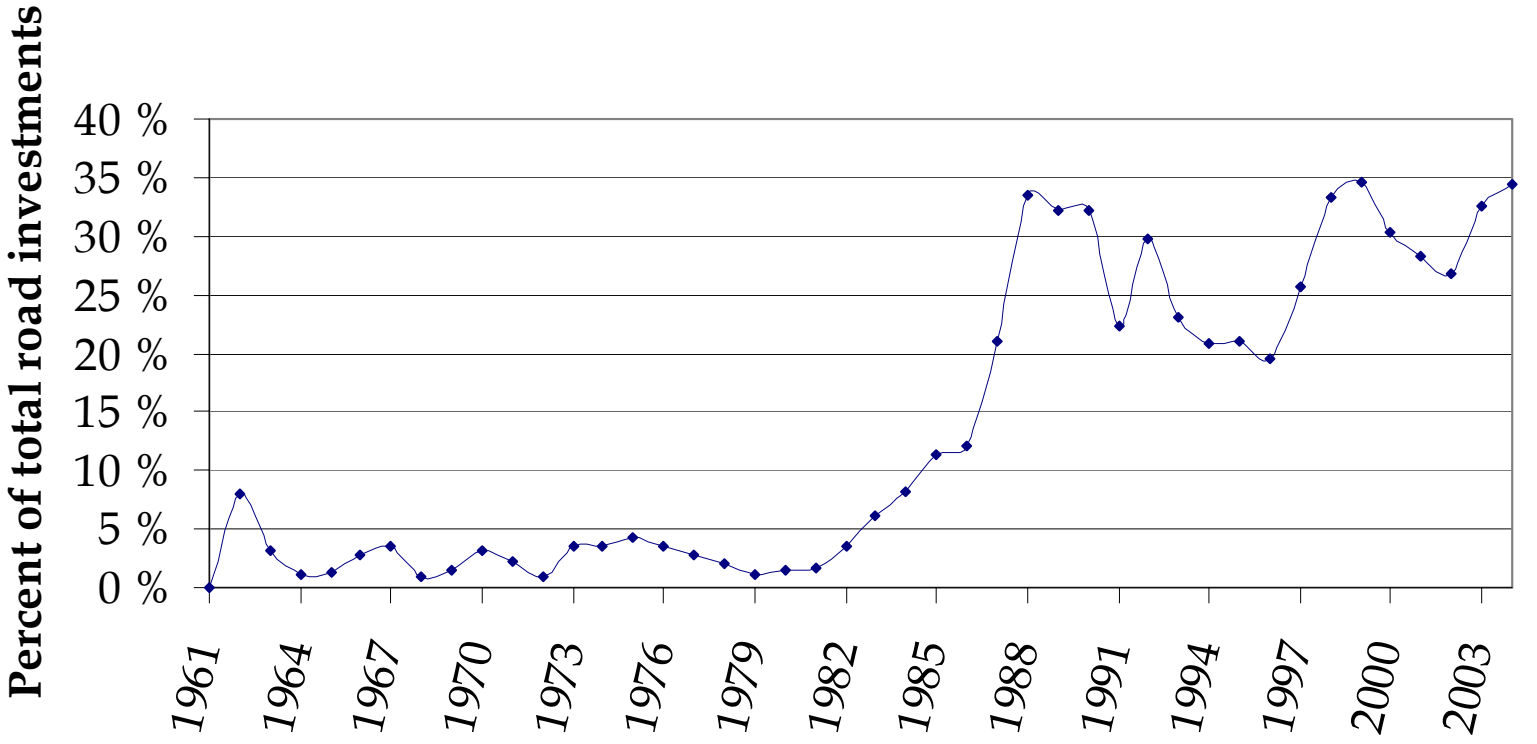
Objective

To assess users' attitudes towards Norwegian toll schemes, and to address the following questions:

1. What is the overall users' attitudes towards tolling?
2. To what degree are users informed on the intentions with tolls before implementation?
3. Which factors explain the observed attitudes?

4. How can 1 -3 be used to change user attitudes and hence the acceptability of road pricing schemes ?

Development of tolls as a percentage of total road infrastructure investments



Methodology

1. Postal questionnaire survey
   - 5 different toll projects
   - Approx. 21.000 observations
   - Approx. 40% response
2. Telephone interviews (Oslo toll ring)
   - Conducted every year from one year before implementation (1989) to 2003. About 14 000 responses in total
3. Analysis

Questions asked

- ✓ **Users understanding** of intentions with tolls; e.g. did they know why tolls were implemented?
  (Regulate traffic, finance roads, additional tax)

- ✓ **Information received** about the intention with tolls
  (very little, little, adequate, much, too much)
  - Only on post card survey

- ✓ **Users' attitudes** towards tolls in general

- ✓ **Socio-economic characteristics**
  (age, gender, income, trip frequency etc.)

Analysis

- Descriptive analysis:
  - ✓ User attitudes towards tolling as a means of financing infrastructure
  - ✓ The level of information prior to the implementation
  - ✓ Users' understanding of tolling
- Multivariate analysis:
  - ✓ How the overall characteristics of the respondents, the level of information and understanding of tolling influence attitudes.

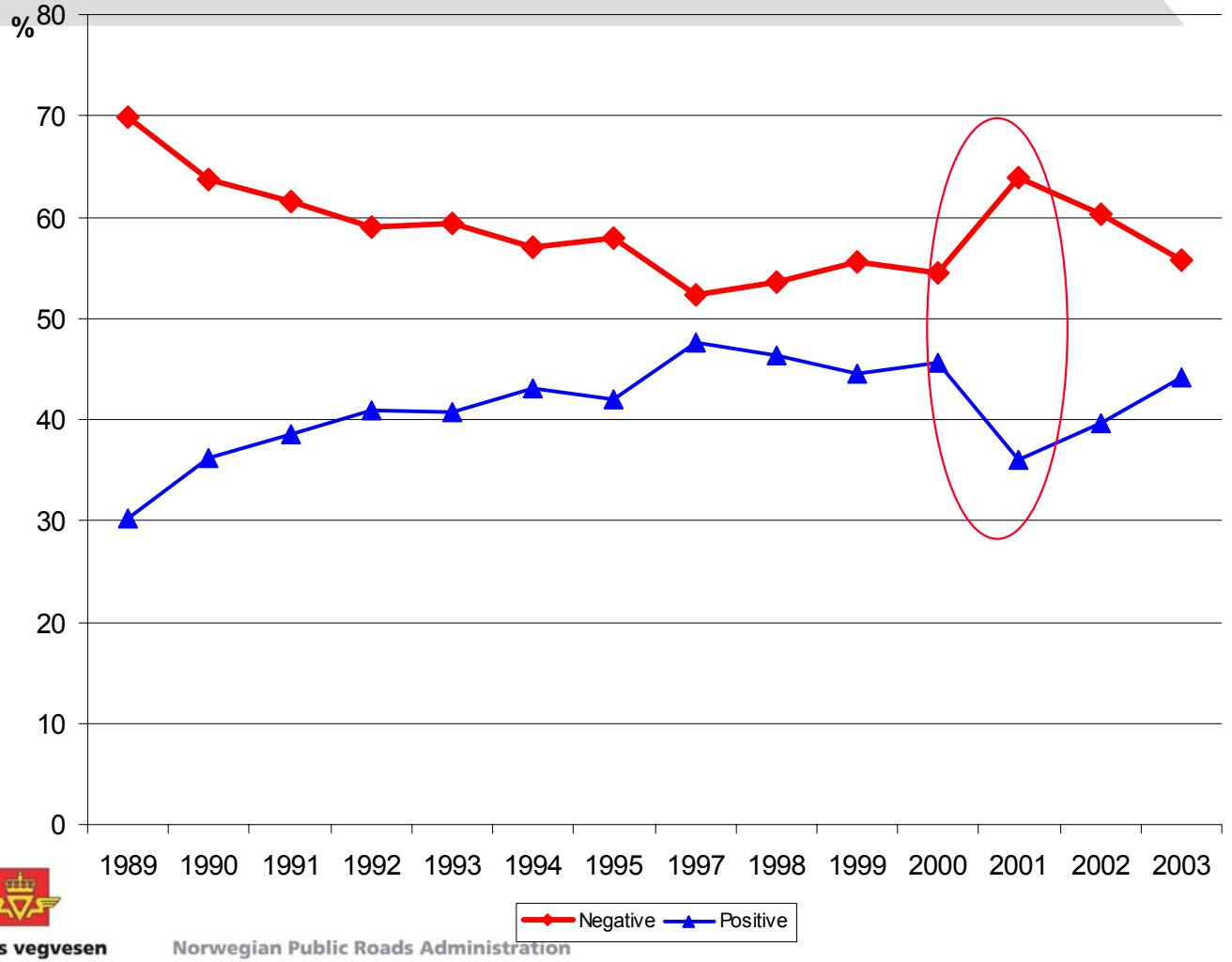
Analysed toll projects:

Name of project	Type of toll scheme	Availability of alternative toll free route	Status of toll charging
Tønsberg-pakken	Toll ring	No	Tolls about to be implemented
E18 Østfold	Single toll	Yes	Tolls just implemented
E6 Østfold	Single toll	No	Tolls just implemented
E18 Lierbommen	Single toll	Yes	Tolls just removed
E6 Leirfjorden	Single toll	No	Tolls just removed
Oslo	Toll ring	No	Time series

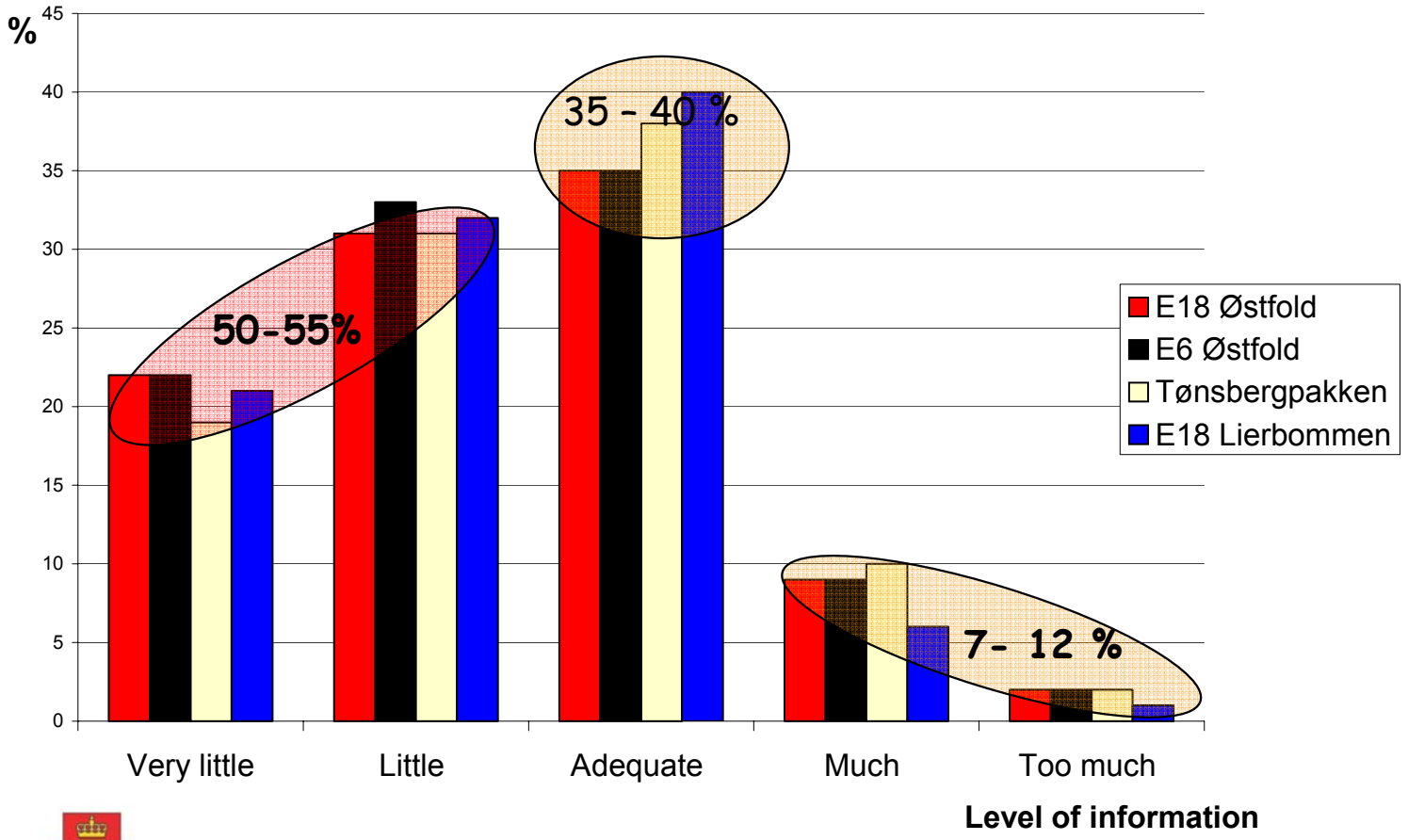
Attitudes

Toll project	Time of study	Positive	Negative
Tønsbergpakken	Tolls about to be introduced	11 %	89 %
E18 Østfold	Tolls just introduced	14 %	86 %
E6 Østfold	Tolls just introduced	19 %	81 %
E18 Lierbommen	Tolls removed	32 %	68 %
E6 Leirfjorden	Tolls removed	75 %	25 %
Weighted average		30 %	70 %

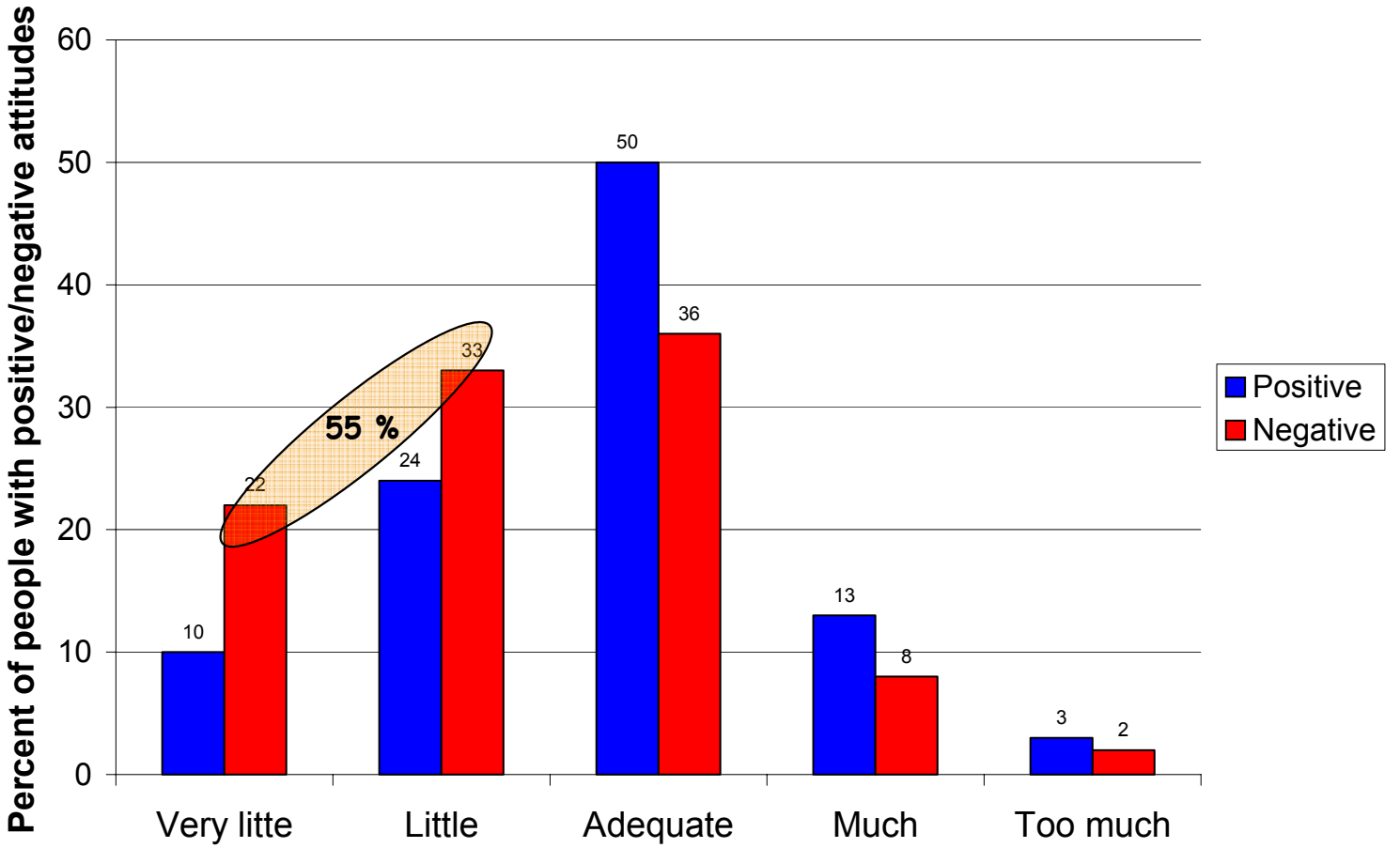
Oslo Toll Ring- attitudes



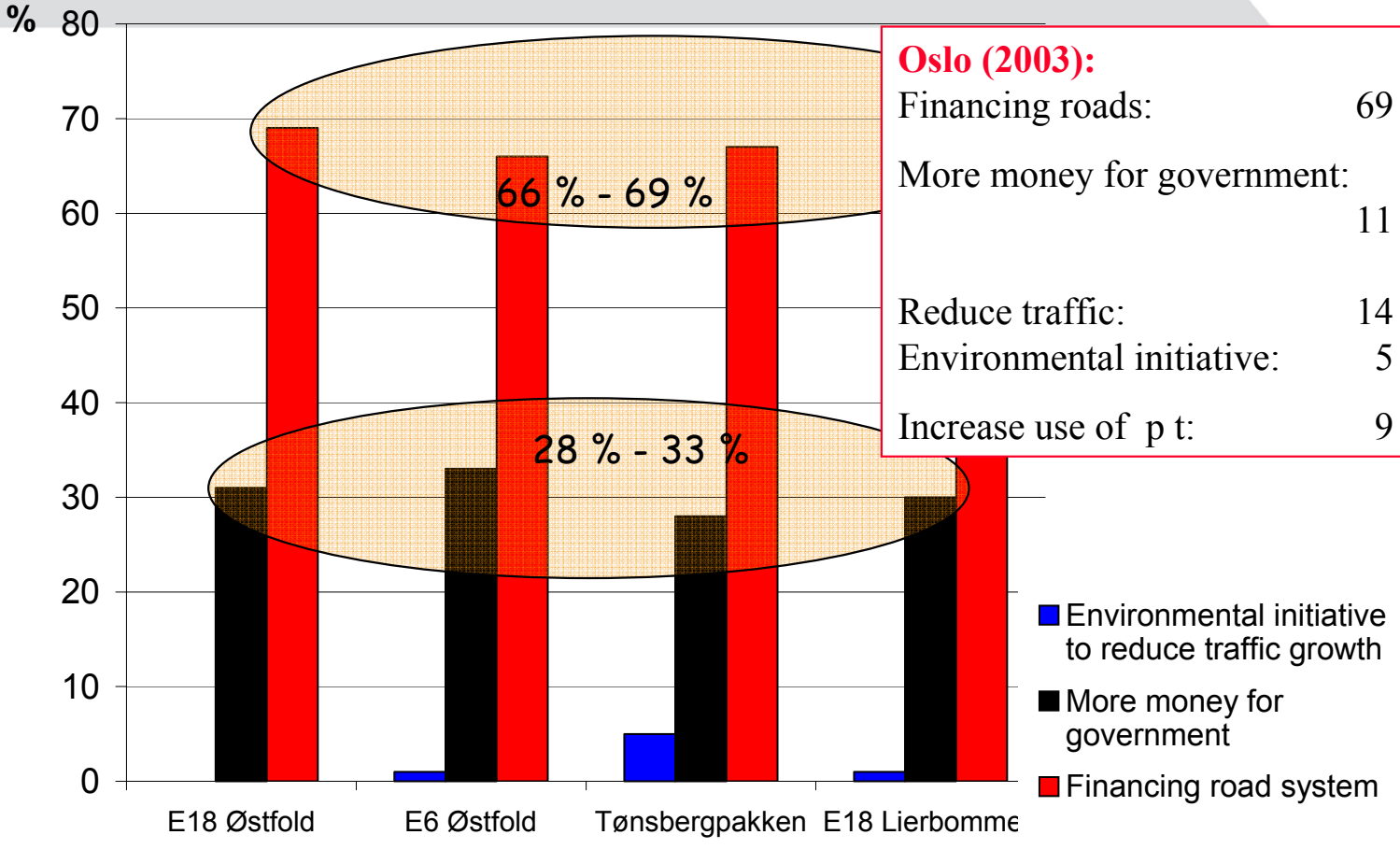
Level of information



Attitudes and information



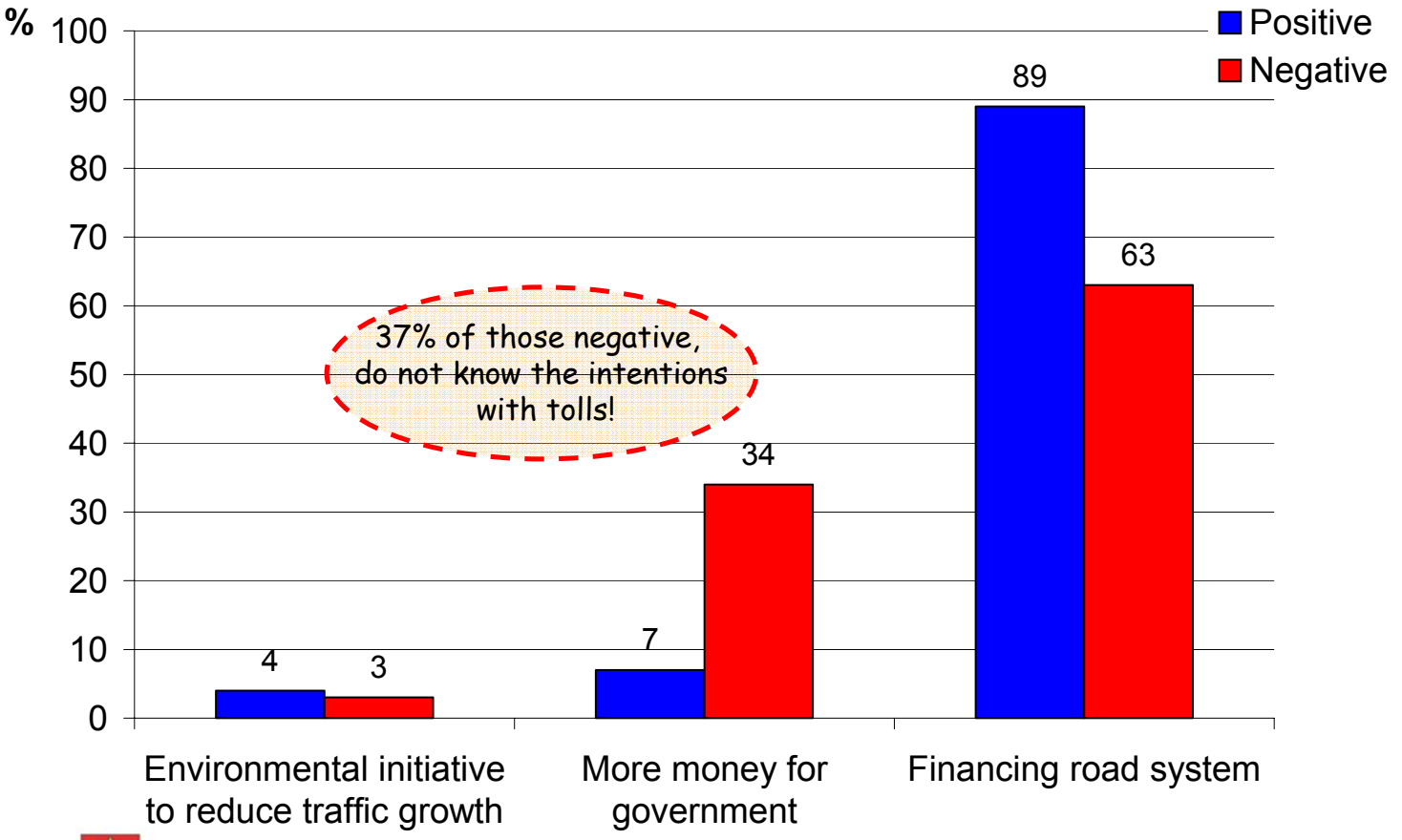
Understanding of tolling



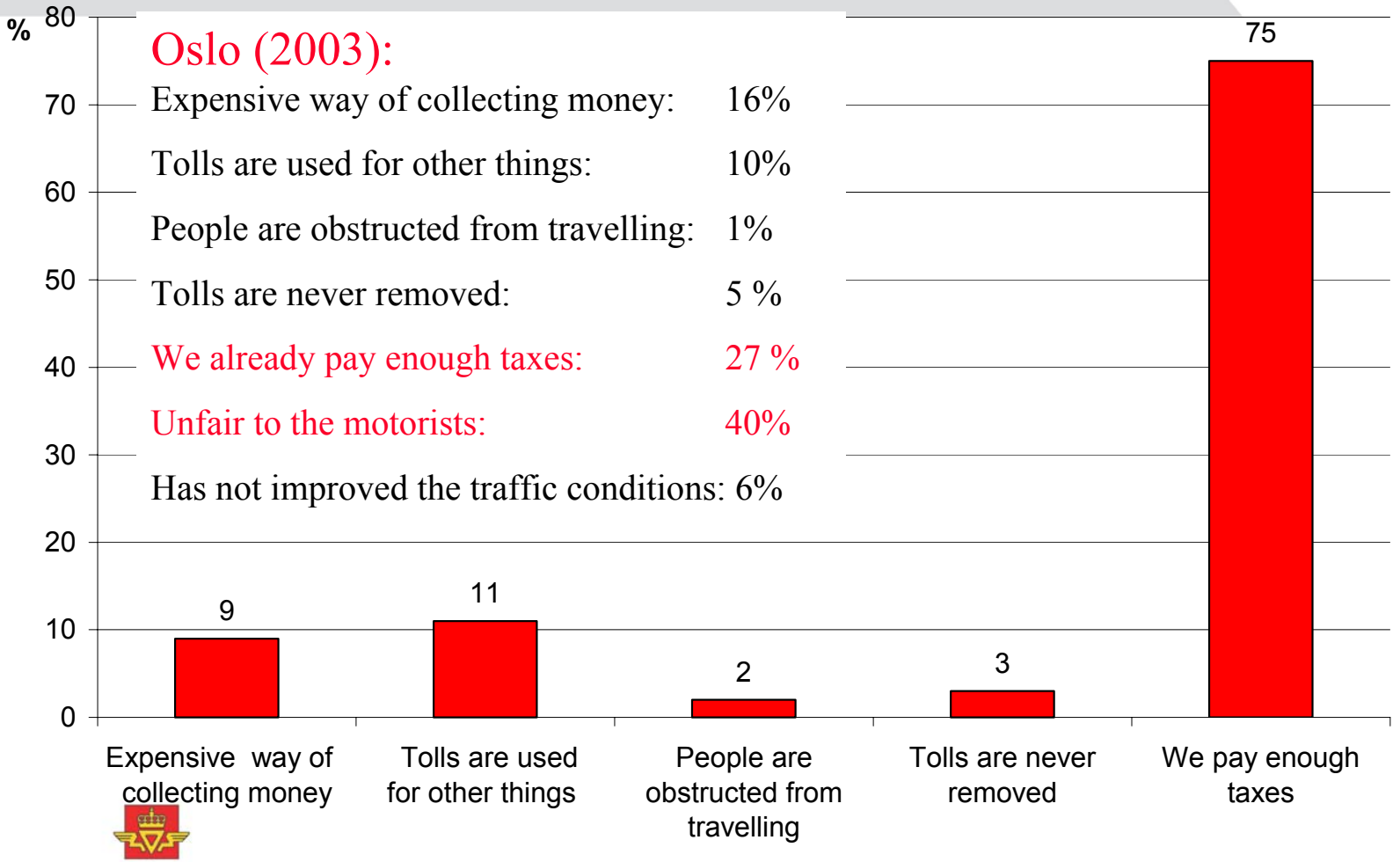
Oslo (2003):

Financing roads:	69 %
More money for government:	11 %
Reduce traffic:	14 %
Environmental initiative:	5 %
Increase use of p t:	9 %

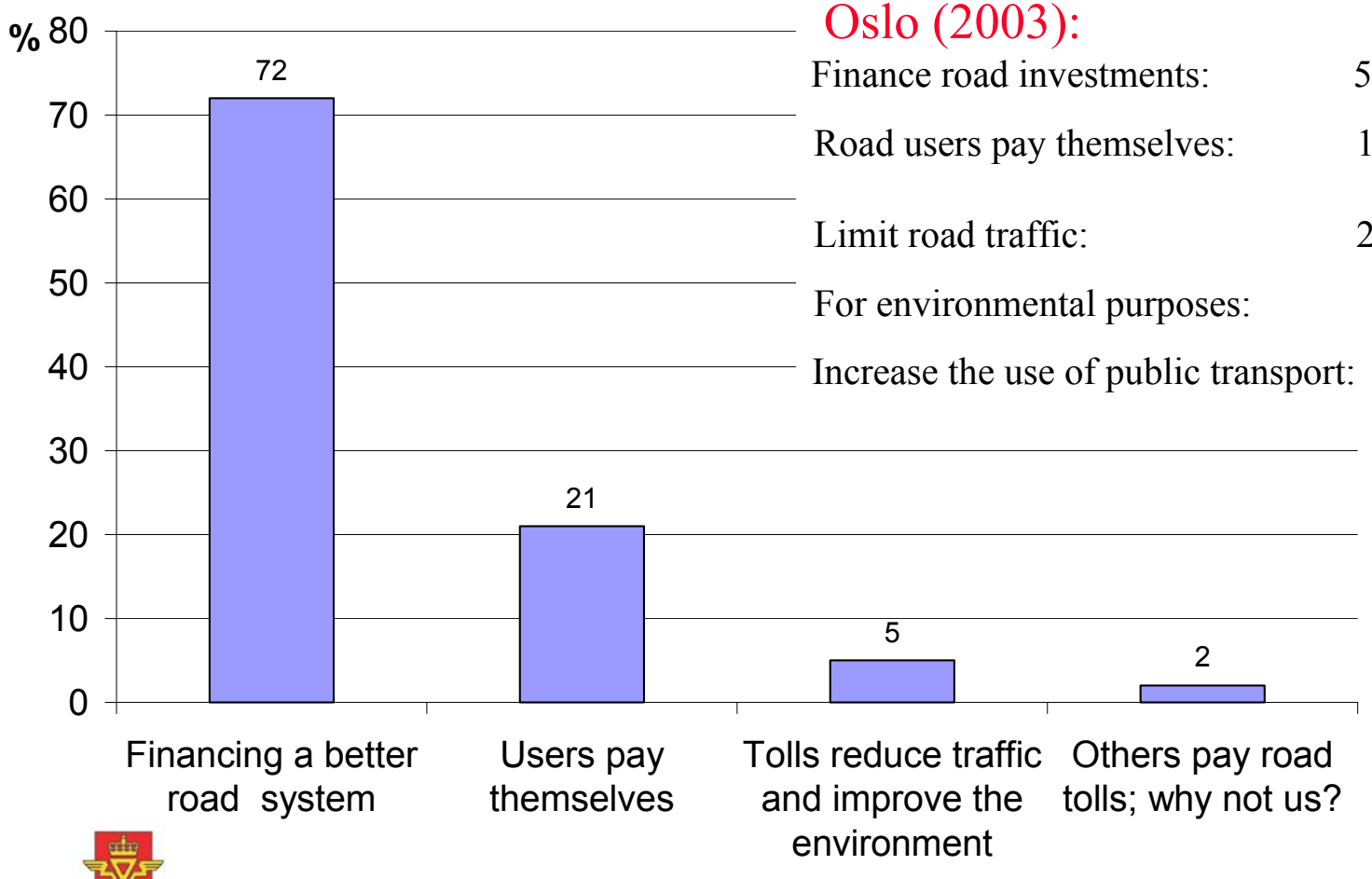
Attitudes and understanding of tolling



Reasons for negative attitudes



Reasons for positive attitudes



Oslo (2003):

Finance road investments:	52 %
Road users pay themselves:	16 %
Limit road traffic:	27 %
For environmental purposes:	8 %
Increase the use of public transport:	7 %

Impact of different user characteristics

- Logit model:

$$P_{ij} = \frac{e^{V_{ij}}}{\sum_{j} e^{V_{ij}}}$$

, Where Pij is the possibility of choosing to be negative towards tolling and

$$V_{ij} = \beta X_{ij} + \varepsilon_{ij}$$

Xij= a vector of measurable characteristics that define utility; e.g gender, income, trip frequency etc.

Impact of different user characteristics

- All variables are categorical; hence only statements about the effect of a particular category in comparison to some other category can be drawn

Impact of different user characteristics

Variables		B	S.E.	Wald	df	Sig.
Information (1)	< adequate	0,70	0,04	257,32	1,00	0,00
Understanding (1)	Do not understand	1,30	0,06	468,29	1,00	0,00
Gender(1)	Male	-0,07	0,05	2,61	1,00	0,11
Income				62,51	3,00	0,00
Income(1)	> 150 000 NOK	0,28	0,12	5,57	1,00	0,02
Income(2)	150 000 - 300 000 NOK	0,39	0,06	41,74	1,00	0,00
Income(3)	301 000 - 500 000 NOK	0,31	0,05	42,33	1,00	0,00
Age				14,98	3,00	0,00
Age(1)	< 25 years	0,49	0,14	12,12	1,00	0,00
Age(2)	25 - 44 years	0,24	0,08	9,09	1,00	0,00
Age(3)	45 -64 years	0,23	0,08	8,29	1,00	0,00
Frequency				134,57	5,00	0,00
Frequency(1)	> 7 time/week	0,54	0,10	29,25	1,00	0,00
Frequency(2)	4- times/week	0,58	0,08	49,59	1,00	0,00
Frequency(3)	1 - 3 times/month	0,25	0,09	8,25	1,00	0,00
Frequency(4)	1 - 3 times/year	0,00	0,09	0,00	1,00	0,97
Frequency(5)	4-8 times/year	-0,01	0,10	0,02	1,00	0,89
Trip length				130,28	3,00	0,00
Trip length(1)	< 5 km	0,59	0,09	47,06	1,00	0,00
Trip length(2)	5 - 19 km	0,61	0,06	113,81	1,00	0,00
Trip length(3)	20 - 50 km	0,22	0,05	16,84	1,00	0,00
Constant		-0,05	0,11	0,21	1,00	0,64

Concluding remarks

- Most people are negative towards tolling and know why tolls are implemented, still planners should increase and improve the information about the intentions with tolling;
  - ✓ A high percentage of the users, have not received adequate information about the tolling
  - ✓ People who have received sufficient information have a higher possibility for being positive towards tolling than those who have not
  - ✓ As the benefits from tolling accrue, people become more positive towards tolling
  - ✓ People who know the reason for tolling are more often positive towards tolling

How can attitudes be changed?

- Points of importance in a marketing Strategy:
  - ✓ Make the public aware of the intentions with tolls before the implementation.
    - ✓ Explain the transport problem to be solved, the construction costs, the opening data and benefits to the users.
  - ✓ Explain the advantages of the toll scheme in relation to other options.
    - ✓ The cost and benefits of each alternative should be explained.

- ✓ Focus the information to different groups!
- ✓ Equity considerations should be addressed.
- ✓ Treat the toll ring as a part of a wider integrated transport planning measure
- ✓ Involve the public already in the planning process.