

Fit to Drive

7th International Traffic Expert Congress
25th – 26th April 2013
Berlin



A Traffic Rule Compliance Model

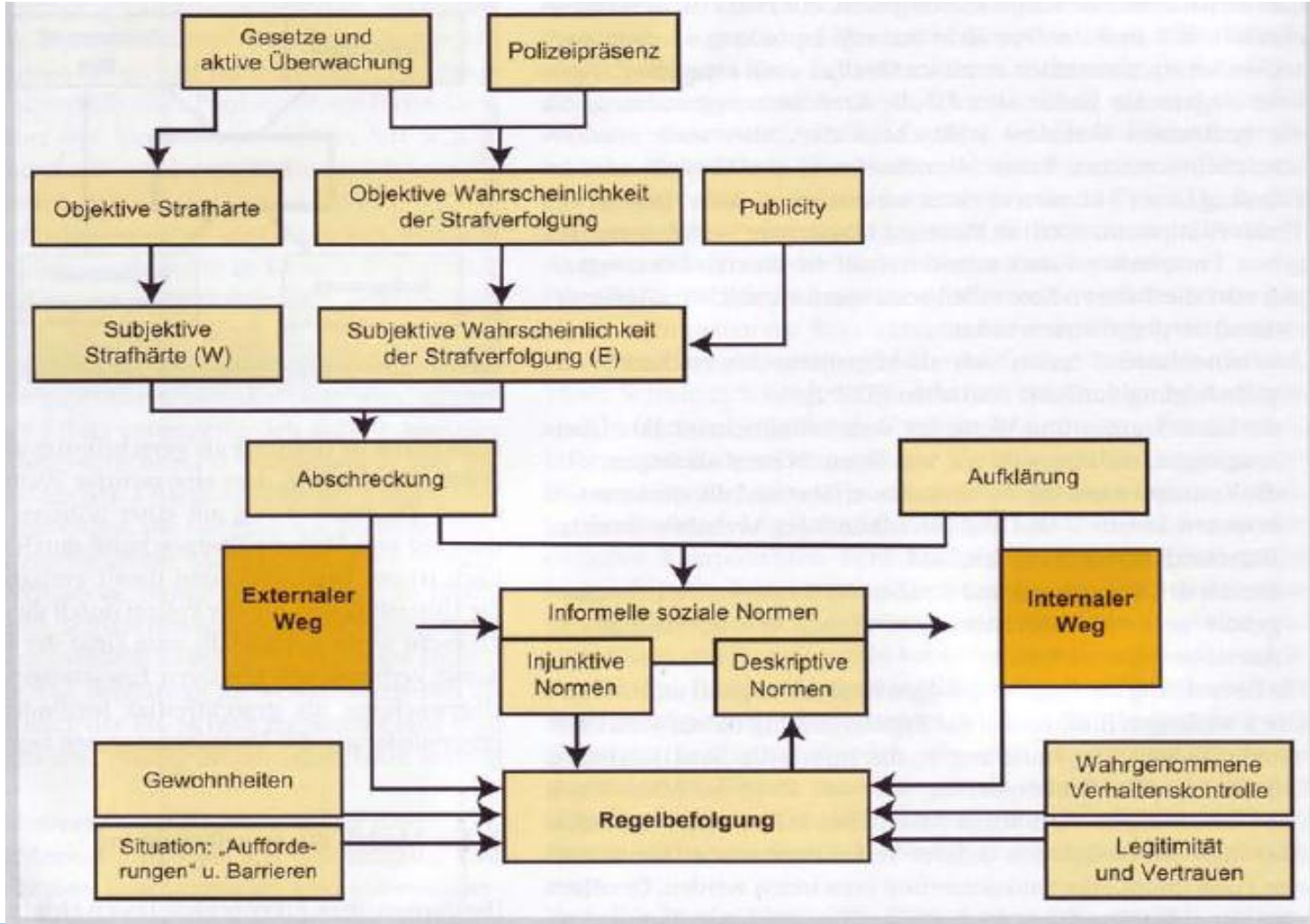
- Jens Schade*, Lars Rößger & Bernhard Schlag
- Technische Universität Dresden,
Verkehrspsychologie



- Acceptance of and Compliance to Highway code as a crucial precondition for traffic safety (e.g. Evans, 1991; ETSC, 1999; ESCAPE, 2002)
 - ETSC (1999): 50% of accidents could be prevented if road users would comply with traffic code
- *Driving violations* are significant predictors for accident involvement (e.g. Parker et al. (2001))
- Violations are predominately determined by attitudinal, instrumental factors



A Traffic Law Compliance Working Model



- Schlag, Rößger &
- Schade (2012)



Factors predicting rule compliance*

Perceived Norms and normative Beliefs	Descriptive Norm	<i>Perception of the behaviour of others; statistic norm, compliance rate in a society</i>
	Peer Group Norm (Subjective Norm sensu Ajzen)	<i>Perception of important others` expectation (friends, relatives) on my behaviour</i>
	Personal Norm	<i>Personal (moral) beliefs about what ought to be done / about what is morally defensible.</i>
Instrumental expectations	Risk perception (- tolerance)	<i>What (degree of) violation will imply a serious safety risk for me or/and others?</i>
	Perceived Sanction Likelihood	<i>How likely does a violation lead to formal sanctions?</i>
Situational Affordances & Perceived Control	Perceived inhibiting and facilitating factors	<i>What factors make a violation more likely or less likely?</i>
	Perceived behavioural control	<i>Perceived ease/difficulty to behave in a certain way</i>



• Szenario-based interviews were conducted for three violations types:

- Speeding
- Red Light Running
- Driving while Intoxicated

• Sample:

• N = 1009 driver

• Age: MW = 49.0 (SD = 16.4); Range: 16 years to 88 years, Sex: 45.7 % female, 54.3 % male



- Acceptance of formal regulation
 - wide acceptance to formal regulations as codified in the Highway Code:
 - 85 % stated their approval to the 50 km/h limit in inner-urban areas
 - 70 % stated their approval to the regulation stop when approaching a traffic light that is yellow
 - **56 % would prefer a stricter limit concerning alcohol and driving**

- Acceptance of formal regulation and Compliance:
 - Approval to the norm is not a sufficient predictor for the compliance
 - 20% stated a increased likelihood to violate the speed limit in spite of a positive statement to the regulation
 - 30% stated a increased likelihood to drive through the signaled intersection in spite of a positive statement to the regulation

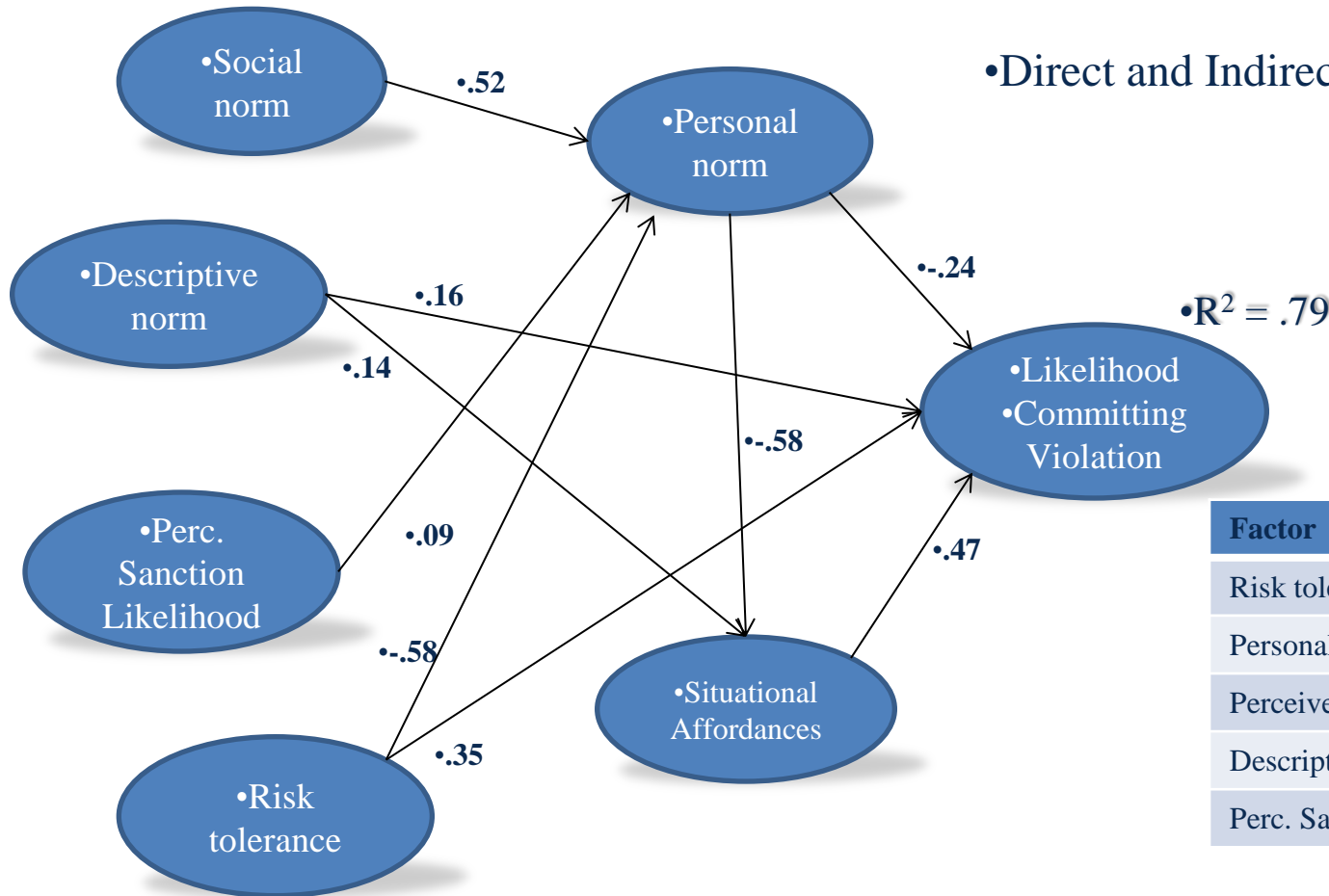


- High explanatory value of the variables for the prediction of the stated likelihood of non-compliance in linear regression models:
 - $R^2_{\text{adjusted}} = 0.45$ / $R^2_{\text{adjusted}} = 0.43$ / $R^2_{\text{adjusted}} = 0.41$
 - acceptance towards the formal regulation had no significant weight for the prediction in the context of other variables
- Testing of direct and indirect effects with structural equation models;
- Example: Speed violation model



Speed Violation Model

•Direct and Indirect Effects on Speeding



•Summary Standardized Total Effects on violation

Factor	
Risk tolerance	.652
Personal norm	-.575
Perceived situational influences	.471
Descriptive norm	.223
Perc. Sanction Likelihood	-.047

•Chi-Square = 545.716, df = 125, p ≤ 0.01, GFI = 0.941, AGFI = 0.920, RMSEA = 0.058



- Wide acceptance to formal regulations as codified in the Highway Code in Germany
- Acceptance towards the formal regulation is not a sufficient predictor for compliance (in terms of behavioural acceptance)
- Normative Beliefs, Risk tolerance and Situational Affordances are crucial factors when considering traffic law compliance
- Speed Data indicates that a combined ‚norm-management‘ approach would promise relevant safety effects.



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Thank you for your attention

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