

Crime-Research of Dr. Hannes Spengler, Darmstadt University of Technology

Generally speaking, my work seeks to further new insights into crime research in Germany, especially with regard to future cost-benefit analyses in the area of law and order policy. Ideally, cost-benefit analyses should be carried out for all resource-intensive projects which public authorities intend to implement, in order to reach certain goals desired by society (e.g. reducing crime rates). This implies that before a project or cost-benefit analysis is undertaken the possibilities of achieving the desired goals have to be evaluated. Once the channels of influence have been identified and a mix of instruments has been chosen it is a question of determining the causal effect or efficiency of the proposed measures with respect to the desired goal and, then, quantifying its costs (e.g. costs of increased police deployment) and benefits (e.g. value of prevented assaults) with a common accounting unit (euro, as a rule). Against this background my research examines – on the one hand - the determinants of criminality and, accordingly, the possibilities of influencing crime rates, and – on the other hand - is concerned with the pecuniary assessment of (prevented) offences.

Using a panel data set especially assembled for the purpose of our research – the Regional Crime and Criminal Prosecution Database at the Darmstadt University of Technology - consisting of data from eleven German federal states for the period 1977-2001 derived from police crime-rate statistics and criminal prosecution statistics, we examine the effect of the German criminal justice system on the occurrence of various crime categories. In contrast to the views held in a broad section of German criminology, the analysis produces clear evidence supporting the effectiveness of deterrence. The probability of conviction of suspects detected by the police proves to be the most important crime-reducing factor. It also proves to be the case that the success of police investigation (measured by means of the clearance rate) is suited to deter potential offenders. The results obtained for the indicators of type and severity of penalty (e.g. the rates of imprisonment, fines and probationary sentences, the length of prison sentence, and size of fine) are, by contrast, much less unequivocal. These results, whilst pointing to the interchangeability of penalties, do, however, suggest that it would make sense to more forcefully prosecute suspects who could principally be convicted but whose cases have been more frequently dropped by public prosecutors in recent years for reasons of convenience.

There exists a German paper (jointly with Horst Entorf) which was accepted for presentation at the 2005 annual meeting of the German Economic Foundation. We are currently working on an English paper.

Another project dedicates itself to a broader assessment of the determinants of crime. These analyses are, however, carried out at a lower level of aggregation using a different set of explanatory variables than those in the criminal justice project mentioned above. They are, in fact, based on studies of cross-sectional data from the years 1989, 1992 and 1995 for the over 1.000 municipalities (“Gemeinden”) in Baden-Wuerttemberg. Whereas only one law enforcement indicator (the clearance rate) could be made use of, over a dozen other explanatory factors are available, the selection of which is motivated by prominent crime theories. Besides the (reiterated) significance of the clearance rate, numerous further implications for law-and-order policy approaches arise. It is shown that municipalities with considerable assets, a high concentration of retailers or with a high share of (working) commuters are affected by a higher incidence of crimes against property. Factors which also have a considerable relevance for the incidence of crime, this being equally true for both property and violent crimes, are unemployment and broken homes. A distinctive feature of the crime estimations conducted in this chapter is to be found in the explicit consideration of the

characteristics of neighbouring municipalities and, more especially, of offender mobility, for which systematic causes can be demonstrated.

The respective paper (jointly with Thiess Büttner) was revised and resubmitted to the *Journal of Regional Science*.

Another focus of my research deals with the assessment of the value of a statistical life (VSL). The analyses are conducted on the basis of a compiled data set using the IAB-employee random sample, the German Socio-economic Panel (SOEP) and occupational accident figures from employers' liability insurance associations. This research is the first attempt to estimate the VSL for Germany and internationally one of the first studies which investigates the VSL by means of panel data. To my knowledge the only US study which uses panel data is Brown (1980, QJE 94) who, however, finds no significant results for the fatal injury risk in his wage regressions. For employees liable to pay compulsory insurance I find – subject to the data structure and estimation method employed – an average VSL amounting to 2.25 -5.09 million € (taking account of possible non-evaluated material value components). Evaluations of this kind play an indispensable role in the appraisal of measures aimed at reducing health and fatal-injury risks, since without them – as it is the case in Germany until today - it is not possible to carry out a comparison of project costs and project benefits when the latter reside in avoided sickness and/or fatality, i.e. in paramount immaterial values. Accordingly, VSL-estimates are relevant in the case of health-related, environmental, transportation and law and order policies. Of course, VSL estimates can be used not only in the framework of cost-benefit analyses but also for the methodically less demanding assessment of damages. When the acquired VSL estimates are applied, the resulting damage from crimes with fatality (notwithstanding negligence and traffic offences) amounts to 2.51-5.68 bn. €. Even when the lower limit of the range is used as orientation, the damage still remains higher than that established by the Federal Criminal Police Office (“Bundeskriminalamt”) at 2.42 bn. € for all registered thefts (approx. 2.76 mill. cases). It should be stressed that, in contrast to theoretical predictions and simulation results - e.g. Garen (1988, Review of Economics and Statistics 70) and Hwang, Reed & Hubbard (1992, JPE 100)-, my research finds substantially lower VSL for estimations based on panel data in comparison with cross sectional data. Since the vast majority of US and international studies uses cross sectional data my results might indicate that VSL-estimates for the US are exaggerated and that some of the risk reduction programs which have been put to action should have rather been avoided.

The respective paper (in German language) was published in the Journal for Labour Market Research (2004, 37). Currently my co-author Sandra Schaffner and I work on a German and English paper which uses refined measures of the occupational fatal employment risk and diverse approaches to control for unobserved heterogeneity of workers.

My research merely represents a first step in the direction of introducing cost analyses and, more especially, cost-benefit analyses to German law and order policy. Future analyses of causes and costs of criminal behaviour could profit considerably from a fundamental reform (and coordination) of German police and judicial statistics – flanked, if possible, by modern cost-accounting systems – and from conducting regular and representative victimization surveys. Initially, the application of these measures would be bound up with high costs but would, however, pay off in the mid to long term, as crime research would have a considerably improved data base at its disposal, which would allow for cost-benefit analyses from which in turn an important contribution to a more efficient formation of German law and order policy is to be expected.