

Regional Crime Rates and Fear of Crime — WISIND Findings

By Mathias Bug, Martin Kroh and Kristina Meier

Many people are afraid of falling prey to crime. The present report investigates the extent to which this fear is in line with the actual regional crime rates. This analysis is based on data from a comprehensive database on the fear of crime, combined with police crime statistics (specifically, adjusted crime statistics which factor in the “dark figure” of unreported crime). No evidence was found to support the (occasionally voiced) contention that the fear of falling prey to crime is irrational in many cases and not representative of the actual level of safety within a given region. In fact, our data shows a clear statistical correlation between regional crime rates and the fear of crime, both of which are more pronounced in the north of Germany than in the south, for instance. The inclusion of cybercrime in crime statistics, however, has meant that the former, higher crime rates and greater fear of crime often recorded in urban areas as opposed to rural regions are no longer as pronounced.

The¹ fear of becoming the victim of a crime is a widely known phenomenon, which, as psychological studies show, will often impair the quality of life of the person affected.² The fear of crime and perceived or subjective safety, however, are occasionally discussed in connection with the irrationality of diffuse fears, media hysteria, or general social insecurity. In fact, studies demonstrate that certain groups — different age groups, for example — miscalculate the probability of their falling prey to crime.³ Similar presumptions are made regarding regional differences: the fear of crime is believed to be high even in regions where in fact there is very little crime.

When statistical data on regional crime rates and fear of crime are compiled, two important questions arise: first, what types of crime are to be included and, second, what is the relative weighting between the different crime categories, the latter occasionally being referred to as the severity of the offense. In regional crime statistics, pick-

1 The report was compiled as part of the research project *A System of Economic Indicators to Measure Security and Security Provision in Germany* (WISIND), which is financed by the German Ministry for Education and Research as part of the *Social Dimensions of Security Research* funding program. The idea behind the WISIND project and the generation of WISIND-specific data was jointly developed by Johannes Rieckmann, Eric van Um, and Nina Wald. The authors would also like to thank Enrique Fernandez, Martina Kraus, Jan-Lucas Schanze, and Bartosz Walenda for their assistance throughout this process. The present report is based on DIW Economic Bulletin 3/2015, in which the different methods used here are described in detail using a newly-generated crime indicator for the years 2010–2013. See M. Bug and K. Meier, “How to Obtain a More Accurate Picture of Crime Risk through Crime Statistics – Proposals and Methods,” DIW Economic Bulletin 3 (2015) http://www.diw.de/documents/publikationen/73/diw_01.c.494746.de/diw_econ_bull_2015-03-1.pdf, accessed on February 19, 2015.

2 U. Dörmann and M. Remmers, “Sicherheitsgefühl und Kriminalitätsbewertung,” in *BKA Polizei + Forschung*, vol. 1 (2000): 1–2. F. DuBow, E. McCabe, and G. Kaplan, “Reactions to Crime: A Critical Review of the Literature,” unpublished report (Center for Urban Affairs, Northwestern University, 1979): 93–99 based on J. Garofalo, “The Fear of Crime: Causes and Consequences,” *Journal of Criminal Law and Criminology*, vol. 72, issue 2 summer, article 20 (1981): 852 f.

3 D. Ziegler, D. Kudlacek, and T. Fischer, “Zur Wahrnehmung und Definition von Sicherheit durch die Bevölkerung. Erkenntnisse und Konsequenzen aus der kriminologisch-sozialwissenschaftlichen Forschung,” *Sicherheit, Forschungsforum Öffentliche Sicherheit papers* (Freie Universität Berlin, 2012): 25, http://www.sicherheitforschung.de/schriftenreihe/sr_v_v/sr_5.pdf, accessed on November 11, 2014.

pocketing, which is a minor offense, is ascribed less significance than robbery, for instance.

The present report is limited to forms of crime that have a direct impact on individuals and consequently excludes white-collar crimes, for example. While the assignment of specific weighting to individual offenses is instrumental in evaluating overall crime rates and the fear of crime, there are many weighting methods which are equally legitimate. We have therefore chosen to use four different approaches, the results of which will then be compared.⁴

Objective Crime Statistics and Subjective Fear of Crime

Here, objective regional crime is defined as offenses committed, the victims being citizens of the said region. The following offenses are included in the objective crime statistics: burglary, theft, cybercrime, criminal threat, bodily harm, homicide, and politically motivated crime. These offenses were specifically selected to enable the indicator to be used to measure crime that directly affects the individual. The study is based on data from the German police crime statistics (*polizeiliche Kriminalstatistik, PKS*) and, to include politically motivated crime, the Annual Reports of the intelligence services of the German *Länder*. Both databases contain recorded crime only, meaning they do not paint a fully accurate picture of the actual crimes committed. To ensure that the “dark figure” of crime (i. e., the number of offenses that are not officially reported) is also factored in, the figures for the individual offenses taken from the *PKS* and the protection of the constitution reports are adjusted by an offense-specific unreported crime factor (see Box 1).

The subjective fear of crime refers to the fear among a given regional population of becoming the victim of a criminal offense. To enable objective crime statistics to be reliably compared with the subjective fear of crime, the offenses selected to assess the fear of crime largely conform to the aforementioned forms of crime used in objective crime statistics.

Unlike objective crime rates, which are often based on the *PKS*, no reliable database is available for the subjective fear of crime. However, to ensure that findings on the fear of crime are both generalizable and cover as broad an empirical basis as possible, existing survey data is used, as well as a study of our own which was conducted as part of the WISIND project and examines victimization and the fear of crime among the population; in addition, data on

private expenditure on security⁵ and data from social networks were employed.⁶ Although each individual means of evaluating the fear of crime has its own inherent problems — for example, the case numbers in population surveys are often insufficient to allow us to draw meaningful regional conclusions, and information taken from social networks reflects the fear of crime for a specific population group only — the sheer variety of the data sources is intended to offset the individual shortcomings.

Discussions in relevant research communities have long since centered on survey-based analysis of the fear of crime.⁷ Owing to the abstract nature of fear, however, no consensus has been reached to date on how to evaluate this fear in surveys. One common question is that of the individual’s feeling of safety during a late-night walk through one’s neighborhood. (The approximate wording is as follows: “How safe do you feel when walking through your neighborhood alone at night?”) Despite the criticism leveled at this indicator for the fear of crime,⁸ it continues to be used for this purpose, not least because it allows different studies to be easily compared. Since it is incorporated into the Germany-wide WISIND survey, this question is also included in the present study. Another data source used is the Socio-Economic Panel (SOEP) study, a large panel study of households in Germany, which also includes a general question on the fear of crime (“How worried are you about the following areas?: [...] The trends observed in crime in Germany.”⁹)¹⁰

⁵ C. Gummer et al., „BIGS-Studie Sicherheitswirtschaft 2012“ (2013). Y. Gruchmann, et al., „BIGS-Studie Sicherheitswirtschaft 2013“ (2014).

⁶ in this economic bulletin See J. Rieckmann and J.-L. Schanze, “Perceptions of Personal Safety in Social Media and Search Engines – a Realistic Reflection of Actual Crime Rates” (2015).

⁷ For an overview see Ziegler, Kudlacek, and Fischer, “Zur Wahrnehmung.”

⁸ A discussion of relevant literature can be found in M. Bug and E. van Urn, “Herausforderungen bei der Messung von Kriminalitätsfurcht,” DIW Roundup, no 49 (2015). www.diw.de/documents/publikationen/73/diw_01.c.491381.de/diw_roundup_49_de.pdf, accessed on February 19, 2015. Also see M. Noack, “Probleme bei der Reliabilitäts- und Stabilitätseinschätzung für allgemeine Kriminalitätsfurchtindikatoren,” in “Empirische Forschung über Kriminalität,” eds. S. Eifler and D. Pollich (Wiesbaden: Springer VS, 2015): 249–274. For an international discussion, see K. F. Ferraro and R. L. LaGrange, “The measurement of fear of crime,” *Sociological Inquiry* 57 (1987): 70–101.

⁹ TNS Infratest Sozialforschung, “2014. SOEP 2014 – Erhebungsinstrumente 2014 (Welle 31) des sozio-ökonomischen Panels: Haushaltsfragebogen, Altstichproben,” SOEP Survey Papers 236, series A (Berlin: DIW/SOEP, 2014). Valid answers follow a three-point scale from very concerned, somewhat concerned, to not concerned at all.

¹⁰ Parallel to the usage of the standard indicator, many long term oriented studies are based on the SOEP questionnaire: C. Krekel and M. L. Poprawe, “The Effect of Local Crime on Well-Being: Evidence for Germany,” SOEP Papers 678 (Berlin: DIW/SOEP, 2014). J. Dittmann, “Entwicklung der Kriminalitätseinstellungen in Deutschland – eine Zeitreihenanalyse anhand allgemeiner Bevölkerungsumfragen,” DIW Discussion Papers, no. 468 (2005). http://www.diw.de/sixcms/detail.php?id=diw_02.c.230702.de, accessed on November 23, 2014. J. Dittmann, “Wahrnehmung der Kriminalität im Zeitverlauf,” (Bundeszentrale für politische Bildung, 2013a): <http://www.bpb.de/nachschlagen/datenreport-2013/oeffentliche-sicherheit-und-strafverfolgung/173837/wahrnehmung-der-kriminalitaet-im-zeitverlauf>, accessed on November 24, 2014.

⁴ For a more detailed explanation of the chosen weighting methods, see Bug and Meier, “How to Obtain a More Accurate Picture of Crime through Crime Statistics – Proposals and Methods,” DIW Economic Bulletin, no. 3 (2015).

Box 1

Objective Crime Rates

The offenses under consideration are broken down as follows using *PKS (police crime statistics)* codes:

Theft (PKS code ****00 excluding 440*00), burglary (PKS code 435*00 and 436*00), assault (PKS code 222000 and 224000), verbal threats or similar (PKS code 232300, 673000, 232200, and 232400), cybercrime (PKS code 980100 via the Internet), and murder and manslaughter (PKS code 892500).¹ The findings presented in the present article are based on the frequency of the offenses. These are calculated according to the formula for each region:

$$\frac{\text{Absolute no. of offenses} \times 100,000}{\text{No. of inhabitants}}$$

Since police statistics only include reported crimes, the problem of unreported crimes can only be taken into account by calculating offense-specific correction factors. To estimate the share of crimes that went unreported, a nationwide victimization survey was conducted.²

The table shows calculated correction factors based on offense-specific estimates of figures for unreported crimes (averaged between 2012 and 2013). While the correction of these figures for property crimes and assault is comparatively low, there is a noticeable factor for unreported crimes relating to burglary. What is most striking are the figures for unreported cybercrimes. Only those cases that cause actual damage are considered, e.g., from a virus attack, and not in cases where

1 Bundeskriminalamt, "Polizeikriminalstatistik" (2013).
 2 See Bug and Meier, "Crime Statistics."

the issue was recognized and resolved by anti-virus software. The estimated number of unknown cases of cybercrime is pertinent since some of these damages are borne directly by banks, insurance companies, and other service providers or the low level of damages incurred reduce the willingness of victims to come forward. The generally perceived low clearance rates for these offenses and the lack of knowledge about cybercrime reporting procedures is likely to reduce incentives to report these crimes to the police.

Table

Means of Dark field Estimates for 2012 and 2013

	Mean	Standard Deviation
Murder and Manslaughter ¹	1.8285	
Burglary	5.565	0.039
Theft	2.937	0.128
Bodily Harm	4.047	0.721
Threat	28.911	0.339
Crime via the Internet	247.151	1.848

¹ Calculated on base of a Germany wide study of autopsy mistakes (Brinkmann 1997).

Source: Bundeskriminalamt (2012, 2013): *Polizeiliche Kriminalstatistik*. Bug, M.; Kroh, M.; Meier, K.; Rieckmann, J.; van Um, E., Wald, N. (2015): *WISIND-data*

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One officially known case of bodily harm represents four actual cases of bodily harm (3 out of 4 cases are not reported to the police).

Besides these general questions on individuals' feeling of safety and their concerns about crime and the development of crime on the whole, the WISIND survey also examines risk perception with regard to crimes against property, physical violence, and cybercrime (see Box 2).

To cover the different dimensions of the fear of crime as far as possible, the analysis of the region-specific fear of crime presented here is not only based on survey findings but also includes crime-related behavioral patterns which can be seen as an indirect expression of the fear of crime. Thus, the conative dimension of the fear of crime — i.e., protective or avoidance behavior — can be factored into the indicator. This behavior includes private expenditure on security equipment, which is examined in a survey of German security firms conducted

by the Brandenburg Institute for Society and Security (*Brandenburgisches Institut für Gesellschaft und Sicherheit, BIGS*) annually since 2012.¹¹

Finally, user-generated communication with reference to crime in social networks was used for the indicator — a new and innovative approach. Here, over a period of four months, an extensive list of search engine keywords was used to pinpoint relevant posts, which were then assigned to the specified location data; these indicator data were then factored into the analysis of regional fear

11 C. Gummer et al., „BIGS-Studie Sicherheitswirtschaft 2012“ (2014). Y. Gruchmann, et al., „BIGS-Studie Sicherheitswirtschaft 2013“ (2014).

Box 2

Survey Data on Subjective Fear of Crime (WISIND Survey)

As part of the WISIND project, a representative telephone survey was conducted from July through September 2014 by TNS Emnid in which 12,094 people in Germany were asked about their experiences and perception of crime. One-fifth of respondents were surveyed on cell phones. The nationwide sample was drawn proportional to the regional population and includes at least 15 respondents per city or regional district. The following questions are relevant indicators of subjective fear of crime, or risk perceptions to be more precise:

Questions on the various types of crime:¹

B.1: "If you think back over the last 12 months, how worried were you that someone would steal something from you—whether you were at home or elsewhere—without you being threatened with violence or violence being used against you?"

¹ Possible replies follow the logic of a four, point scale and are the following: "very probable/probable/improbable/very improbable" or "very worried/somewhat worried/not really worried/not worried at all".

B.2: "How likely do you think it is that something will be stolen from you in the next 12 months—whether you are at home or elsewhere—without you being threatened with violence or violence being used against you?"

B.8: "If you think back over the last 12 months, how concerned were you that, for whatever reason, you would be the victim of assault?"

B.9: "How likely do you think it is that you will be the victim of assault in the next 12 months?"

B.17: "How concerned were you in the last 12 months that you would be the victim of cybercrime?"

B.18: "How likely do you think it is that you will be the victim of cybercrime in the next 12 months?"

The analyses below use the respective averages of offense-specific questions about concerns and probability to evaluate risk perception.

of crime.¹² In particular, public content such as Facebook and Twitter were used, as were various online forums.

Weighting Criminal Offenses

To investigate crime rates and the fear of crime in general, the simplest method is to add up the relative frequencies of individual offenses in a given region by offense category. Accordingly, the fear of crime can be calculated as the sum of the relative frequency of expressions of concern among the population across the individual offense categories. One possible criticism of this method is that it does not take into account the relative severity of the offense, meaning a robbery is regarded in the same light as pickpocketing. To evaluate the significance weighting of individual offenses, three alternative weighting methods were used in addition to equal weighting.

¹² For more details, see Rieckmann and Schanze, "Perceptions of Personal Safety in Social Media and Search Engines – a Realistic Reflection of Actual Crime Rates" (2015) in this issue of DIW Economic Bulletin.

The personal perception of the severity of different criminal offenses was investigated using an online survey among 2,532¹³ respondents asked to rank the different offense categories successively by severity. The result was a weighting scale which was originally based on paired comparisons of rank ordered offense categories. The same survey was conducted among 207 experts (predominantly from the field of security research with a small number from the security business) as well.

In addition to these opinion-based methods, the significance weighted values for individual offenses were also estimated using item response theory.¹⁴ The basic idea behind this statistical method is that a factor which is not observed directly (in our case, regional crime rates or the regional fear of crime) is expressed in the indicators observed (in our case, the actual crimes committed or the expression of fear per offense category). Here,

¹³ To avoid systematic deviations between the survey data and the population, the sample also included respondents who do not use the Internet. For more details, see Bug and Meier, "Crime Statistics."

¹⁴ F.M. Lord, M.R. Novick, and A. Birnbaum, *Statistical theories of mental test scores* (Reading, MA: Addison-Wesley, 1968); G. Rasch, *Probabilistic models for some intelligence and attainment tests*, Danish Institute for Educational Research, Copenhagen, expanded edition with foreword and afterword by B. D. Wright (University of Chicago Press, 1960/1980). P.F. Lazarsfeld and N.W. Henry, *Latent Structure Analysis* (Boston: Houghton Mifflin, 1968).

the relative frequency of the relevant offense is taken into account, as are statistical relationships between offenses. If this is found to be particularly strong,—if, for instance, a certain offense is committed particularly often in an area where other crimes can also be found—this offense is deemed to be particularly effective (having good “forecast quality”) as an indicator of general crime and fear of crime. What is known as the relevance parameter (shown in Table 1) denotes this forecast quality. Provided the relevant data are available, the weighting method used for the objective crime rate indicator is the same as that for the subjective fear of crime.¹⁵

Table 1 shows the significance weighted values resulting from the methods used to weight offenses. The results are relatively uniform and intuitive. Physical violence is regarded as being more severe than crimes against property, while verbal threats and suchlike were perceived least serious. An interesting finding was the high weighting assigned to politically motivated crimes, which was the same across all the weighting methods used and would seem to imply that the political system in Germany is highly respected and valued.

The statistical correlations found between the individual offenses—as seen in the item response theory results—suggest that murder or manslaughter is not only a very rare offense (frequency parameter) but also displays a weak association to the frequency of other offenses (low relevance parameter), i. e., in a regional comparison, murder is a rather incidental occurrence. By way of contrast, threatening behavior, theft, and cybercrime are offenses that systematically occur in areas which are particularly strongly affected by crime, which is why such offenses feature more often in determining general crime rates in a given region.

By analogy, Table 2 shows the weighting of criminal offenses used to assess the subjective fear of crime. As explained above, the significance weighted values taken from the objective indicator are averaged according to broader offense categories. For sub-indicators which cannot be allocated to a specific offense, the average is used across all the weighted values. Table 2 also depicts the relevance parameters of the individual offenses

¹⁵ Owing to the aforementioned, broader crime categories crimes against property, physical violence, and cybercrime, different relative degrees of severity are approximated as the relevant averages (for crimes against property, for instance, the weighting is calculated as follows: $(\text{Weight_Burglary} + \text{Weight_Theft})/2$. Please note that, when calculating the weighting of the broad crime categories, the weighting of other offenses which are included in the online survey, but which were not used for the actual crime indicator is also factored in. For example, the opinion-based weight for physical violence also contains a weight for rape. Due to database problems (in particular areas where police crime statistics show a very high dark figure), this offense is not part of the objective threat indicator.

Table 1

Crime Weights

	Population	Experts	IRT (1/frequency)	IRT (Relevance)
Murder and Manslaughter	0.9055	0.9585	1 (fix)	0.00079
Politically motivated crime	0.1012	0.1067	0.053	0.035
Bodily Harm	0.0476	0.0661	0.001	1 (fix)
Internet Crime	0.0263	0.0339	0.0003	13.224
Burglary	0.0193	0.0224	0.0017	1.406
Theft	0.0114	0.0112	0.0004	4.416
Threat	0.0089	0.0193	0.0002	6.654

Source: Bundeskriminalamt (2013): *Polizeiliche Kriminalstatistik*; Bug, M.; Kroh, M.; Meier, K.; Rieckmann, J.; van Um, E., Wald, N. (2015): *WISIND-data files: Weighting; Calculations by DIW Berlin.*

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Security experts as well as the general population give crime via the internet a weight that is worse than burglary.

Table 2

Weighting of fear regarding different crime categories

	Population	Experts	IRT (Relevance)
Assault	0.247	0.267	
risk_assault			1.46
Manslaughter/Assault			0.922
Property crime	0.015	0.017	
risk_property			1.127
Burglary/Theft			0.896
Assault/Property Crime (standard indicator)	0.181	0.195	
standard indicator			1 (fix)
Cybercrime	0.026	0.034	
risk_Internet Crime			0.6
Unspecific (mean of all crime categories)	0.132	0.146	
SOEP (Worries about development of crime)			0.118
BIGS (Private spending on security)			0.476

Source: Bug, M.; Meier, K.; Kroh, M.; Rieckmann, J.; van Um, E.; Wald, N. (2015): *WISIND-Datafiles Crime weighting/social Networks*. Gruchmann, Y. et al. (2014): *BIGS-Studie Sicherheitswirtschaft Juni 2014*, Gummer, C. et al. (2013): *BIGS-Studie Sicherheitswirtschaft Mai 2013. SOEPv30; Calculations by DIW Berlin.*

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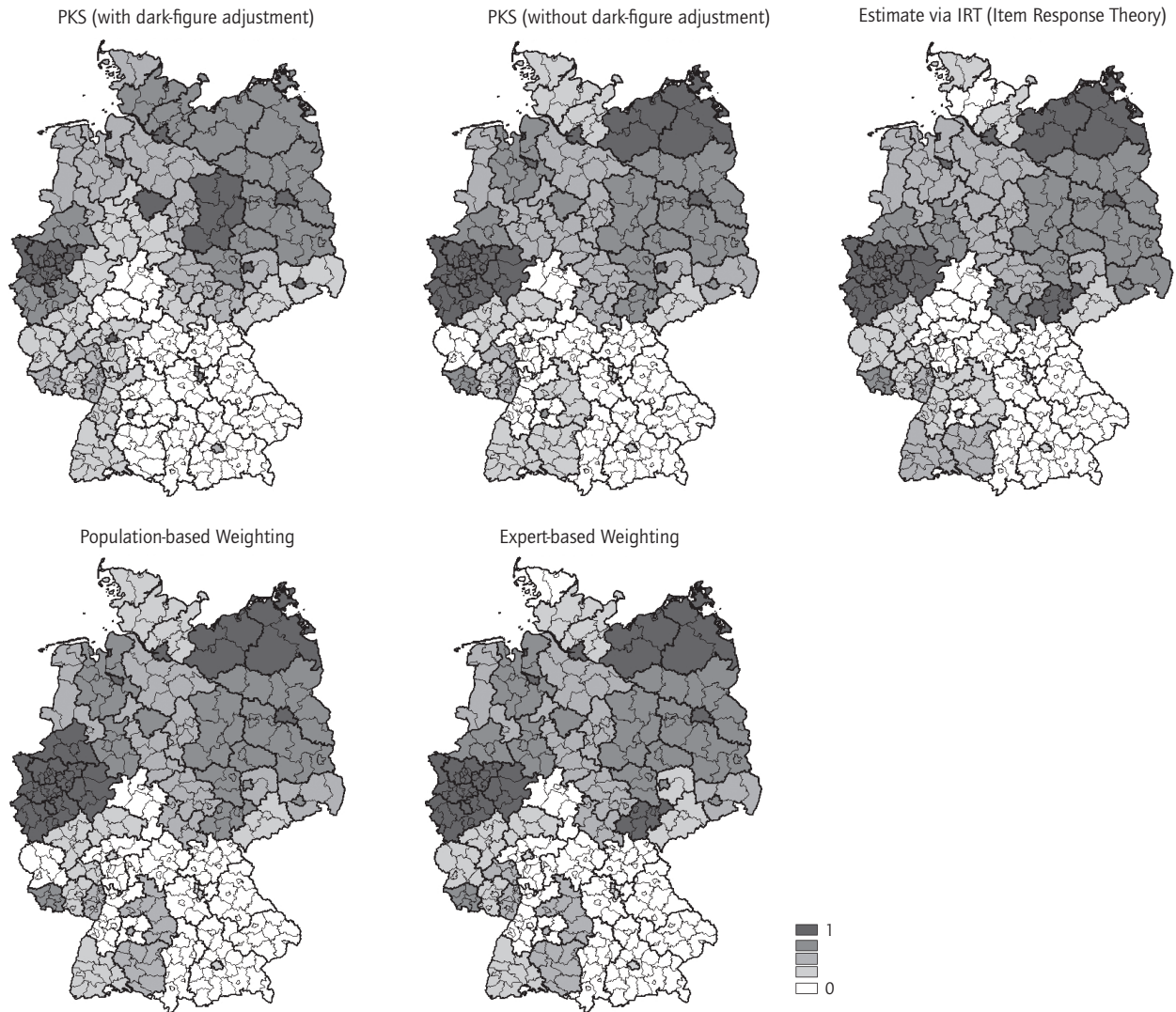
The fear regarding Internet crime and property crime show the lowest weights. This follows the feasibility of financial compensation of this crime category.

es, which display similar results to Table and are to be equally interpreted.¹⁶

¹⁶ Table 2 disregards the parameters for relative frequency (IRT model) per offense. When using item response theory (IRT) to analyze the regional fear of crime, the average regional fear of crime per offense is divided into a maximum of three groups with ascending values. The relevant IRT model for ordinal data depicts the relative frequency for each of these (max. three) categories per offense and the inclusion of these parameters would make presenting the summary of figures in Table 2 unnecessarily complicated.

Figure 1

Regional Crime Indicator 2013 (full version)



Source: Bundeskriminalamt (2012, 2013): Polizeiliche Kriminalstatistik. Bug, M.; Kroh, M.; Meier, K.; Rieckmann, J.; van Um, E.; Wald, N. (2015): WISIND-data files: Crime Survey/Crime weighting. Calculations by DIW Berlin.

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The dark-figure adjustment weakens differences between urban and rural areas. Higher crime rates in the north stay obvious.

Regional Differences

Generating a reliable description of regional differences in the fear of crime requires a sufficient number of respondents per regional unit. Although the WISIND sample has at least 15 respondents from each of the 402 administrative districts in Germany, in order to shore up the robustness of the reported findings, the following description divides the country into 60 regions based on the 402 urban and rural districts. The objective of

dividing up these areas is to create regional units with at least one million residents. These units are based on state- and government districts as well as police boundaries (police headquarters).¹⁷ In order to allow a direct comparison between subjective fear of crime and ob-

¹⁷ In some cases, historical/cultural borders were used for regionalizing the federal states. Some cities were removed from their regions to allow them to be considered separately.

jective crime rates, the crime rate is also aggregated in these regions—in principle, data on individual counties could be reported based on criminal statistics compiled by the police.¹⁸ Crime rates and fear of crime are all normalized to the interval [0–1], where 1 represents the highest crime rates and/or fear of crime.

Figure 1 shows the results of the indicator for objective crime rates for 2013 at regional level. All approaches to crime weighting produce comparable results: what is particularly striking is the distinct north-south divide, with higher crime rates in the north. As expected, the major cities (except Munich) stand out, as do the conglomerates of the Rhineland and the Ruhr.

A comparison of the crime rate maps with and without estimated numbers of unknown cases in Figure 1 indicates a stronger regional differentiation due to the adjustment for unreported crime. This adjustment highlights, for example, a higher crime rate in large parts of Baden-Württemberg, Thuringia, Saxony-Anhalt, and Brandenburg.

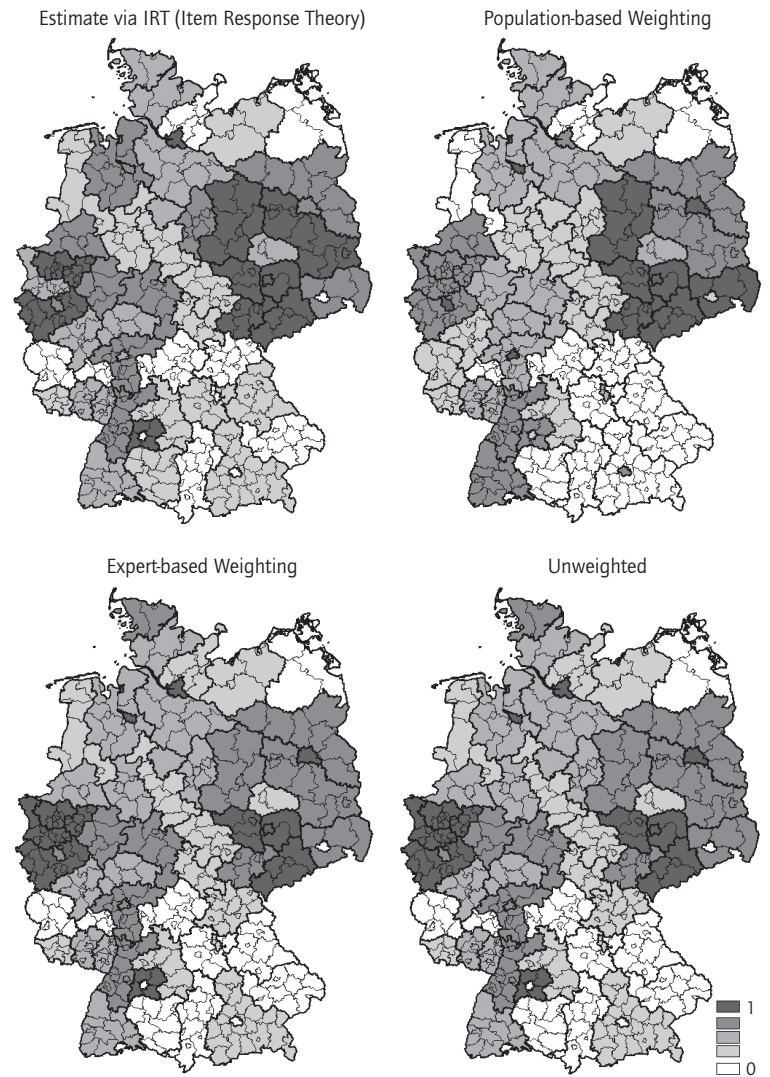
The different methods of crime weighting lead to thoroughly comparable results—as noted in previous studies.¹⁹ In contrast to equal weighting of crimes, opinion-, expert-, and statistics-based (IRT) weighting particularly in the urban areas of North-Rhine Westphalia and in the region Oldenburg indicate higher crime rates—compared to similar regions. The relatively high crime rates in Mecklenburg-Western Pomerania using all forms of weighting can be explained by a disproportionately high volume of cybercrime in these areas in 2013. This effect disappears in the alternative calculation of crime indicators without this form of crime (see Box 2).

Figure 2 shows the results for the indicator of subjective fear of crime compared to the objective crime rates. The frequently made statement that fear of crime is high in regions where the actual threat is low can only be confirmed in individual cases here (see Figure 3). Examples of this are predominantly in parts of Swabia, primarily the counties around Stuttgart. In most regions, however, there is a more or less reflective association between risk perception and measured crime. This correlation is particularly clear in the overall regional distribution shown in Figure 3.

One striking discrepancy between fear of crime and actual crime can be observed in Mecklenburg-Western Po-

Figure 2

Regional Indicator Fear of Crime 2013/14



Source: Bug, M.; Kroh, M.; Meier, K.; Rieckmann, J.; van Um, E.; Wald, N. (2015): WISIND-data files: Crime weighting/Social Networks. Gruchmann, Y. et al. (2014): BIGS-Studie Sicherheitswirtschaft Juni 2014, Gummer, C. et al. (2013): BIGS-Studie Sicherheitswirtschaft Mai 2013. SOEPv30; Calculations by DIW Berlin.

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There are slightly higher rates of fear of crime in the north. Between urban and rural areas, no consistent differences are detectable.

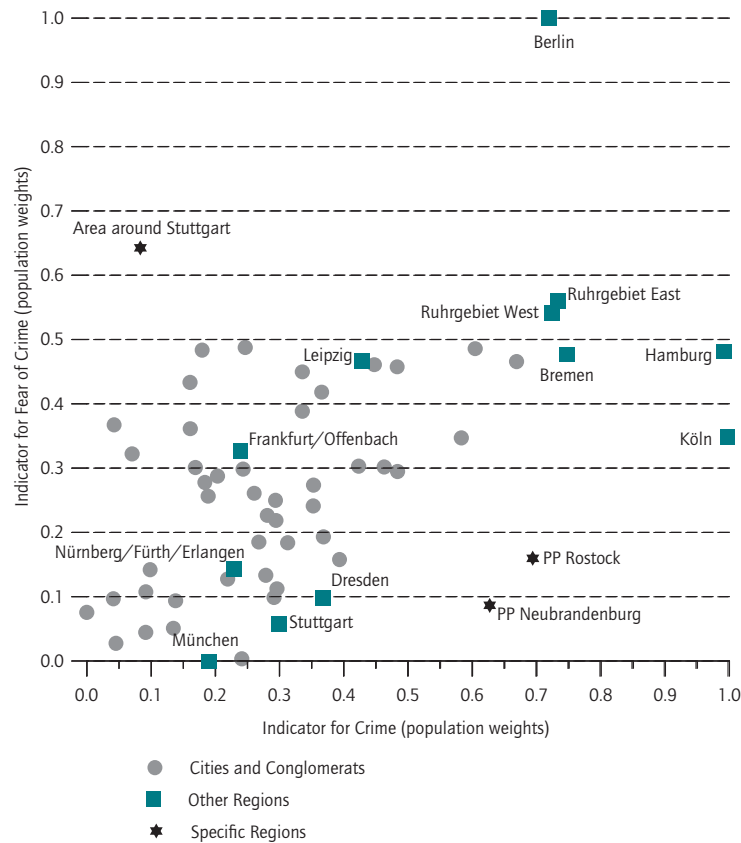
¹⁸ Although WISIND survey data are included in regional crime rate calculations to adjust police crime data for the estimated number of unknown cases, this number is uniform throughout Germany.

¹⁹ Bug and Meier, "Crime Statistics."

merania. A closer look at criminal activities there suggests that the relatively high crime estimates for this region are largely driven by Internet crime. This type of crime is growing very rapidly in two ways. The development of reported Internet crime reveals high growth rates (although the number of official cases is still relatively low compared to more "well-known" offenses).

Figure 3

WISIND-Indicator of Crime and Fear of Crime



1 Bevölkerungsgewichtet.

Source: Bundeskriminalamt (2013): Polizeiliche Kriminalstatistik; Bug, M.; Meier, K.; Kroh, M.; Rieckmann, J.; van Um, E.; Wald, N. (2015): WISIND-Datafiles Crime weighting/Social Networks. Gruchmann, Y. et al. (2014): BIGS-Studie Sicherheitswirtschaft Juni 2014, Gummer, C. et al. (2013): BIGS-Studie Sicherheitswirtschaft Mai 2013. SOEPv30; Calculations by DIW Berlin.

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Berliners seem to have the most fear of crime, while Munich's population appears to be relaxed in a context of low crime.

However, by what means damage is being caused (and how this can be registered in PKS) is changing dynamically. Accordingly, victimization studies, particularly in the field of Internet crime, indicate very high numbers of unknown cases. We estimate that only 1 in 247 criminal acts is recorded in official police crime statistics, which as mentioned above, is partly due to the low level of damages paid (see Box 3).²⁰ The analysis of the

²⁰ These analyses provide a regionally constant, unreported crime factor. If, for example, the recording and combatting of cybercrime indicates regional differences, this leads to an under- or overestimation of crime rates in some regions. It is not impossible, for example, that a greater number of actual cybercrimes in Mecklenburg-Western Pomerania indicates a greater willingness of citizens to report such crimes and not necessarily that the crime rate is in fact higher.

Box 3

Taking Account of Cybercrime in Calculating the Crime Rate

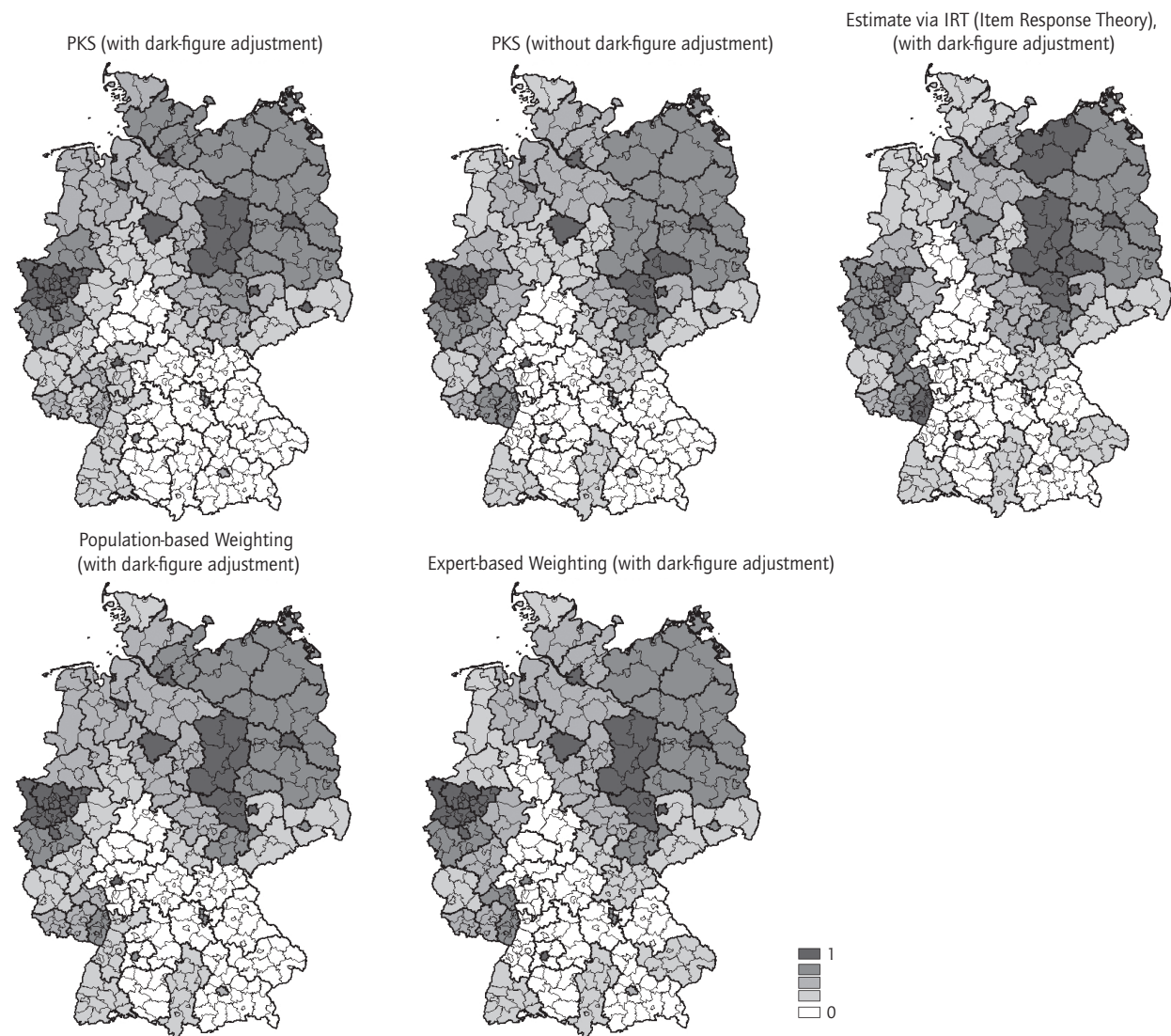
The unreported crime factor of 247 represents a significant intervention in the raw data of the police crime statistics – although the official crime figures for 2013 are relatively low despite steady increases in recent years. Moreover, another particular characteristic is that extreme case-number outliers may occur more often due to the nature of cybercrime. This can, for instance, lead to a significant distortion of the frequency numbers due to extensive cases with multiple victims – especially in Länder where each victim finds its way as a case into the police statistics. As an example, crime statistics in the town of Delmenhorst were considerably inflated in 2012 and 2013 due to charges of fraud against a company based there.¹ The extremely wide-ranging adjustment of unreported crime figures then has a critical impact on the estimates for Delmenhorst, when included in a regionalized representation. Another problem is, of course, the location of the offenses. The Delmenhorst example indicates that this town is the scene of the crime, but the defrauded customers are likely to be spread throughout the country and beyond. Consequently, estimates of the local cybercrime rate are subject to greater uncertainty than the “classic” forms of crime. In order to estimate the impact of cybercrime on the findings, a second version of the objective crime rate was calculated without cybercrime for comparison purposes (see Figure Box).

Compared to an analysis based on all forms of crime, two key differences can be identified: a more distinct north-south divide puts the regions of Baden-Württemberg, excluding Stuttgart, in the lowest crime group. Similarly, the estimated crime rate remains high in North Rhine-Westphalia and is now focused in particular on the Ruhr area and Cologne. A second difference is the somewhat greater divide between rural and urban areas which is especially prevalent in Leipzig and Dresden and also clearly visible in Munich and Hanover. This is not surprising since the leveling effect of the city/country is no longer relevant for cybercrime.

¹ Presseportal.de/ots (April 4, 2014), POL-DEL, “Vorstellung der Polizeilichen Kriminalstatistik 2013,” <http://www.presseportal.de/polizeipresse/pm/68438/2705988/pol-del-vorstellung-der-polizeilichen-kriminalstatistik-2013-rckgang-der-registrierten-straftaten>, accessed on January 3, 2015.

Figure

Regional Crime Indicator 2013 (full version without Cybercrime)



Source: Bundeskriminalamt (2012, 2013): Polizeiliche Kriminalstatistik; Bug, M.; Kroh, M.; Meier, K.; Rieckmann, J.; van Um, E.; Wald, N. (2015): WISIND-Datensätze:Kriminalitätsbefragung/Kriminalitätsgewichtung/Soziale Netzwerke; Calculations by DIW Berlin.

When not taking Internet crime into account, the dark-figure adjusted crime rates still show higher crime rates in urban areas.

WISIND survey in an article by Rieckmann and Kraus shows what specific forms of cybercrime were committed in the summer/fall of 2014.²¹ This makes it quite clear that the data basis for estimations of unreported crime needs to be improved.

Conclusion

The correlation between fear of crime and actual crime rates can only be satisfactorily examined if reliable measurements for both figures are available. For this purpose, the present report proposes several approaches, all of which produce similar results, thus giving them a certain robustness. One core innovation lies with the integration of key communications data on crime in social networks. The report by Rieckmann/Schanze in this issue of *DIW Economic Bulletin* gives an insight into which issues are of particular interest and where in Germany the exchange of information about crime is particularly vigorous. The article by Bug, Kraus and Walend²² analyzes the findings of the broader WISIND approach to measuring fear of crime compared to the standard question in many public opinion polls asking about feelings of safety when walking in a particular neighborhood at night.

²¹ Rieckmann, J., Kraus, M., „Tatort Internet: Kriminalität verursacht Bürgern Schaden in Milliardenhöhe“ *DIW Wochenbericht* 12 2015 (2015)

²² Bug, M., Kraus, M., Walenda, B. „Analoge und digitale Unsicherheiten: Eine neue Perspektive auf Kriminalitätsfurcht“ *DIW Wochenbericht* 12 2015 (2015)

Mathias Bug is Research Associate of the Department for Development and Security at DIW Berlin

Martin Kroh is Deputy Head of the German Socio- Economic Panel Study at DIW Berlin

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A further review of the different approaches should be conducted once larger datasets with very high numbers of respondents are released for adjusting the figures for unreported crime since the present study is only able to calculate these figures for groups of crimes on a national scale. Greater numbers of cases will allow us to apply the figures on a regional scale.²³

The common hypothesis that people are particularly anxious in areas where there is actually no significant threat was not confirmed by our study. Rather, a more or less realistic assessment of the threat of crime can be observed in most regions in Germany. The article by van Um, Huch and Bug²⁴ outlines how the local media—as an intermediary between local crime and individual perception of crime—treats crime issues in Germany and which categories of crime it targets. This allows us, for the first time, to observe in more detail any minor distortions in crime reporting.

²³ The data set from the BaSiD project with 35,000 respondents from 2012 will allow the figures for unreported crimes to be calculated on a regional scale, Birkel, C., Guzy, N., Hummelsheim, D., Oberwittler, D., Pritsch, J. (2014): *Der Deutsche Viktimisierungssurvey 2012*. 77–79. http://www.bka.de/DE/Presse/Pressemitteilungen/Presse2014/141208__Viktimisierungssurvey2012.html?__nnn=true accessed on December 8 2014.

In addition, the states of Lower Saxony, Schleswig-Holstein, and Mecklenburg-Western Pomerania have made considerable efforts to research the figures for unreported crimes with similar numbers of respondents as the BaSiD project.

²⁴ Van Um, E., Huch, M., Bug, M. „Lokale Kriminalitätsberichterstattung: Abbild oder Zerrspiegel von Kriminalität“ *DIW Wochenbericht* 12 2015 (2015)

Kristina Meier is Research Associate of the Department for Development and Security at DIW Berlin



DIW Berlin – Deutsches Institut
für Wirtschaftsforschung e.V.
Mohrenstraße 58, 10117 Berlin
T +49 30 897 89 -0
F +49 30 897 89 -200

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Translation

HLTW Übersetzungen GbR
team@hlw.de

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Press office

Renate Bogdanovic
Tel. +49-30-89789-249
presse@diw.de

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