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Crime does pay (at least when it's violent)! – On the compensating wage differentials of high regional crime levels

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Abstract

This paper investigates whether high regional crime levels lead to a compensating wage differential paid by firms in the respective region. Using data from German social security records and official police statistics for 2003 to 2006, we consider both violent and non-violent crimes and use three-way error-components estimators to control for individual and regional heterogeneity. Our findings suggest a positive and rather large compensating differential for the risk of falling victim to a violent crime while no such effect exists for other criminal activities. However, our results also suggest that the wage effects for most individuals are rather small due to small variation in the crime rates.

Keywords: Compensating wage differentials, crime, three-way error-components model
JEL Classification: J31

1 Introduction

The idea that workers are monetarily compensated for non-pleasant or dangerous aspects of their respective job, that is the idea that there are compensating wage differentials, can be traced back to Book I of Adam Smith's *Wealth of Nations* (see Rosen 1986 for an overview on the general subject). In this paper, we investigate whether workers that have to work in regions that are characterized by a high crime rate, are compensated for the higher risk of being hurt or robbed. The idea that regional differences in quality of

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live, including crime rates, may give rise to compensating wage differentials is again not new (see e.g. Roback 1982, 1988) and has actually made it into at least one introductory textbook (Hall and Liebermann 2001, p. 346). Additionally, the idea that workers may demand compensation for having to live in high-crime areas has intuitive appeal: While compensating wage differentials are sometimes hard to evaluate as preferences for job conditions obviously differ between workers, it is difficult to imagine individuals with a preference for being robbed or beaten up on the street.

Furthermore, some studies found a relationship between local crime rates and labor market behavior or outcomes. For the most part, these belong to a literature focusing on the role local living conditions or amenities play for both rents and wages (see e.g. Roback 1982 for an early example). Roback (1982, 1988) finds evidence for a positive impact of crime on wages using cross-sectional data for individuals residing in the 98 largest U.S. cities. Using data from the 1976 wave of the Panel Study in Income Dynamics, Gerking and Neirick (1983) find no significant relationship between the overall crime rate in a region and real wages. Blomquist, Berger and Hoehn (1983) using micro-data from the 1980 U.S. census again find a positive relationship between crime rates and wages. Schmidt and Courant (2006) using 1995 Current Population Survey data and focusing on a different question find a positive, though insignificant effect of crime on log wages in one of their specifications. The only study relying on longitudinal data (Smith 2005) uses the Mariel boatlift and a subsequent increase in crime rates in Miami as a natural experiment.[1] Her results indicate a large wage differential as high as 25% in favor of high-crime risk workers in Miami compared to similar workers in Houston or Los Angeles. Finally, in a study focusing on the timing of work, Hamermesh (1999) finds evidence that high crime rates reduce the propensitiy to work in the evening and during the night using data from the Current Population Surveys for 1973, 1978, 1985 and 1991.

Additionally, there has been a rather large body of research on the relationship between local living conditions, e.g. the existence of amenities and disamenities, and house prices (see Gibbons and Machin 2008 for a recent review on the empirical literature). Of these, three papers have recently been concerned with local crime rates: Bowes and Ihlanfeld (2001) use data from Atlanta for the years 1991-1994 in cross-sectional regressions with

[1] Readers familiar with Brian De Palma's movies might recognize this as the background for the story in *Scarface*.

a number of control variables. Their results indicate a 3 to 5.7% increase in housing prices for one additional crime per acre. Using a similar estimation strategy on data from Jacksonville, Florida, Lynch and Rasmussen (2001) find a 4% decreasse in housing prices for a one standard deviation increase in violent crimes and a non-significant increase in prices for higher levels of property crime. Finally, in the only study for Europe, Gibbons (2004) uses data for London in 1999/2000. Using a semi-parametric modelling strategy to eliminate unobservable spatial factors and instrumental variables, specifically proximity to bars and crime in non-residential dwellings, he finds a 10% decrease in housing prices for a one standard deviation increase in criminal damages to property and a non-significant relationship with burglary.

To the best of my knowledge, all previous research on the relationship between crime rates and labor market outcomes has focused on the U.S., for the most part using cross-sectional data. Additionally, there has been no research on the question whether wages are influenced differently by high rates of violent and non-violent crimes. This paper adds to the literature by providing first evidence from European labor markets, using measures for several types of criminal activities. Additionally, we make a methodological contribution by using for the first time three-way error-component estimators that have recently been used in labor economic research – starting with Abowd, Kramarz and Margolis (1999) – to control for individual, time and county specific heterogeneity.

In a first step, we merge individual data from social security records with crime data from the *Polizeiliche Kriminalstatistik* provided by the German Federal Criminal Police Office (*Bundeskriminalamt*) for the years 2003 to 2006. In a second step, we estimate wage functions for men and women using measures for various types of violent and non-violent criminal activities while controlling for occupations and other individual and firm characteristics, as well as for both individual and county unobserved heterogeneity. Our results show non-negligible increases in wages for increases in the risk of falling victim to a violent crime while no such effect exists for other types of criminal activities. However, the wage effects associated with typical variation in the crime rates observed in the data are rather small, suggesting that the influence of crime on wages is for most individuals negligible.

The rest of the paper is organized as follow: Section 2 describes the data, while section

3 describes the estimator and the identification strategy employed. Estimation results are presented in section 4. Section 5 concludes.

2 Data

The data used in this study comes from the so called employment panel of the Federal Employment Agency (*BA- Beschäftigtenpanel*). Specific information on an earlier version of the employment panel can be found in Koch and Meinken (2004), the current version is described (in German) in Schmucker and Seth (2006).

The individual data originates from social security information and is collected in the so called *employee history* by the Federal Employment Agency.[2] In Germany, employers are obliged by German law to deliver annual information on their employees, as well as additional information at the beginning and end of an employment, to social security. These notifications are used to calculate pensions, as well as contributions to and benefits from health and unemployment insurance. The resulting spell data covers approximately 75 - 80% of the German workforce, excluding free-lancers, the self-employed, civil servants and family workers (Koch and Meinken 2004, p. 317). It contains information on the begin and end of employment, daily wages, a person's age and sex, as well as several variables collected for statistical purposes, e.g. education or nationality.

From these files the employment panel is drawn in a two step procedure. First, all persons born on one of seven specified dates are selected. As the German social security number is tied to the date of birth and does not change over time, it is possible to track those persons over time. Additionally, entries in and exits from the labor force are automatically covered by this procedure as new entrants born on one of these dates replace persons leaving the labor force. In a second step, the panel is formed by drawing four cross-sections per year – on the last day of March, June, September and December respectively – from this data. Finally, if a person receives unemployment benefits or is in an active labor market program on one of those days, an artificial observation indicating this fact is generated from other data sources of the Federal Employment Agency. The resulting panel is unbalanced

[2] More information on person-level data from German social security records can be found in Bender at al. (2000).

due to entries into and exits from the labor force. However, there is no missing information due to non-response.

The person level data is combined with firm information that is formed by aggregating social security data on the plant level. The plant data provide information on the structure of the respective workforce regarding education, age and occupational position, the plant-size and the industry affiliation of the respective plant. Regional information is available on the county (*Kreis*) level for both the indiviual's place of living and the location of the employer.

The crime data comes from official crime statistics, the *Polizeiliche Kirminalstatistik*, collected by the Criminal Police Offices of the *Länder* (the *Landeskriminalämter*) and provided by the Federal Criminal Police Office (*Bundeskriminalamt*). This information is available on the county level for the years 2003 to 2006 for a variety of crimes, more specifically general crime, assaults, housebreaking, theft of/from cars and damages to property. For the analysis, housebreaking, theft and damages to property are considered jointly as "property crimes". Crime rates are defines as reported crimes per 100,000 inhabitants.

To arrive at the estimation sample, we first drop persons younger than 25 and older than 55 to avoid problems with ongoing education and early retirement. Additionally, as the education variable in this data is known to be problematic due to reporting errors, restricting the sample to those age groups allows us to treat education as fixed. Furthermore, we restrict the sample to regular, full time workers, dropping trainees, home and part-time workers. Finally, we drop the top/bottom 1% of the wage distribution to control for outliers and split the sample by gender, which leads to 782,279 observations from 241,715 individuals for the male sample and 463,603 observations from 147,962 individuals for the female sample. Descriptive statistics for both samples can be found in tables 1 and 2.

(Tables 1 and 2 about here.)

3 Econometric modeling

Consider the following model of the data generating process which is similar to the three-way error-component model employed in the literature on worker/firm matches starting

with Abowd, Kramarz and Margolis (1999):

$$y_{ijt} = x_{it}\beta + c_{ijt} * \tau + \alpha_i + \phi_j + \mu_t + \epsilon_{it} \tag{1}$$

where y_{ijt} is the (log) wage of worker i in year t in county j, x_{it} contains time variant personal and firm characteristics of the specific worker or worker firm match, c_{ijt} is the crime rate worker i living or working in county j faces at time t, and α_i, ϕ_j and μ_t are individual, county and time fixed effects respectively.[3] Interest in this paper lies on the estimation of τ which gives the effect of regional crime rates on wages. Positive values for τ imply the existence of a compensating wage differential. The model is estimated twice using repsectively the place of living and the place of work for the regional information.

As control variables we include three digit occupations, age (including a squared term), plantsize, three digit industries, the age structure of the current employer's workforce measured by the shares of workers in five year age intervals, the educational structure of the employer's workforce by the shares of workers with a certain school and post school education and the shares of women, Germans, trainees, part-time workers, skilled and unskilled blue and white collar workers respectively.

There are three possible sources of variation in the crime rates that can be used to identify τ: First, if firms continuously adjust wages to variations in the crime levels over time to preserve the (potential) compensating wage differential, we would expect that wages within worker/firm matches vary with crime levels. This, however, seems unlikely as wages are both downward rigid and, at least in the short run, rather fixed within matches due to collective bargaining agreements.

Second, workers may change between firms within counties. As this leads to a new labor contract with new remuneration, wages could be adjusted to the crime rates. Note, however, that it seems somewhat unlikely that a worker who switches jobs within a county would accept a lower paying job just because of a change in the crime rate. Additionally, we might expect that firms in the same county ceteris paribus pay similar markups to the agreed wages.

[3]While estimation of these three-way error-component (or three-way fixed-effects) models is computationally non trivial for datasets of the size used in this paper (see Andrews, Schank and Upward 2006), estimation was possible using the Stata ado-file *felsdvreg* by Thomas Cornelissen (see Cornelissen 2006, 2008 for a description).

Finally, workers may change between counties. Here, it seems possible that regional differences in crime rates transform into regional markup payments to the agreed wages and that workers take regional differences in the quality of living into account when evaluating the utility associated with a new job.

For the last two alternatives, note that (voluntary) job changes are often accompanied by wage increases. However, as not all workers change from a low to a high crime county, we would expect these increases to be lower (or even negative) for a switch from a high to a low crime county and higher for a switch from a low to a high crime county. Similarly, these increases should be higher when the switch occurs in a year with a relatively high crime rate and lower in years with a low crime rate which enables us to separate the crime effects from the county specific effects ϕ_j.

There are two problems commonly associated with crime data: First, due to the fact that the crime statistics in Germany are recorded by the authorities of the *Länder*, there is no guarantee that the figures are completely comparable across counties. Note, however, that, as far as these differences are constant over the observation period, this problem is minimized by the presence of the county specific fixed effects ϕ_j. These also capture several other aspects of the respective county that would give rise to a compensating wage differential and might be correlated with criminal activities. Additionally, as the main source of variation in crime rates on the person level is due to persons changing between counties, it seems likely that these switchers observe true crimes rates in their (potential) new residence only imperfectly and thus have to rely on the published statistics when assessing the utility associated with accepting a specific job/location-combination.

Second, as far as (aggregate) wage levels are related to aggregate crime rates, there might be an endogeneity problem present. Consider for example a random shock that leads to lower aggregate wages. If this type of economic deprecation causes more individuals to engage in criminal activities, we would expect a downwards bias in the estimate for τ in equation (1). Without further adjusting for this potential endogeneity, the estimate for τ can be interpreted as a lower bound for the effect of interest.

Note that the fact that crimes may be committed by individuals other than the local residents does not cause problems in the context of this paper. This fact leads to difficulties when trying to establish the causal relationship between local economic conditions and local

crime rates as, e.g., local job opportunities affect residents and non-residents differently. However, the causes of a high local crime rate should be less relevant for an individual thinking about accepting a job in a region than the chance of being victimized. Put differently, it seems plausible to assume that the disutility of being victimized does not depend on the place of residence of the respective perpetrator which should make potential victims indifferent between situations where a high crime rate is caused by locals and a situation where a high crime rate is caused by visitors to the county.

4 Results

Consider the estimation results for the parameter of interest displayed in table 3. Full estimation results using the place of work for the regional information can be found in tables 5 and 6 in the appendix. The coefficients for the control variables in the estimations using place of living are practically identical. Additionally, all control variables have the expected influence on the outcome and do not vary much when using different crime rates.

(Table 3 about here.)

Consider first the results for men displayed in the top panel of table 3. For property crimes and the general crime rate we obtain negative results that are also weakly significant when looking at the general crime rate at the place of work. The crime rate for violent crimes, however, is associated with a larger and highly significant positive effect on log wages.

Before we discuss the economic importance of these results, consider the results for females displayed in the lower panel of the table. Here, we obtain significant, negative results for general crime levels for both place of work and place of living as well as weakly significant, negative results for the level of property crimes at the place of work. Similar to men, we also observe a larger, significantly positive effect of violent crimes on wage levels.

A central question that arises is if these results may be caused by contemporaneous endogeneity. Note that we can rule out endogeneity caused by omitted time constant variables due to the person- and regional-level fixed effects. As already noted in the preceding section, a potential problem might arise if unobserved wage shocks are related to criminal

activity. However, for such shocks to explain the results obtained in the estimations, we would need an unobserved shock that is (a) negatively correlated with wages, (b) positively correlated with both general and property crimes and (c) negatively correlated with violent crimes. As it is difficult to imagine any random shock that causes general and property crime to rise while at the same time decreasing violent crime and wages, contemporaneous endogeneity does not seem to be responsible for the results.

Note that while the coefficients look negligibly small at a first glance, they measure the impact of a one unit increase in the crime rate which is equivalent to one additional crime per 100,000 inhabitants. To asses the economic importance of the effects, we therefore conduct three simulation experiments, whose results are summarized in table 4.

(Table 4 about here.)

First, we take the crime rate as a crude proxy for the chance of an inhabitant or an individual working in the respective county to become victimized. Increasing this risk by one percentage point is equal to increasing the crime rate by 1,000. Focusing first on men, this change in crime rates leads to changes in log wages by -0.0004 (general crime rate), 0.016 (violent crime) and -0.001 (property crime) when using the crime rates at the place of work and by -0.0004 (general crime rate), 0.011 (violent crime) and -0.001 (property crime) when using the crime rates at the place of living. For women, the corresponding effects would be changes in log wages by -0.001 (general crime), 0.013 (violent crime) and -0.003 (property crimes) using crime at the place of work and -0.001 (general crime), 0.16 (violent crime) and -0.002 (property crime) using the place of living. While the effects for the general crime rate and the property crime rate are in fact negligible, the results for violent crimes suggest that the a 1% increase in the risk of falling victim to a violent criminal incident is rewarded by an 1.1% to 1.6% increase in wages which cannot be considered small from an economic point of view.

As a second simulation exercise, we consider the most extreme change in crime rates that could possibly be observed in the sample, that is the move from the county with the lowest to the county with the highest crime rate. For general crime this means moving from the *Landkreis Grafschaft Bentheim* in 2004 to *Frankfurt (Oder)* in 2003 or moving from 59.3 reported criminal incidents per inhabitant to 19,195.0. For the sake of exposition

and as it would only results in a change of signs, we ignore the fact that the only logically possible move would be in the opposite direction due to the temporal ordering of these two data points. For violent crimes, the move is equivalent to moving again from the *Landkreis Grafschaft Bentheim* in 2004 to the city of *Neumünster* in 2005 or from a crime rate of 90.0 to one of 1,727.0. Finally, for property delicts, the relevant move would be from *Landkreis Grafschaft Bentheim* in 2004 to the city of *Koblenz* in 2003 or from 55.5 to 4,613.0 in the crime rate. For men, the resulting wage changes would be -0.008 (general crime), 0.026 (violent crime) and -0.046 (property crime) using the place of work and -0.008 (general crime), 0.018 (violent crime) and -0.046 (property crime) for the place of living. Note that the relatively high results for property crimes are insignificant on all conventional levels. For women, the corresponding results are -0.019 (general crime), 0.021 (violent crime) and -0.014 (property crime) using crime at the place of work and -0.019 (general crime), 0.028 (violent crime) and -0.009 for the place of living.

Finally, as the previous results use only two (rather extreme) data points, we also consider increases in crime levels by one standard deviation as a measure for changes in the crime rate actually observed in the sample. The detailed values for the standard deviations can be found in tables 1 and 2. Again starting with the male results, a one standard deviation increase in the respective crime rate leads to changes in log wages by -0.001 (general crime), 0.004 (violent crime) and -0.0008 (property crime) using crime at the place of work and to changes by -0.001 (general crime), 0.003 (violent crime) and -0.0007 (property crime). For women, the corresponding results are -0.004 (general crime), 0.004 (violent crime) and -0.002 (property crime) using information for the place of work and -0.004 (general crime), 0.004 (violent crime) and -0.001 (property crime) using information for the place of living.

Taken together these results suggest that there seems to be a mark up payment for high regional crime levels which is consistent with the previous evidence on this matter summarized in section 1. This effect is larger for violent crimes and smaller and even negative for general crime levels and property crimes. As one might expect that the disutility associated with being victim of a criminal incident involving violence is larger than for being the victim of a property crime, this result is consistent with the existence of a compensating wage differential. Simulations suggest that an increase in the (approximate) probability of being victim of a violent crime by one percentage point increases wages by

about 1.1% to 1.6% with only marginal wage changes being found for similar increases in property or general crime levels. Similar results can be observed when considering changes from the minimum to the maximum of the respective crime rate found in the sample. Looking at a one standard deviation increase in the crime rates observed in the sample, however, reveals that the tyical variation in crime rates observed in the sample causes only marginal changes in wages. In other words, while firms seem to willing to pay non-negligible mark ups when workers are forced to work in high-crime ares, the tyical variation in crime rates observed in the sample suggests that there are relatively few individuals who actually move between high- and low-crime counties and profit from these mark ups.

5 Conclusion

This paper considered the question whether there is a compensating wage differential for having to work in areas characterized by a high crime rate in Germany. Our contributions are threefold: First, we provide first evidence on the relationship between crime rates and wages for labor markets outside the U.S.. Second, we are the first to consider violent and non-violent crimes separately. Finally, we make a methodological contribution by using for the first time three-way error-component estimators for panel data to control for both individual- and county-specific unobserved heterogeneity. Using data from social security records merged with official crime data, we find a significantly positive and non-negligible impact of violent crimes on wages while the general nd property crime rates influence wages to a lesser degree.

Results from several simulations suggest that an approximate 1% increase in the chance of falling victim to a violent crime increases wages by 1.1% to 1.6% with an even larger increase being found for the change in crime rates associated with a move from the county with the lowest to the county with the highest crime rate. For men, the results for other types of crimes are generally either insignificant, economically negligible or both. For women, we find a non-negligible decrease in wages associated with large changes in the general crime rates associated with a move from the lowest to the highest observed crime rate. Looking at a one stadard deviation increase in crimes rates as a measure of typical variation in crime rates observed in the sample, we find that the wage effects of criminal activities are rather small for most individuals in the data.

These results are largely consistent with the previous evidence on this subject summarized in the introduction. On a more practical level, they suggest that, while firms seem to be willing to reward the risk of victimization, the wage effects for most individuals are rather small due to small variation in the crime rates.

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Table 1: Descriptive statistics, male sample

Variable	Mean	Std.Dev	Minimum	Maximum
Real monthly wage (€, 2000 Prices)	2808.0820	1051.4280	663.0336	4813.3970
Log(wage)	7.8655	0.3978	6.4968	8.4792
Age (years)	40.4961	8.0601	25.0000	55.0000
Age (squared)	1704.8970	653.0592	625.0000	3025.0000
Plantsize	1325.8790	5102.7280	1.0000	54162.0000
Share of women	0.2883	0.2181	0.0000	0.9904
Age structure: Share of workers below 20 years	0.0336	0.0522	0.0000	0.8095
Age structure: Share of workers 20-24 years	0.0710	0.0699	0.0000	0.9020
Age structure: Share of workers 25-29 years	0.0934	0.0840	0.0000	1.0000
Age structure: Share of workers 30-34 years	0.1147	0.0810	0.0000	1.0000
Age structure: Share of workers 35-39 years	0.1573	0.0867	0.0000	1.0000
Age structure: Share of workers 40-44 years	0.1624	0.0840	0.0000	1.0000
Age structure: Share of workers 45-49 years	0.1361	0.0808	0.0000	1.0000
Age structure: Share of workers 50-54 years	0.1112	0.0787	0.0000	1.0000
Age structure: Share of workers 54-59 years	0.0753	0.0625	0.0000	1.0000
Age structure: Share of workers 60-64 years	0.0329	0.0408	0.0000	0.8000
Age structure: Share of workers above 65 years	0.0122	0.0350	0.0000	0.8333
Share of Germans	0.9316	0.1030	0.0000	1.0000
Share of trainees	0.0483	0.0678	0.0000	0.9919
Share of unskilled blue collar workers	0.1977	0.2390	0.0000	1.0000
Share of skilled blue collar workers	0.2303	0.2452	0.0000	1.0000
Share of white collar workers	0.3742	0.2844	0.0000	1.0000
Share of part-time workers below 18hrs/week	0.0700	0.1202	0.0000	0.9947
Share of part-time workers 18 or more hrs/week	0.0627	0.0980	0.0000	0.9741
Share of unskilled workers with lower secondary schooling	0.1676	0.1846	0.0000	1.0000
Share of skilled workers with lower secondary schooling	0.6508	0.2363	0.0000	1.0000
Share of unskilled workers with higher secondary schooling	0.0217	0.0567	0.0000	1.0000
Share of skilled workers with higher secondary schooling	0.0483	0.0860	0.0000	1.0000
Share of workers with college degree	0.0454	0.0803	0.0000	1.0000
Share of workers with university degree	0.0662	0.1331	0.0000	1.0000
Share of workers with German *Mini-jobs*	0.0679	0.1249	0.0000	0.9892
Overall crime rate (place of work)	8257.1846	3664.1699	59.3000	19195.0000
Overall crime rate (place of living)	7465.2900	3361.4231	59.3000	19195.0000
Crime rate violent crime (place of work)	636.5988	268.7635	90.0000	1727.0000
Crime rate violent crime (place of living)	586.9421	250.3001	90.0000	1727.0000
Crime rate property delicts (place of work)	1585.9930	752.6227	55.5000	4613.0000
Crime rate property delicts (place of living)	1455.9490	702.9579	55.5000	4613.0000
No. of Obs.		782,279		
No. of Individuals		241,715		

Crime rates are defined as reported crimes per 100,000 inhabitants.

Table 2: Descriptive statistics, female sample

Variable	Mean	Std.Dev	Minimum	Maximum
Real monthly wage (€, 2000 Prices)	2170.1870	970.3892	317.8928	4813.3970
Log(wage)	7.5707	0.4989	5.7617	8.4792
Age (years)	39.8194	8.6215	25.0000	55.0000
Age (squared)	1659.9139	688.7943	625.0000	3025.0000
Plantsize	667.3875	2772.0210	1.0000	54162.0000
Share of women	0.6208	0.2551	0.0048	1.0000
Age structure: Share of workers below 20 years	0.0351	0.0611	0.0000	0.8640
Age structure: Share of workers 20-24 years	0.0793	0.0824	0.0000	0.8929
Age structure: Share of workers 25-29 years	0.1038	0.0984	0.0000	1.0000
Age structure: Share of workers 30-34 years	0.1146	0.0910	0.0000	1.0000
Age structure: Share of workers 35-39 years	0.1475	0.0975	0.0000	1.0000
Age structure: Share of workers 40-44 years	0.1546	0.0977	0.0000	1.0000
Age structure: Share of workers 45-49 years	0.1337	0.0959	0.0000	1.0000
Age structure: Share of workers 50-54 years	0.1120	0.0925	0.0000	1.0000
Age structure: Share of workers 54-59 years	0.0728	0.0695	0.0000	1.0000
Age structure: Share of workers 60-64 years	0.0325	0.0447	0.0000	0.7500
Age structure: Share of workers above 65 years	0.0140	0.0407	0.0000	0.7500
Share of Germans	0.9457	0.0947	0.0000	1.0000
Share of trainees	0.0504	0.0777	0.0000	0.9949
Share of unskilled blue collar workers	0.1245	0.2035	0.0000	1.0000
Share of skilled blue collar workers	0.1018	0.1813	0.0000	1.0000
Share of white collar workers	0.4911	0.2846	0.0000	1.0000
Share of part-time workers below 18hrs/week	0.1086	0.1531	0.0000	0.9904
Share of part-time workers 18 or more hrs/week	0.1158	0.1385	0.0000	0.9663
Share of unskilled workers with lower secondary schooling	0.1505	0.1891	0.0000	1.0000
Share of skilled workers with lower secondary schooling	0.6421	0.2507	0.0000	1.0000
Share of unskilled workers with higher secondary schooling	0.0261	0.0672	0.0000	1.0000
Share of skilled workers with higher secondary schooling	0.0623	0.1083	0.0000	1.0000
Share of workers with college degree	0.0385	0.0803	0.0000	1.0000
Share of workers with university degree	0.0804	0.1495	0.0000	1.0000
Share of workers with German *Mini-jobs*	0.1046	0.1602	0.0000	0.9892
Overall crime rate (place of work)	8684.9033	3794.2771	59.3000	19195.0000
Overall crime rate (place of livng)	7923.4351	3576.6580	59.3000	19195.0000
Crime rate violent crime (place of work)	659.2164	276.9210	90.0000	1727.0000
Crime rate violent crime (place of living)	611.8324	265.0846	90.0000	1727.0000
Crime rate property delicts (place of work)	1661.2531	772.3702	55.5000	4613.0000
Crime rate property delicts (place of living)	1538.6851	735.1871	55.5000	4613.0000
No. of Obs.		436,603		
No. of Individuals		147,926		

Crime rates are defined as reported crimes per 100,000 inhabitants.

Table 3: Wage regressions, parameters of interest, dependent variable: Log monthly labor income (€, 2000 prices)

	Place of work			Place of living		
	All crime	Violent crime	Property crime	All crime	Violent crime	Property crime
			Men			
Crime rate (per 100,000 inhabitants)	-0.000000*	0.000016***	-0.000001	-0.000000	0.000011***	-0.000001
	(0.000000)	(0.000003)	(0.000001)	(0.000000)	(0.000003)	(0.000001)
No. of Obs.		782,279			782,279	
No. of Individuals		241,715			241,715	
No. of Movers between regions		25,883			14,124	
			Women			
Crime rate (per 100,000 inhabitants)	-0.000001**	0.000013**	-0.000003*	-0.000001**	0.000016***	-0.000002
	(0.000001)	(0.000006)	(0.000002)	(0.000000)	(0.000006)	(0.000002)
No. of Obs.		436,603			436,603	
No. of Individuals		147,926			147,926	
No. of Movers between regions		10,470			8,797	

Coefficients, standard errors adjusted for clustering on the person level in parentheses. ***/**/* denote significance on the 1%, 5% and 10% level respectively. All estimations include regional, time and person fixed effects as well as three-digit industries and occupations, age, age squared, plantsize, the shares of workers in various age groups and with various positions and educational attainment. Full estimation results using place of work can be found in tables 5 and 6 in the appendix. Coefficients of control variables were practically identical when using place of living.

Table 4: Simulated (log) wage increases by various increases in crime rates

Increase in crime rate by...	Associated wage increase (in %)					
	Place of work			Place of living		
	All crime	Violent crime	Property crime	All crime	Violent crime	Property crime
			Men			
1,000 (≈ 1% increase being victimized)	**-0.0004**	**0.016**	-0.001	-0.0004	**0.011**	-0.0004
Move from sample minimum to sample maximum (see table 1)	**-0.008**	**0.026**	-0.046	-0.008	**0.018**	-0.046
One standard deviation	**-0.001**	**0.004**	-0.0008	-0.001	**0.003**	-0.0007
			Women			
1,000 (≈ 1% increase being victimized)	**-0.001**	**0.013**	**-0.003**	**-0.001**	**0.016**	-0.0002
Move from sample minimum to sample maximum (see table 2)	**-0.019**	**0.021**	**-0.014**	**-0.019**	**0.028**	-0.009
One standard deviation	**-0.004**	**0.004**	**-0.0002**	**-0.004**	**0.004**	-0.0001

Wage changes caused by significant coefficients (at least 10%-level are printed in bold.)

Table 5: Wage regressions, male sample, regional information uses place of work

	All crime	Violent crime	Property crime
Age (years)	0.041644***	0.041205***	0.041648***
	0.000817	0.000820	0.000817
Age (squared)	-0.000528***	-0.000528***	-0.000528***
	0.000009	0.000009	0.000009
Plantsize	0.000001***	0.000001***	0.000001***
	0.000000	0.000000	0.000000
Share of women	-0.019666***	-0.019785***	-0.019669***
	0.005326	0.005325	0.005325
Age structure: Share of workers below 20 years	-0.016355	-0.016347	-0.016391
	0.012081	0.012082	0.012081
Age structure: Share of workers 20-24 years	-0.052027***	-0.052004***	-0.052060***
	0.009770	0.009770	0.009770
Age structure: Share of workers 25-29 years	-0.063726***	-0.063608***	-0.063725***
	0.009376	0.009375	0.009375
Age structure: Share of workers 30-34 years	-0.035454***	-0.035402***	-0.035451***
	0.009040	0.009041	0.009040
Age structure: Share of workers 35-39 years	-0.032242***	-0.032358***	-0.032262***
	0.008805	0.008805	0.008805
Age structure: Share of workers 40-44 years	-0.025795***	-0.025974***	-0.025817***
	0.008773	0.008773	0.008773
Age structure: Share of workers 45-49 years	-0.032912***	-0.032995***	-0.032938***
	0.008827	0.008827	0.008827
Age structure: Share of workers 50-54 years	-0.023804***	-0.023709***	-0.023817***
	0.008839	0.008840	0.008839
Age structure: Share of workers 54-59 years	-0.010898	-0.010463	-0.010886
	0.008385	0.008387	0.008385
Age structure: Share of workers above 65 years	0.003095	0.003257	0.003087
	0.012447	0.012447	0.012447
Share of Germans	0.002042	0.002059	0.002031
	0.008632	0.008633	0.008632
Share of trainees	-0.014833	-0.014746	-0.014862
	0.016866	0.016864	0.016866
Share of unskilled blue collar workers	-0.048728***	-0.048618***	-0.048759***
	0.014093	0.014090	0.014093
Share of skilled blue collar workers	-0.028506**	-0.028471**	-0.028545**
	0.013941	0.013938	0.013940
Share of white collar workers	0.009715	0.009771	0.009656
	0.014115	0.014112	0.014114
Share of part-time workers below 18hrs/week	0.005007	0.005009	0.004961
	0.016029	0.016026	0.016029
Share of part-time workers 18 or more hrs/week	0.019466	0.019511	0.019444
	0.015779	0.015777	0.015779
Share of unskilled workers with lower secondary schooling	-0.023325**	-0.023157**	-0.023285**
	0.010692	0.010694	0.010692
Share of skilled workers with lower secondary schooling	-0.007739	-0.007576	-0.007704
	0.010385	0.010387	0.010385
Share of skilled workers with higher secondary schooling	-0.010530	-0.010587	-0.010507
	0.012526	0.012526	0.012526
Share of workers with college degree	0.036662***	0.03674***9	0.036719***
	0.012959	0.012960	0.012959
Share of workers with university degree	-0.003515	-0.003426	-0.003470
	0.012393	0.012394	0.012394
Share of workers with German *Mini-jobs*	-0.085560***	-0.085485***	-0.085561***
	0.008519	0.008520	0.008519
Crime rate (per 100,000 inhabitants)	-0.000000*	0.000016***	-0.000001
	0.000000	0.000003	0.000001
Occupation fixed effects (3 digit)	(included)	(included)	(included)
Industry fixed effects (3 digit)	(included)	(included)	(included)
Person fixed effects	(included)	(included)	(included)
Region fixed effects (*Kreise*)	(included)	(included)	(included)
Time fixed effects (years)	(included)	(included)	(included)
No. of Obs.		782,279	
No. of Individuals		241,715	
No. of Movers between regions		25,883	

Coefficients, standard errors adjusted for clustering on the person level below. ***/**/* denote significance on the 1%, 5% and 10% level respectively. Coefficients of control variables using place of work were practically identical.

Table 6: Wage regressions, female sample, regional information uses place of work

	All crime	Violent crime	Property crime
Age (years)	0.011617***	0.011260***	0.011627***
	0.001619	0.001620	0.001618
Age (squared)	-0.000241***	-0.000239***	-0.000240***
	0.000018	0.000018	0.000018
Plantsize	0.000002**	0.000002**	0.000002**
	0.000001	0.000001	0.000001
Share of women	-0.102437***	-0.102432***	-0.102425***
	0.009081	0.009080	0.009081
Age structure: Share of workers below 20 years	0.000007	0.000081	0.000063
	0.020833	0.020832	0.020832
Age structure: Share of workers 20-24 years	-0.033902*	-0.033835*	-0.033929*
	0.018321	0.018321	0.018322
Age structure: Share of workers 25-29 years	-0.033633*	-0.033551*	-0.033609*
	0.017874	0.017874	0.017874
Age structure: Share of workers 30-34 years	-0.041830**	-0.041733**	-0.041779**
	0.017370	0.017369	0.017370
Age structure: Share of workers 35-39 years	-0.028134	-0.028180	-0.028148
	0.017210	0.017208	0.017210
Age structure: Share of workers 40-44 years	-0.026172	-0.026231	-0.026179
	0.017340	0.017338	0.017339
Age structure: Share of workers 45-49 years	-0.021031	-0.021079	-0.021100
	0.017267	0.017265	0.017267
Age structure: Share of workers 50-54 years	-0.028998*	-0.028877*	-0.029015*
	0.017512	0.017512	0.017513
Age structure: Share of workers 54-59 years	-0.026130	-0.025859	-0.026079
	0.016548	0.016548	0.016548
Age structure: Share of workers above 65 years	-0.057621**	-0.057614**	-0.057638**
	0.022599	0.022593	0.022597
Share of Germans	0.005784	0.005748	0.005743
	0.014519	0.014517	0.014519
Share of trainees	-0.037582	-0.037363	-0.037470
	0.038882	0.038904	0.038900
Share of unskilled blue collar workers	-0.065042*	-0.064874*	-0.064944*
	0.037016	0.037039	0.037034
Share of skilled blue collar workers	-0.056586	-0.056396	-0.056517
	0.036767	0.036792	0.036787
Share of white collar workers	-0.014963	-0.014898	-0.014952
	0.036271	0.036296	0.036291
Share of part-time workers below 18hrs/week	0.021534	0.021627	0.021566
	0.037217	0.037242	0.037236
Share of part-time workers 18 or more hrs/week	0.049077	0.049411	0.049231
	0.037300	0.037325	0.037319
Share of unskilled workers with lower secondary schooling	-0.058190***	-0.058343***	-0.058217***
	0.017481	0.017479	0.017478
Share of skilled workers with lower secondary schooling	-0.065286***	-0.065399***	-0.065296***
	0.016275	0.016272	0.016271
Share of skilled workers with higher secondary schooling	-0.073187***	-0.073364***	-0.073231***
	0.023642	0.023640	0.023641
Share of workers with college degree	-0.026324	-0.026578	-0.026345
	0.019772	0.019770	0.019769
Share of workers with university degee	-0.014874	-0.015017	-0.014836
	0.019685	0.019683	0.019683
Share of workers with German *Mini-jobs*	-0.089821***	-0.089876***	-0.089868***
	0.012551	0.012551	0.012551
Crime rate (per 100,000 inhabitants)	-0.000001**	0.000013**	-0.000003*
	0.000001	0.000006	0.000002
Occupation fixed effects (3 digit)	(included)	(included)	(included)
Industry fixed effects (3 digit)	(included)	(included)	(included)
Person fixed effects	(included)	(included)	(included)
Region fixed effects (*Kreise*)	(included)	(included)	(included)
Time fixed effects (years)	(included)	(included)	(included)
No. of Obs.		436,603	
No. of Individuals		147,926	
No. of Movers between regions		10,470	

Coefficients, standard errors adjusted for clustering on the person level below. ***/**/* denote significance on the 1%, 5% and 10% level respectively. Coefficients of control variables using place of work were practically identical.

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