



**KOÇ**  
**ÜNİVERSİTESİ**  
GRADUATE SCHOOL OF BUSINESS

# Impacts of COVID-19 on criminality in Germany

Final Project

Data Analysis for Social Sciences  
Fall 2023  
Koç University

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Istanbul, 12.01.2024



## How did the COVID-19 pandemic affect criminality in Germany?

### My main goals are to:

- Examine the criminality in Germany before and after the pandemic
- Analyse what kind of crimes have seen an increase and which ones were declining (e.g. was there an increase to domestic violence or cybercrimes due to isolation?)
- Explore patterns regarding the characteristics of delinquents (age, gender, location)

## Data Sources – Bundeskriminalamt BKA (Federal Police Office)

### Police Crime Statistics

- Annual reports and statistics
- Tables I used for each year between 2017 and 2022:
  - Suspects per age group
  - Suspects per state
  - Suspects per district
  - Population

→ Extensive data pre-processing

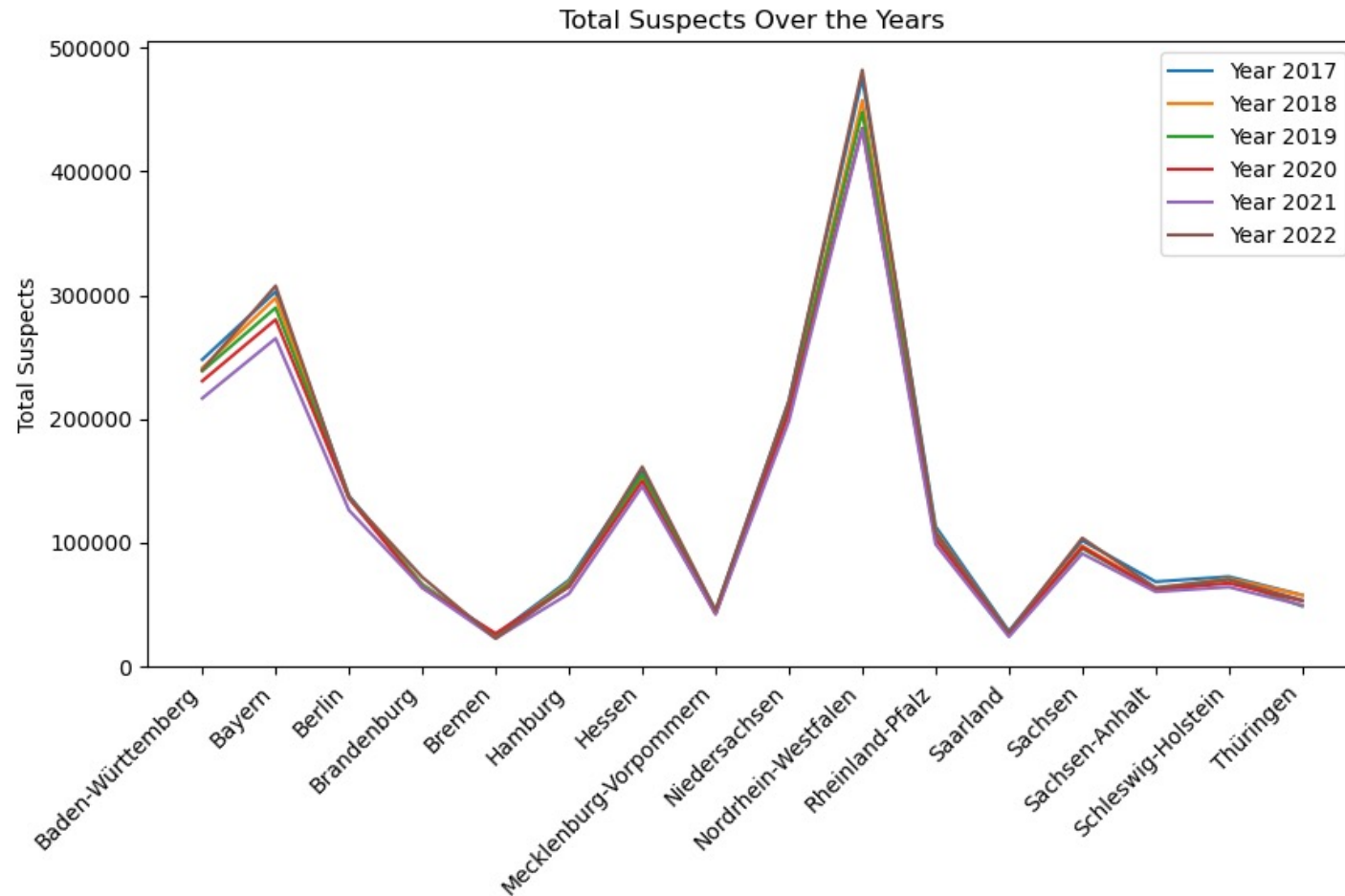
## Exploratory Data Analysis

### Decreasing number of crimes

- Isolation
- Dark figures probably higher
- “Back to normal” in 2022



## Exploratory Data Analysis



## Exploratory Data Analysis

### Most committed crimes in 2020

- Offences involving brutality and crimes against personal freedom
- Supplementary criminal laws
- Property and forgery offences

### Average crime rate per inhabitant per year

- 2018: **2.76%**, 2019: **2.72%**, 2020: **2.69%**, 2021: **2.55%**, 2022: **2.79%**

### Highest/lowest crime rate per state in 2020

- Bremen: **3.93%** (→ in other years Berlin is leading by far)
- Rheinland-Pfalz: **2.65%**

## Regression Analysis – Can The Data Be Used To Predict Future Suspects?

### R-squared and Adjusted R-squared

- **0.010** → variables (crime rate and population) are not a measure for total suspects

### Prob (F-statistic)

- **1.20e-200** → quite low, model is therefore statistically significant

### Coefficients

- Crime rate: **312.22**
- Population: **0.0002**

OLS Regression Results						
Dep. Variable:	total_suspects		R-squared:	0.010		
Model:	OLS		Adj. R-squared:	0.010		
Method:	Least Squares		F-statistic:	462.6		
Date:	Thu, 11 Jan 2024		Prob (F-statistic):	1.40e-200		
Time:	23:36:31		Log-Likelihood:	-9.2701e+05		
No. Observations:	88880		AIC:	1.854e+06		
Df Residuals:	88877		BIC:	1.854e+06		
Df Model:	2					
Covariance Type:	nonrobust					
	coef	std err	t	P> t	[0.025	0.975]
crime_rate	312.2189	330.043	0.946	0.344	-334.663	959.101
population	0.0002	5.75e-06	30.401	0.000	0.000	0.000
const	-754.6485	892.900	-0.845	0.398	-2504.725	995.428
Omnibus:	227627.071		Durbin-Watson:	0.699		
Prob(Omnibus):	0.000		Jarque-Bera (JB):	5632270286.538		
Skew:	29.105		Prob(JB):	0.00		
Kurtosis:	1234.859		Cond. No.	2.44e+08		

## Conclusion and Outlook

### **Huge chunks of data lead to endless analysis possibilities**

→ Streamlining data into common format very time-intensive

### **Accuracy of data not 100% given**

→ A person can be suspect of more than one crime, but only counts as 1 for total suspects

### **Possible approaches for future research**

→ Which other factors are influencing the criminality?