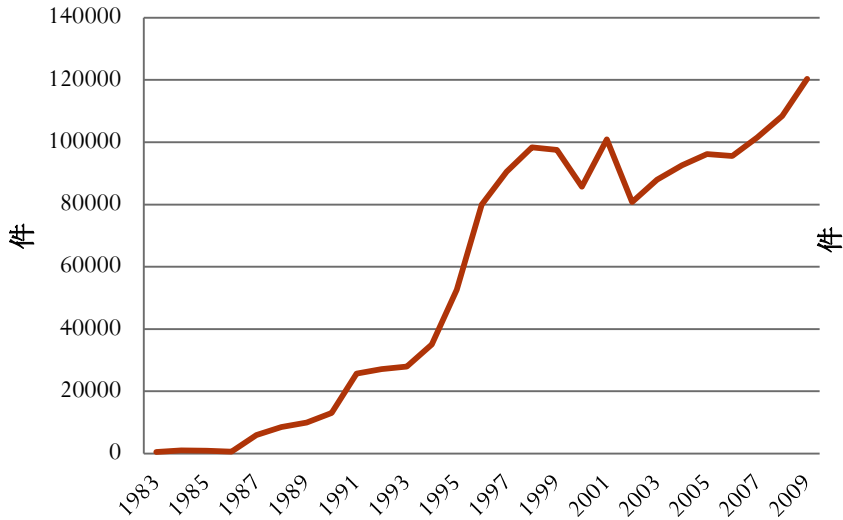


Spatial Study of Crime and Society with Census, Business and GIS data

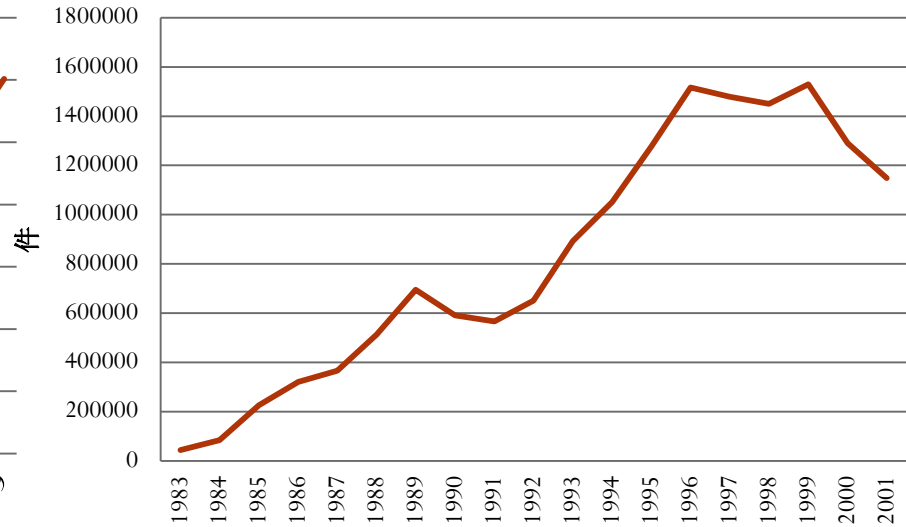
Shuming Bao
China Data Institute

Crime Trends in China

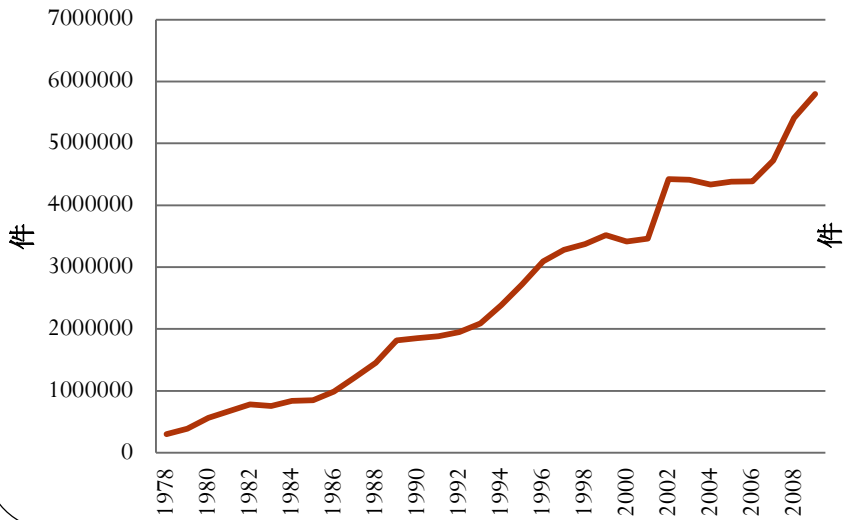
Administrative



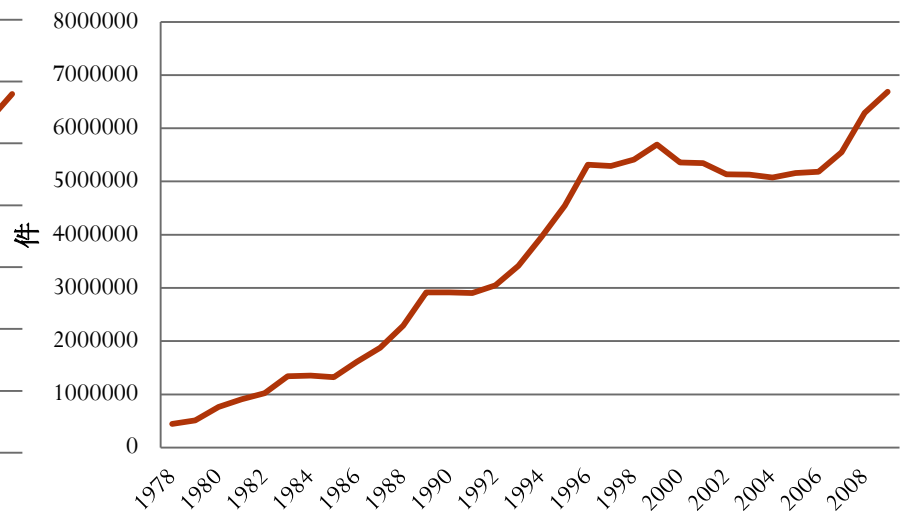
Economic Cases



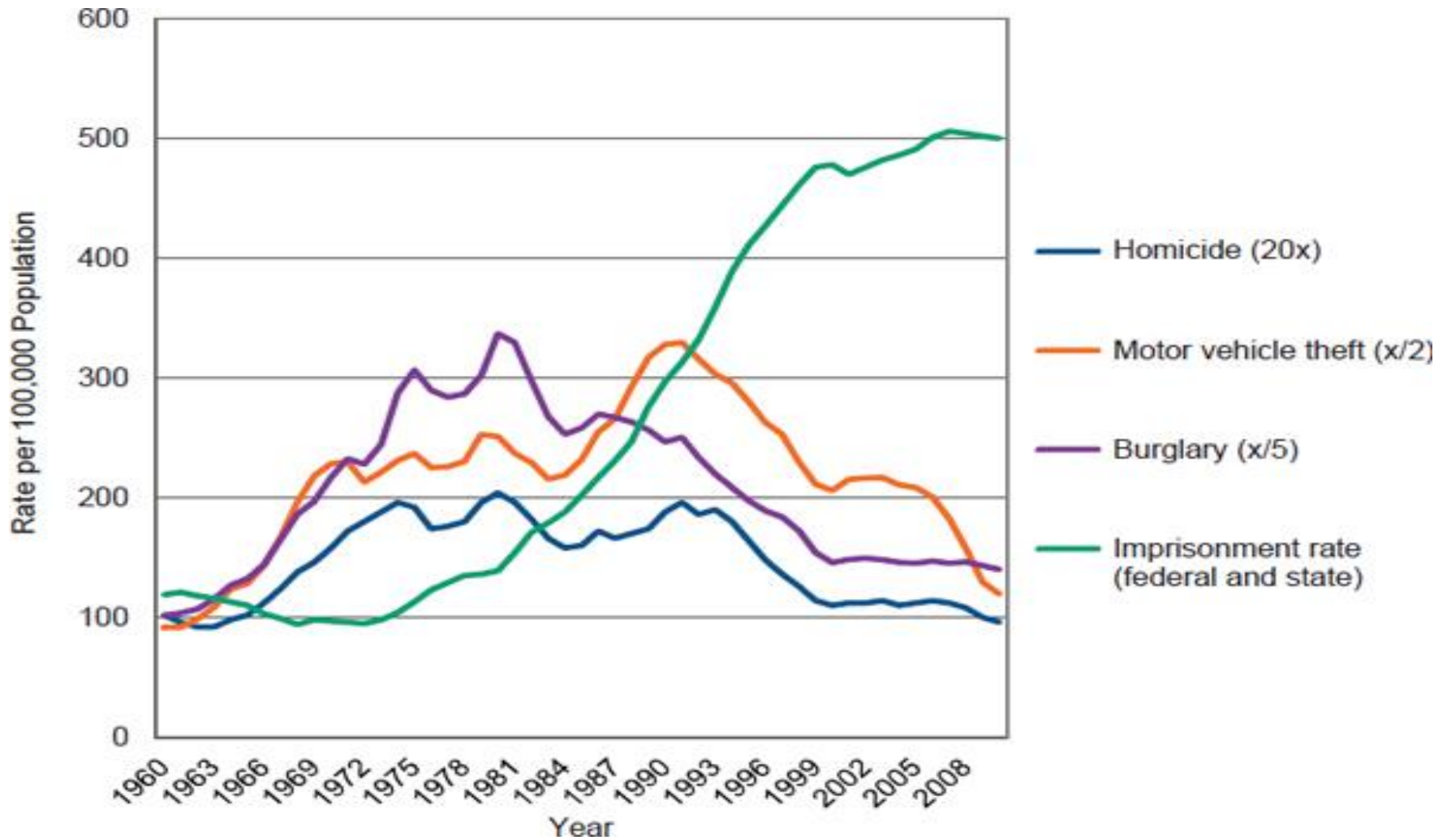
Civil Cases



Tried Cases



Crime Trends in U.S.



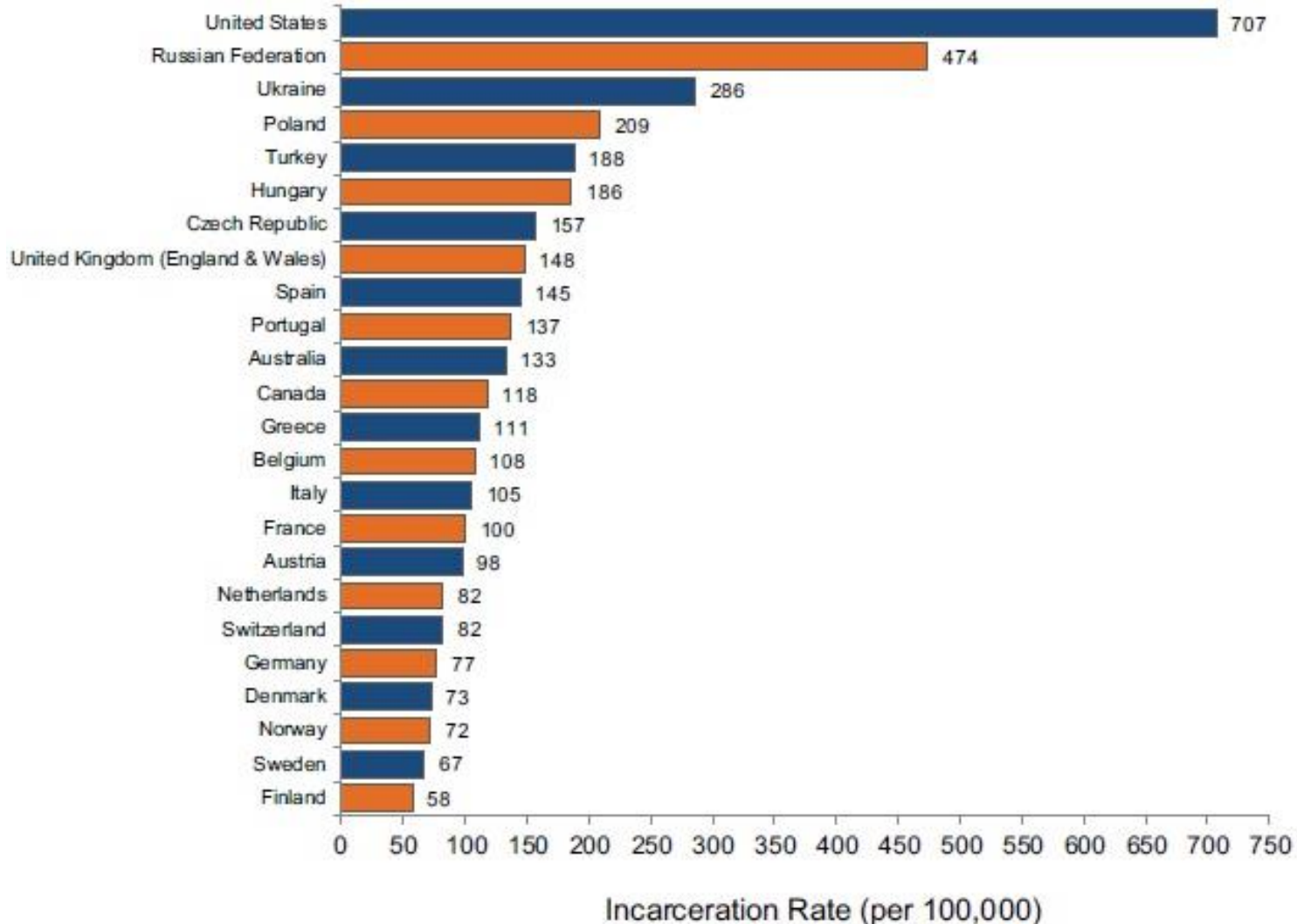
Crime Trends in UK

CHART 14 Other Crime Trends Index (2003-2012)
Only drug offences have increased over the last decade

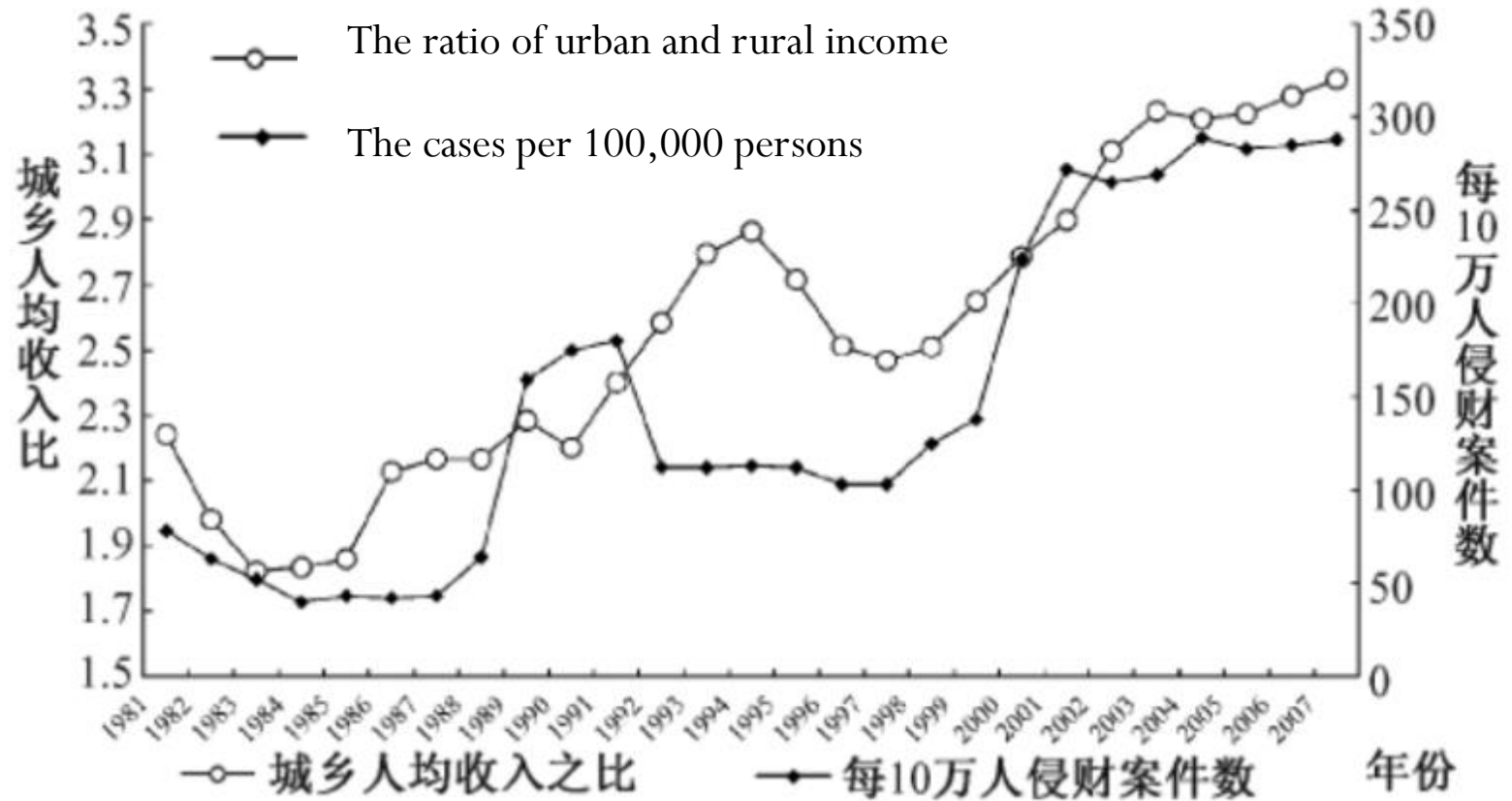


© IEP

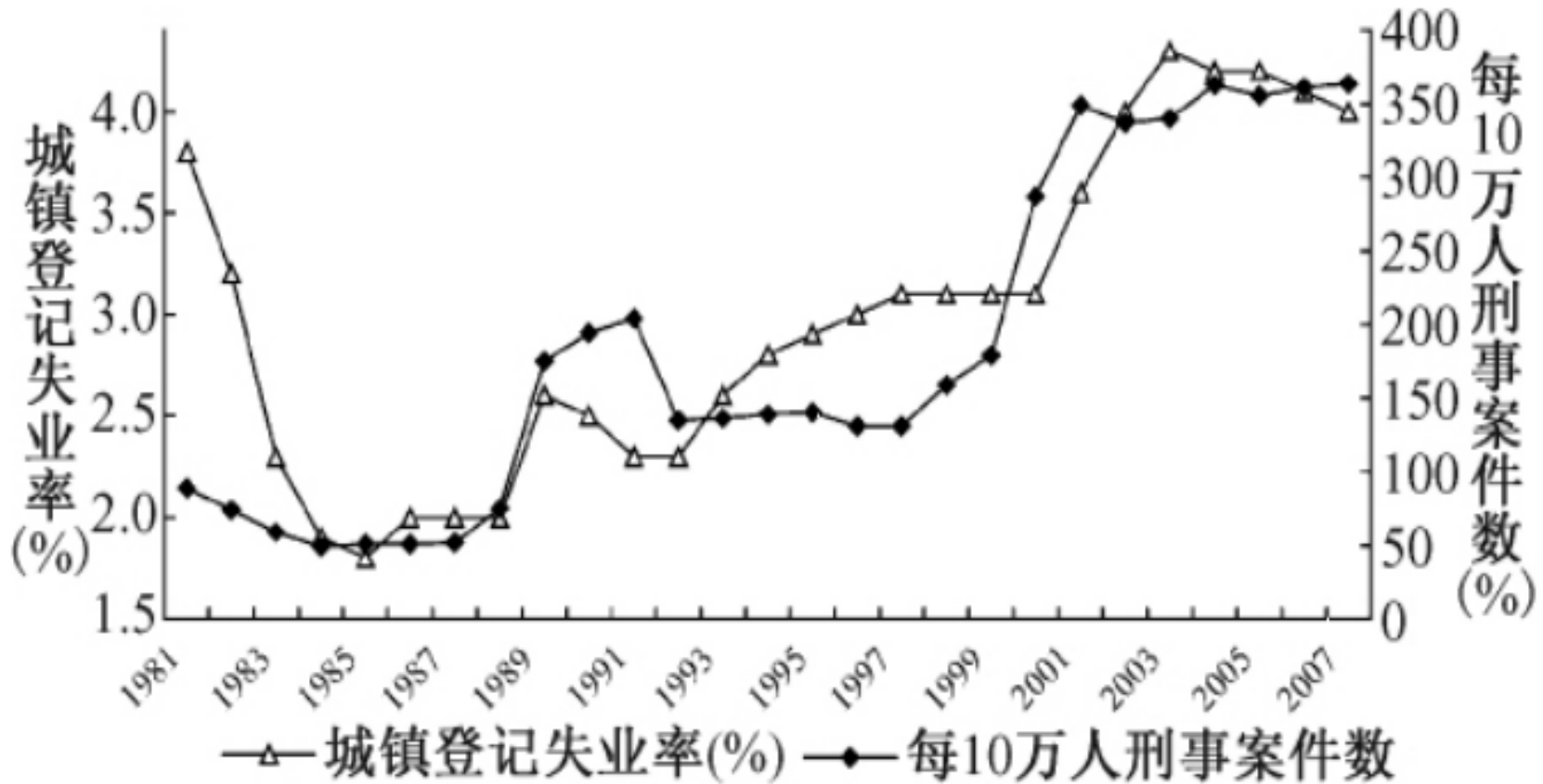
The U.S. has the largest prison population in the world



China: Income Inequality and Crime

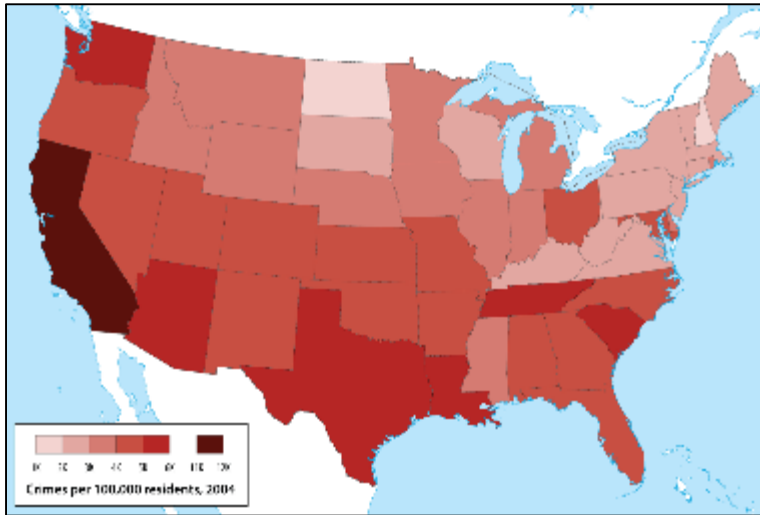


China: Unemployment Rates and Crime

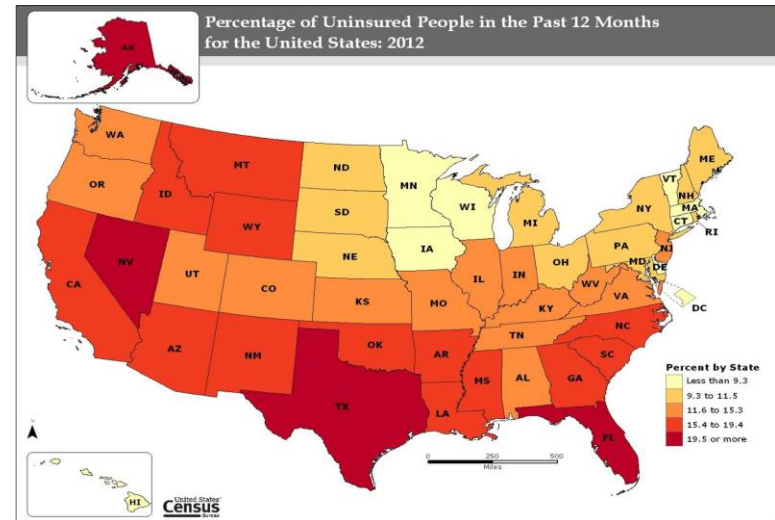


US: Safety, Insurance, Unemployment and Climate

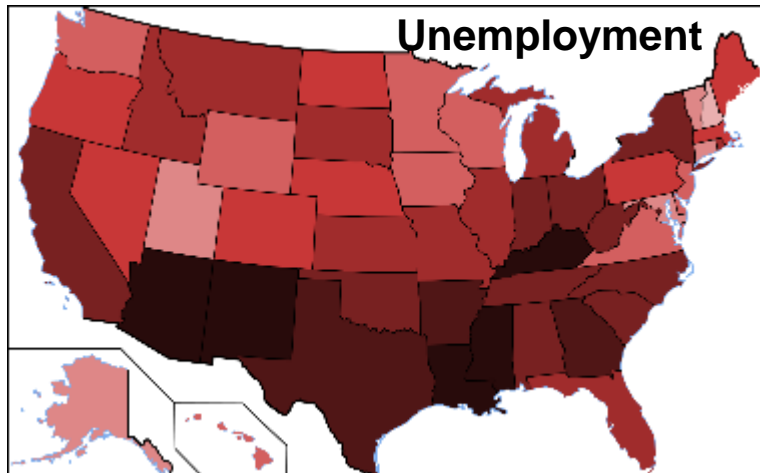
The Map of Safety



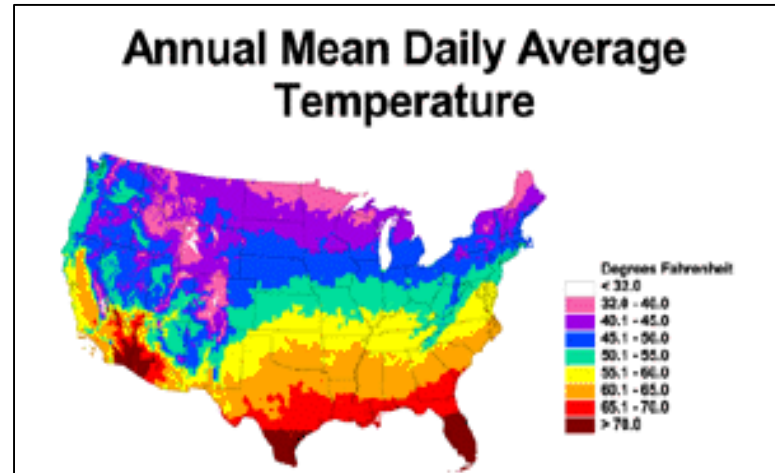
Rates of Uninsured Population



Unemployment



Annual Mean Daily Average Temperature



Spatial Crime: A Spatial Study of Social Ecosystems Based on Crime

A systematic approach

Objective: Complex system

Approach: Ecological analysis

focus: Spatial crime and society

Space + Crime + Society

Why Spatial?

- Location
- Integration
- Time

Spatial Study of Crime and Society

- Spatial **Patterns**
- Spatial **Trends**
- Spatial **Interactions**
- Spatial **Risks**
- Spatial **Policies**

Spatial Theories

□ Spatial Ecology

Eugene Pleasants Odum, 1971, **Fundamentals of Ecology**.

David Tilman, Peter Kareiva, 1997, **Spatial Ecology**, Princeton University Press.

<http://www.amazon.com/Spatial-Ecology-David-Tilman/dp/0691016534>

□ Spatial Diffusion

□ [J. C. Hudson](#), 2010, **Diffusion in a Central Place System**, [Geographical Analysis](#) . 09/2010; (1): 45 - 58;
<http://onlinelibrary.wiley.com/doi/10.1111/j.1538-4632.1969.tb00604.x/pdf>

□ Spatial Attraction

□ Samuel Frenning, **Attraction Theory**, <http://samuelfrenning.efoliomn.com/attraction>

□ Spatial Interaction

□ Jean-Paul Rodrigue, **Spatial Interactions and the Gravity Model**,
<http://people.hofstra.edu/geotrans/eng/methods/ch5m1en.html>

□ Spatial Convergence

□ Farhad Rassekh, 1998, **The Convergence Hypothesis: History, Theory, and Evidence**, *Open economies review* 9: 85–105

□ Spatial Contamination

□ David Greetham, 2010, **The Pleasures of Contamination: Evidence, Text, and Voice in Textual Studies**, Indiana University Press

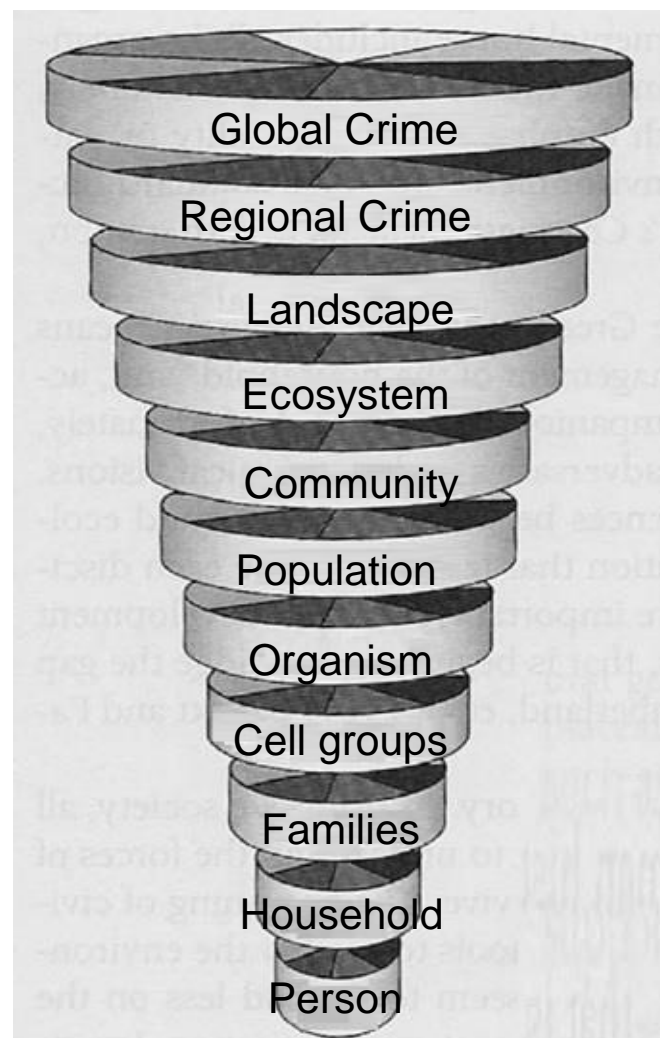
The Fundamental Theory of Spatial Crime: Spatial Ecology

Basic Assumptions:

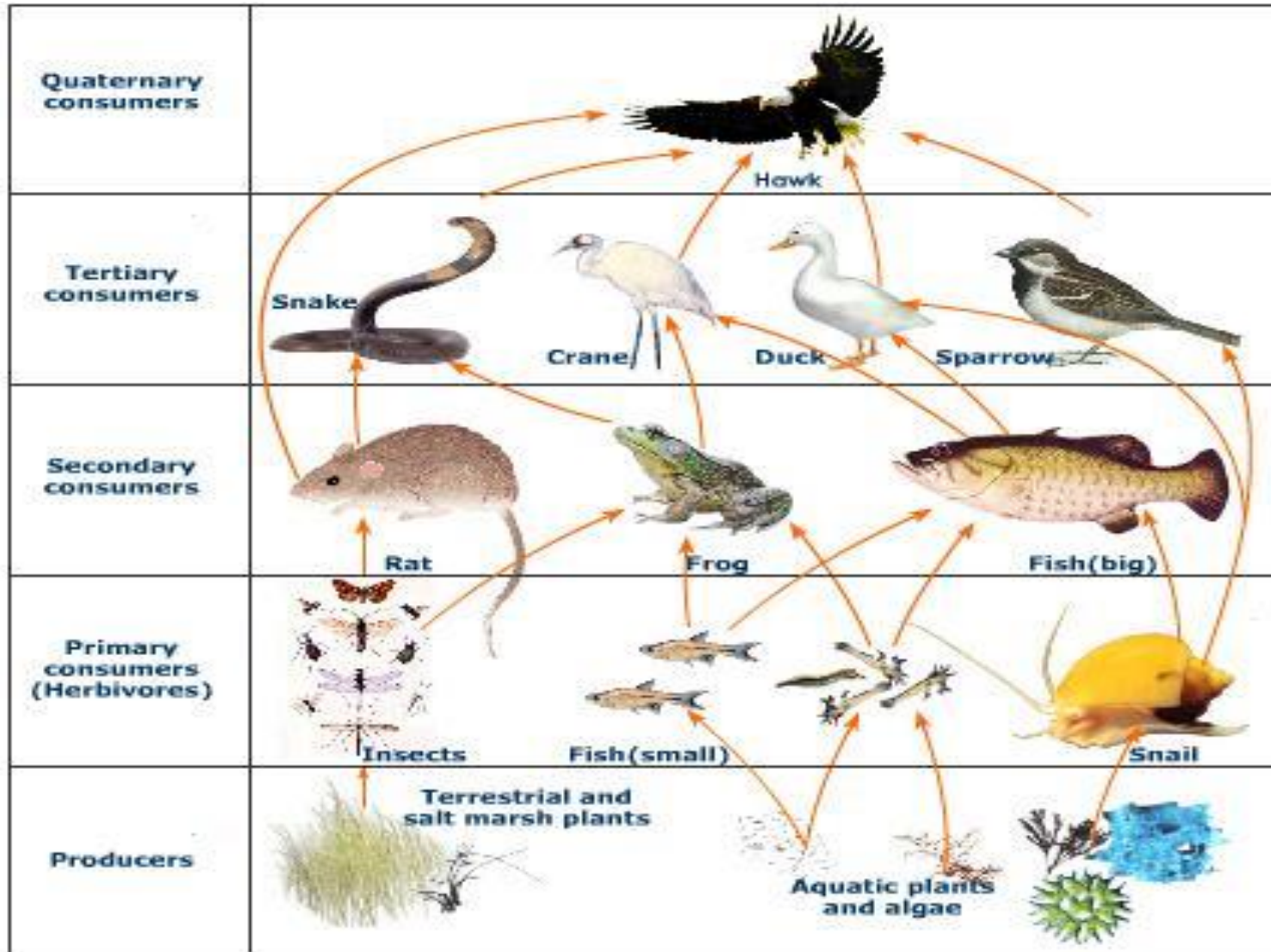
- Degenerative system
- Increasing ecological risks:
 - Environmental risk
 - Health risk
 - Social risk

Core Indicators:

- Biodiversity
- Culture diversity

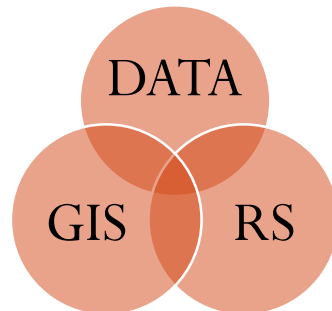
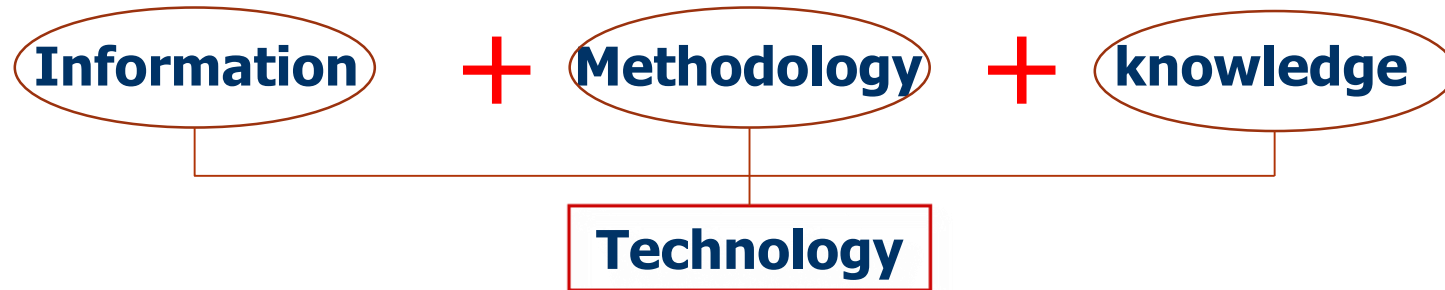


Identify the Biological Chains



Spatial Intelligent Data Analysis

An integration of information, methodology and knowledge for spatial data analysis



$$I(d) = \frac{\sum_i^n \sum_j^n w_{ij} (x_i - \bar{x})(x_j - \bar{x})}{(S^2 \sum_i^n \sum_j^n w_{ij})}$$



China and US Geo-Explorers

An Integration of Spatial Data and Analysis for US and China Studies

Statistics



China Geo-Explorer



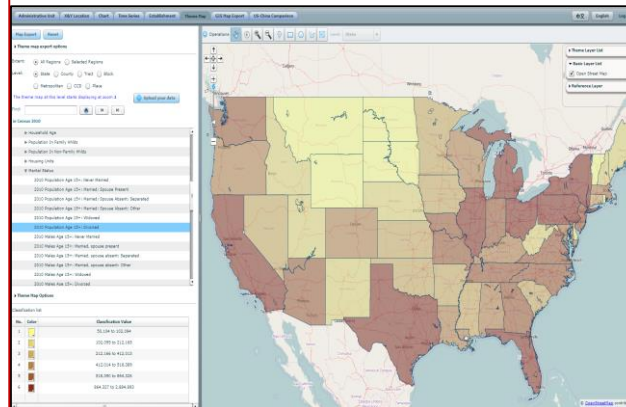
Census



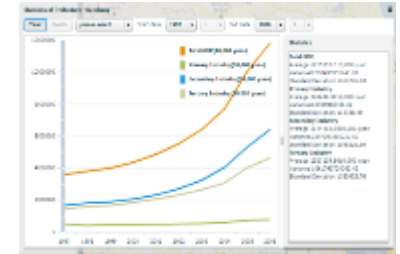
GIS



US Geo-Explorer



Charts

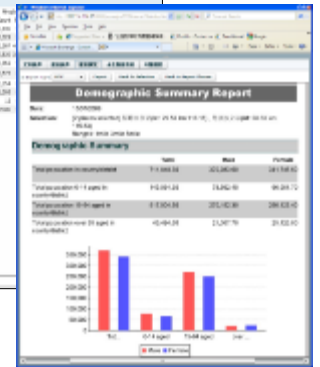


Output

Tables

The screenshot shows a table with demographic data. The table has columns for 'Year', 'Value', and 'Unit'. The data is organized into a grid with multiple rows and columns.

Reports



Maps



China Data Sources



- Government Statistics
 - Provincial Statistics (1949 -)
 - City Statistics (1996 -)
 - County Statistics (1997 -)
- Population Census
 - Census 1953 (GRID)
 - Census 1964 (GRID)
 - Census 1982 (GRID)
 - Census 1990 (GRID)
 - Census 2000/2010 (province, city, county, township, GRID)
- Economic Census
 - Industrial Census 1995 (province, city, county, ZIP)
 - Basic Unit Census 2001 (province, city, county, ZIP)
 - Economic Census 2004/2008 (province, city, county, ZIP)
- Establishments (individual companies and organizations)
 - Industrial Census(1995)
 - Basic Unit Census (2001)
 - Economic Census (2004/2008)
- Geography and Environment
 - Land Use data (GRID)
 - Night-Time data (GRID)
 - Transportation (railway, highway, roads)
 - Rivers and Lakes

US Data Sources

Data Sources:

- Applied Geographic Solutions, Inc. (“AGS” - www.appliedgeographic.com)
- InfoGroup, Inc. (www.infogroup.com)

Data Coverage:

- **Population Census** (State, County, Tract, Block, Metropolitan, CCD, Place)
 - Census 1970
 - Census 1980
 - Census 1990
 - Census 2000
 - Census 2010
 - American Community Survey
- **Establishments** (individual companies and organizations)
 - Firm level records for 2013 (85 fields)
 - Aggregated data by State, County, Tract, Block, Metropolitan, CCD, Place, ZIP (1997-2013)



US Data Lists

- [US Population Census Data](#)
- [US Economic Census Data](#)
- [US Business Data](#)
- [US Firm Microdata](#)
- [US Household Microdata](#)

US Data Contents

Population Census

index	code	ename
1	pop10	Population
2	rac10white	Race White Alone
3	rac10black	Race Black Alone
4	rac10amind	Race American Indian
5	rac10asian	Race Asian Alone
6	rac10hawai	Race Native Hawaiian
7	rac10other	Race Some Other Race
8	rac10mult	Two or More Races
9	his10nhisp	Population Non-Hispanic
10	his10hisp	Population Hispanic or
11	rch10whnhs	Non Hispanic White Alone
12	rch10blnhs	Non Hispanic Black Alone
13	rch10amnhs	Non Hispanic American Indian
14	rch10asnhs	Non Hispanic Asian Alone
15	rch10hanhs	Non Hispanic Native Hawaiian
16	rch10otnhs	Non Hispanic Some Other Race
17	rch10munhs	Non Hispanic Two or More Races
18	rch10whhis	Hispanic White Alone
19	rch10blhis	Hispanic Black Alone
20	rch10amhis	Hispanic American Indian
21	rch10ashis	Hispanic Asian Alone
22	rch10hahis	Hispanic Native Hawaiian
23	rch10othis	Hispanic Some Other Race
24	rch10muhis	Hispanic Two or More Races
25	sex10mal	Population Male
26	sex10fem	Population Female
27	age100004	Population Age 0-4
28	age100509	Population Age 5-9
29	age101013	Population Age 10-13
30	age101417	Population Age 14-17
31	age101820	Population Age 18-20

Business Data

COMPANY NAME
 ADDRESS
 CITY / STATE / ZIP + 4
 CONTACT
 POPULATION
 FIRM/INDIVIDUAL/PROFESSIONAL
 EMPLOYEE SIZE
 SALES VOLUME
 SIC / NAICS
 ADSIZE
 YEAR 1ST APPEARED
 PUBLIC/PRIVATE
 LATITUDE
 LONGITUDE

Household Data

ADULT AGE RANGE
 MARITAL
 GENDER
 RELIGION
 CREDIT CARD
 EXPENDABLE
 HOUSEHOLD INCOME
 HOME VALUE
 HOME SALE PRICE
 MORTGAGE
 LANGUAGE
 RESIDENCE
 NIELSON REGION
 YEARS OF SCHOOLING
 MFDU - # OF UNITS
 OCCUPATION
 METRO/MICRO
 DELIVERY SERVICE
 POLITICAL PARTY
 VEHICLE
 AIRCRAFT
 PILOT LICENSE
 BOAT PROPULSION
 INTERNET

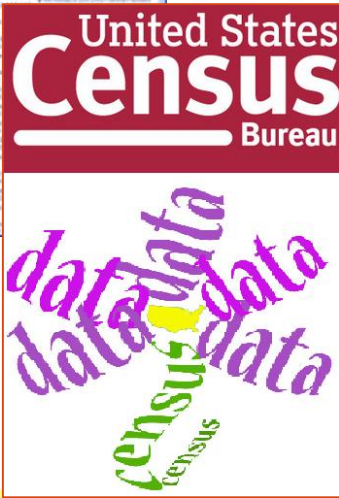
Features of US & China Geo-Explorer

- Rich and unique databases
- Flexible functions for data selection
- Multiple formats for data export
- Easy and time-saving reports, charts, and maps
- Unlimited data from limited data
- Integration of users' data with the online database
- **No GIS skills needed for spatial analysis and mapping**

Spatial Explorer of Crime

Spatial Intelligence for Space-Time Data Integration and Analysis

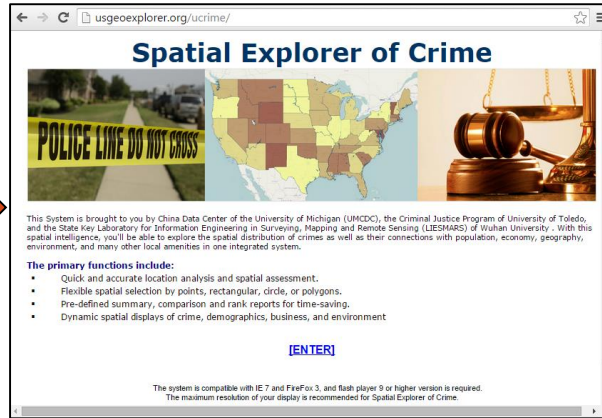
Statistics



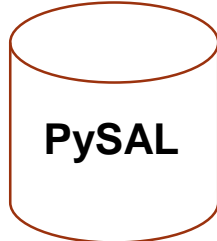
Census



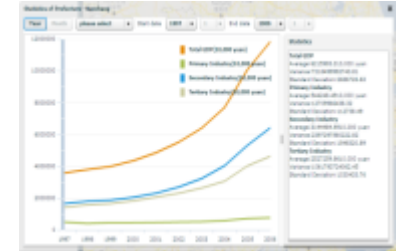
GIS



Modeling

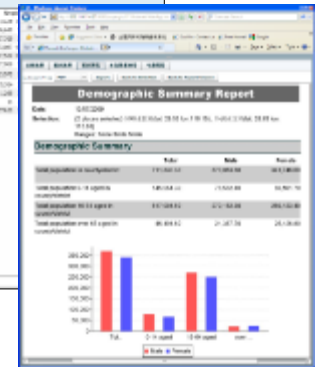


Charts



Tables

Reports



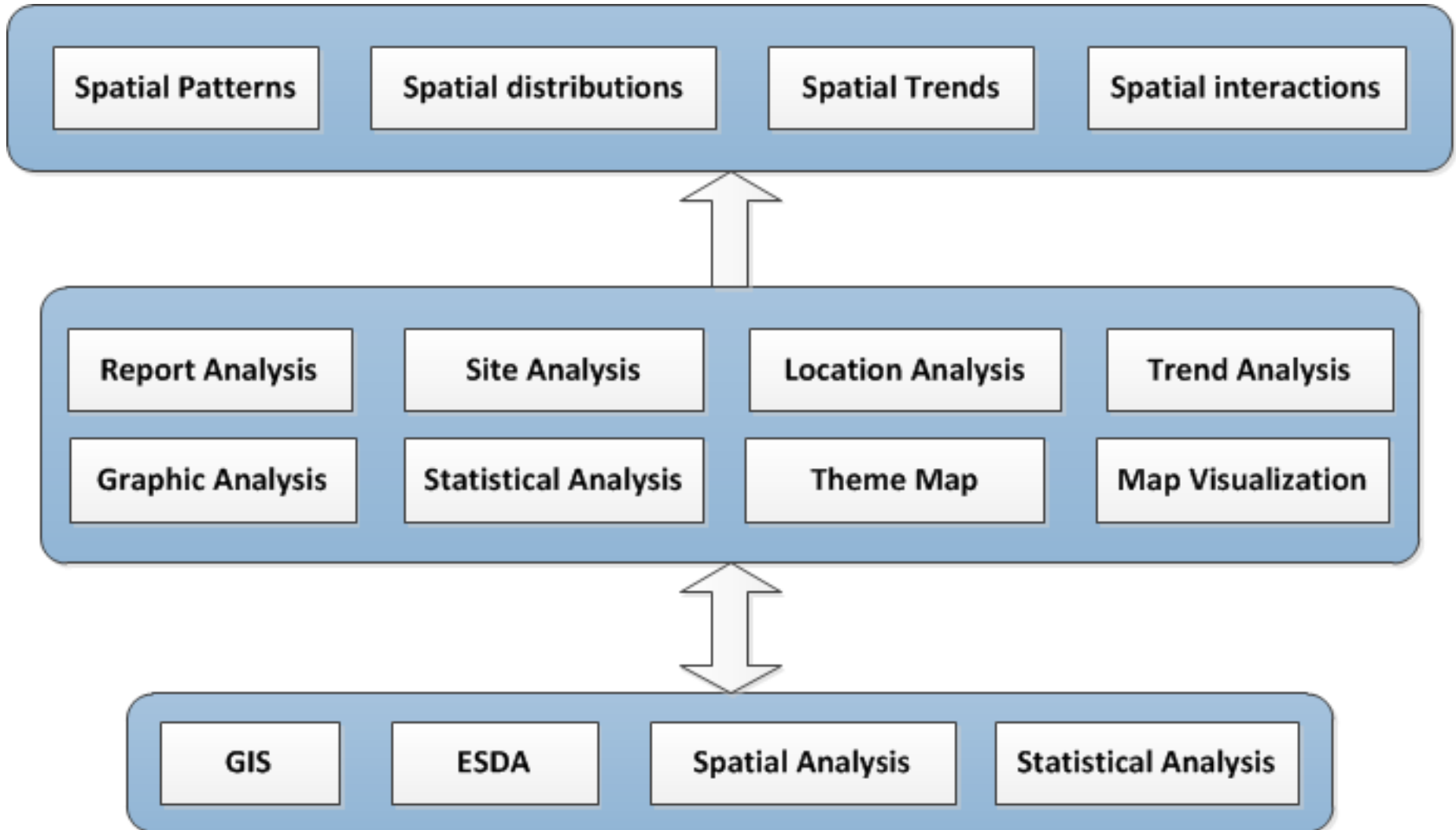
Maps



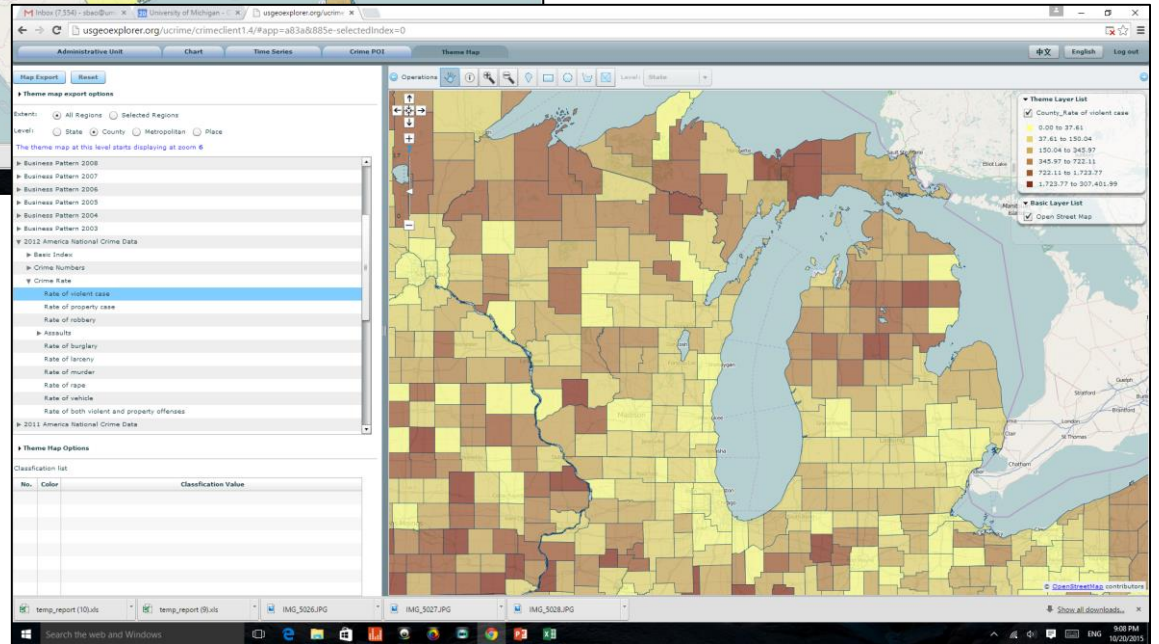
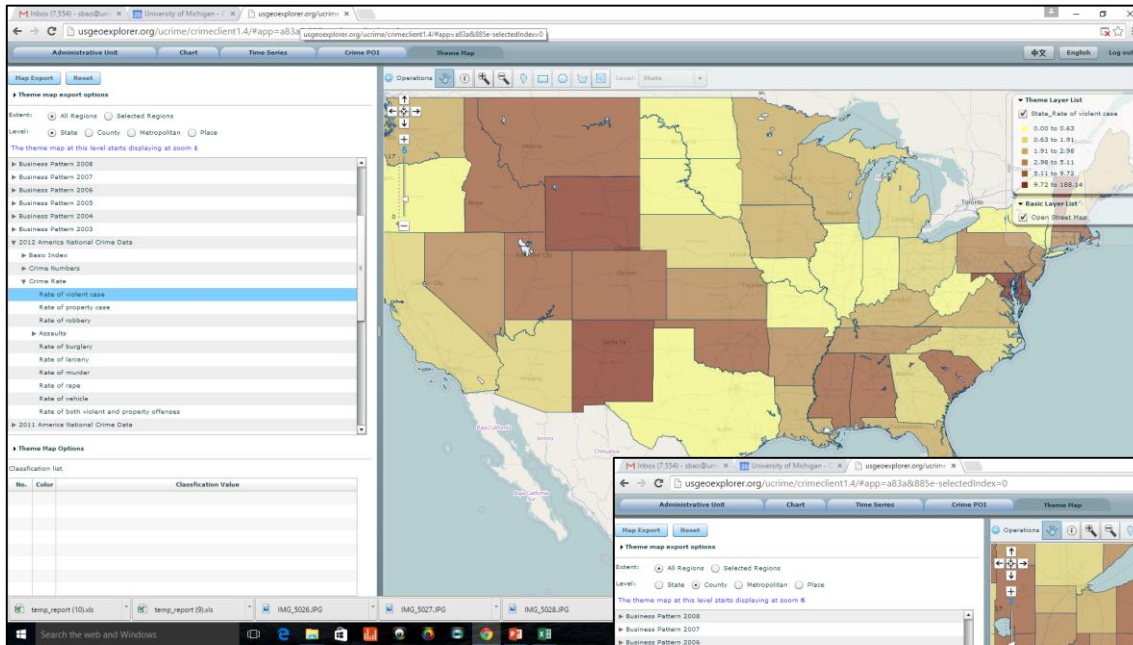
US Crime Data

- Capital Punishment in the United States
- Chicago Women's Health Risk Study
- Expenditure and Employment for the Criminal Justice System
- Federal Justice Statistics Program
- Geographical Information Systems
- Homicide
- Homicides in Chicago
- Law Enforcement Management and Administrative Statistics
- National Corrections Reporting Program
- National Crime Victimization Survey
- National Incident-Based Reporting System
- National Juvenile Corrections Data
- Project on Human Development in Chicago Neighborhoods (PHDCN)
- Survey of Inmates in State and Federal Correctional Facilities
- Terrorism & Preparedness Data Resource Center (TPDRC)
- Uniform Crime Reporting Program
- Violence Against Women
- Crime reports from local police departments
-

Methodology



Violent Crimes by States and Counties



Report Analysis

The image displays three screenshots from the usgeoexplorer.org website, illustrating report analysis capabilities.

Top Left Screenshot: Shows a map of the United States with a pink highlighted region in the Midwest. An Excel spreadsheet is overlaid, displaying a "Household Summary" table with columns for Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, and Missouri. The table includes rows for Total Households, Family Households, and Collective Households, with sub-rows for Age 0 to 14 and Age 65 or more.

	Illinois	Indiana	Iowa	Kentucky	Michigan	Minnesota	Missouri
Total Households	4,836,972	2,502,154	1,221,578	1,719,965	3,872,508	2,087,227	2,376,611
Family Households	3,182,884	1,674,126	795,034	1,149,905	2,534,073	1,349,015	1,552,133
Collective Households	1,653,908	828,028	431,542	570,060	1,338,435	738,212	823,478
Total Population	12,830,632	6,483,802	3,046,355	4,335,367	9,483,645	5,303,935	6,068,972
Age 0 to 14	2,574,430	1,287,215	619,078	867,156	1,916,711	1,078,965	1,217,511
Age 65 or more	1,609,213	804,606	380,239	528,367	1,167,435	630,915	708,972

Top Right Screenshot: Shows a map of the United States with a yellow highlighted region in the Midwest. An Excel spreadsheet is overlaid, displaying a "Population Summary" table with columns for Count and %.

	Count	%	Count
Total Households	5,945,616	100.0 %	14,096,454
Family Households	3,847,090	64.7 %	2,091,880
Collective Households	1,998,526	33.6 %	2,015,240

Bottom Screenshot: Shows a detailed report menu with various options:

- Summary Report
 - Age Detail Summary Report
 - Demographic Summary Report
 - Education Summary Report
 - Economic Summary Report
 - Employment Summary Report
 - Household Summary Report
 - Housing Detail Summary Report
 - Migration Summary Report
 - Household Income Summary Report
- Compare Report
 - Age Detail Comparison
 - Demographic Comparison Report
 - Education Comparison Report
 - Employment Comparison Report
 - Household Comparison Report
 - Housing Comparison Report
 - Migration Comparison Report
 - Household Income Comparison Report
- Original Report
 - Age Report
 - Demographic Report
 - Education Report
 - Employment Report
 - Household Report
 - Housing Report
 - Migration Report
 - Household Income Rank Report

Report Options

Selection Detail

Crime Site Analysis

usgeoexplorer.org/ucrime/crimeclient1.4/#app=a83a&885e-selectedIndex=0

Administrative Unit | Chart | Time Series | **Crime POI** | Theme Map

Selection: Plot of starting year

Back To Search: All Type

Number of Crime: over 2000

Keywords: Ohio, Lucas County, Toledo city

1 - 50 <=<=< [1] [2] [3] [4] >=>

ACC0006708
 CrimeType: Accidents Injury | Address: 4945 DORR NULL

ACC0006709
 CrimeType: Accidents Injury | Address: 4405 DORR NULL

ACC0006710
 CrimeType: Accidents Injury | Address: 650 DETROIT NULL

ACC0006711
 CrimeType: Accidents Injury | Address: 1712 DETROIT NULL

ACC0006712
 CrimeType: Accidents Injury | Address: 2102 EASTGATE NULL

ACC0006713
 CrimeType: Accidents Injury | Address: 3000 ARLINGTON NULL

ACC0006714
 CrimeType: Accidents Injury | Address: 1700 DOUGLAS NULL

ACC0006715
 CrimeType: Accidents Injury | Address: 3560 DORR NULL

The Number of establishments: All Type. For the first 2000 establishments from advanced search

Crime type: All Type | Start year: 1994 | End year: 2014 | EXCEL

Year	Number of Crimes
1994	20000
1995	19000
1996	19000
1997	28000
1998	32000
1999	31000
2000	35000
2001	34000
2002	31000
2003	29000
2004	31000
2005	30000
2006	28000
2007	27000
2008	25000
2009	33000
2010	24000
2011	37000
2012	30000
2013	40000
2014	37000

Detailed Information

Accident Date	2014-02-02 01:30:00.000
Accident Number	201401081
Accident Type	Injury
Citation Number	NULL
City Code	NULL
Cross Street	NULL
Day Of Week	SUN
Dispatch Number	NULL
In Intersection Flag	NULL
Injury Count	NULL
Latitude	41.6532207280397
Lighting Involved Flag	NULL
Longitude	-83.6594691127539
Modific Datetime	2014-02-04 08:50:52.910
NORIS Agency Code	TOLPOL
Noris Technical Key	1000931092
On Road Flag	NULL
Road Condition Code	NULL
Street Name	DORR
Street Number	4945
Unique ID	ACC0006708
Unit Count	02

Theme Layer List: Crime POI, Accident, Incident, Offense, Vehicle

Basic Layer List: Open Street Map

temp_report (10).xls | temp_report (9).xls | IMG_5026.JPG | IMG_5027.JPG | IMG_5028.JPG

Show all downloads...

9:04 PM 10/20/2015

Crime Site Analysis

The screenshot displays a web-based Crime Site Analysis tool. The main interface features a map of Shanghai with a yellow circular area highlighting a specific region. A 'Report Preview' window is open, showing a 'Demographic Summary Report' for the date 09/03/2012. The report includes a 'Population Summary' table and a 'Family Households with Presence of Children' table. The browser address bar shows 'http://chinaonline.org'. The tool's interface includes various navigation and reporting options, such as 'Report List', 'Summary Report', and 'Compare Report'.

Demographic Summary Report

Date: 09/03/2012
 Selection: (3 places selected) 1(lat: 31.23 lon:121.47) , 2(lat: 31.05 lon:121.23) , 3(lat: 31.31 lon:121.14)
 Ranges: 1mile 3mile 5mile

Population Summary

	Count	%	Ratio or Average
Total Households	2,149,773	100.0 %	Average Size: Family Households 3
Family Households	2,037,118	94.8 %	Sex Ratio: Family Households 100.0
Collective Households	112,655	5.2 %	Sex Ratio: Collective Households 227.0
Population Age 0 to 14	722,326	11.5 %	Dependency Ratio of Children 16.0
Population Age 65 or more	866,775	13.8 %	Dependency Ratio of the Aged 13.0
Total Population	6,291,464	100.0 %	Total Dependency Ratio 30.0

Family Households with Presence of Children

	Count	%	Count	%	
Children 0-4 years old	144,779	7.1 %	Children 10-14 years old	362,227	17.8 %

Crime Trend Analysis

The screenshot displays a web-based crime trend analysis application. The interface includes a navigation bar with tabs for Administrative Unit, Chart, Time Series, Crime POI, and Theme Map. The main content area shows three state-level crime trend charts for Michigan, Ohio, and Minnesota, each with a corresponding statistics panel and a map view.

State Crime Statistics

- Police Agency
- Index
- Region List
- Crime Number
 - Index
 - Count of violent offenses
 - Count of property offenses
 - Count of robberies with stam
 - Count of robberies with gun
 - Count of robberies with owpn
 - Count of robberies
 - Count of robberies with knife
 - Count of assaults with gun
 - Count of assaults with knife
 - Count of simple (misdemeanor) assaults
 - Count of felony assaults
 - Count of vehicle thefts
 - Count of larceny thefts
 - Count of both violent and property offenses
 - Count of manslaughter
 - Count of burglaries
 - Count of murders
 - Count of rapes
 - Region List
 - Ohio
 - Oklahoma
 - Oregon
 - Pennsylvania
 - Rhode Island
 - South Carolina
 - South Dakota
- Crime Rate
 - Index
 - Region List
- Metropolitan Crime Statistics

Crime Number - Michigan

Start date: 1990, End date: 2010, Export

Statistics:

- Count of violent offenses: Average: 55003.19, Variance: 55185589.87
- Count of property offenses: Average: 333867.38, Variance: 3112164941.28
- Count of robberies: Average: 15151.1, Variance: 13758482.66
- Count of simple (misdemeanor) offenses: Average: 3709.2, Variance: 13758482.66

Crime Number - Ohio

Start date: 1990, End date: 2010, Export

Statistics:

- Count of violent offenses: Average: 39241.57, Variance: 51797279.58
- Count of property offenses: Average: 348555.29, Variance: 676244612.2
- Count of robberies: Average: 26004.7, Variance: 6247479.57
- Count of simple (misdemeanor) offenses: Average: 16941.38, Variance: 2499.5

Crime Number - Minnesota

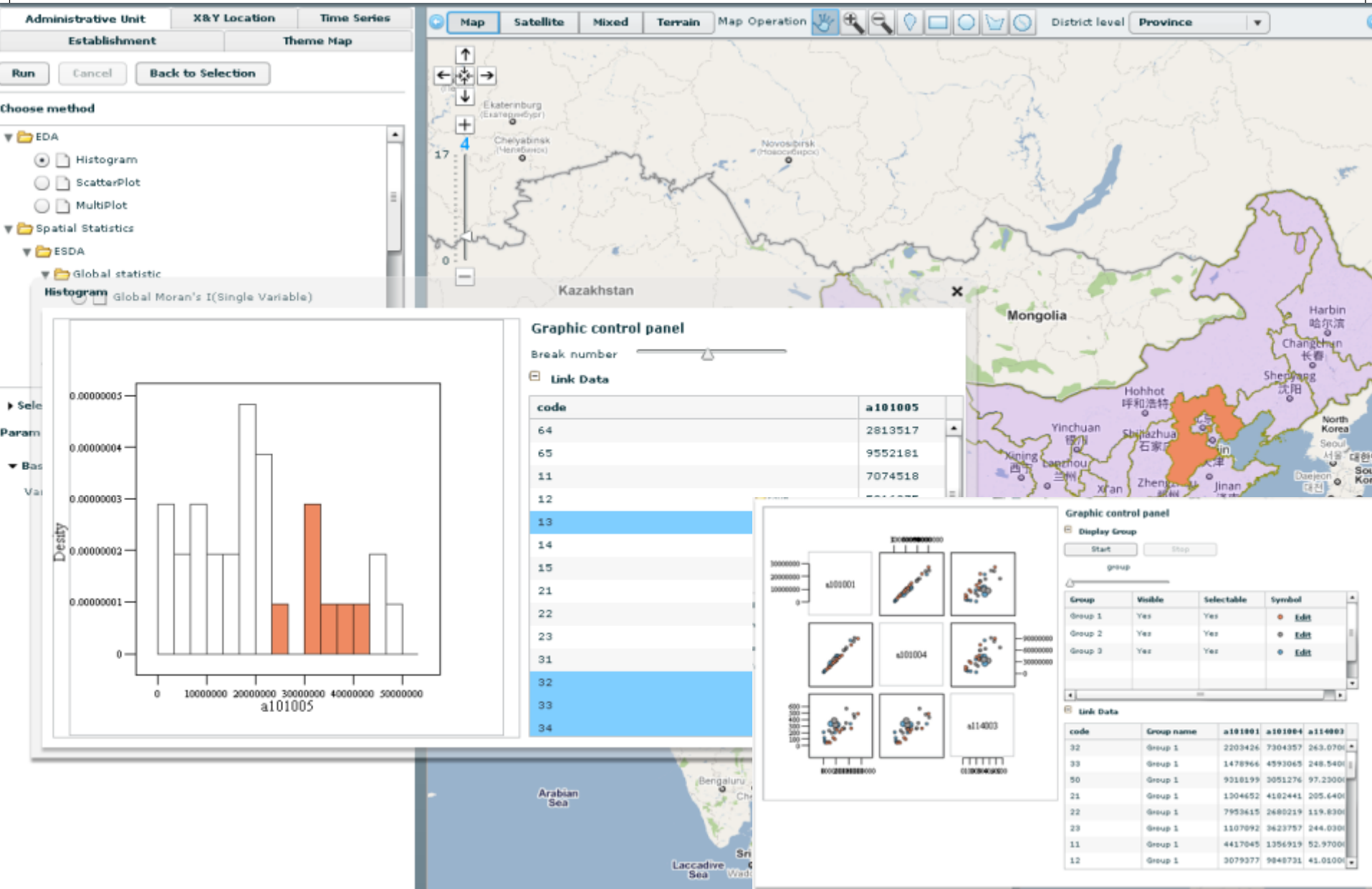
Start date: 1990, End date: 2010, Export

Statistics:

- Count of violent offenses: Average: 13660.57, Variance: 3295319.96
- Count of property offenses: Average: 159766.52, Variance: 369136675.01
- Count of robberies: Average: 4303.33, Variance: 884707.17
- Count of simple (misdemeanor) offenses: Average: 940.59, Variance: 940.59

Windows taskbar: temp_report (10).xls, temp_report (9).xls, IMG_5026.JPG, IMG_5027.JPG, IMG_5028.JPG. System tray: Show all downloads, 9:15 PM, 10/20/2015.

Graphic Analysis



Statistical Analysis

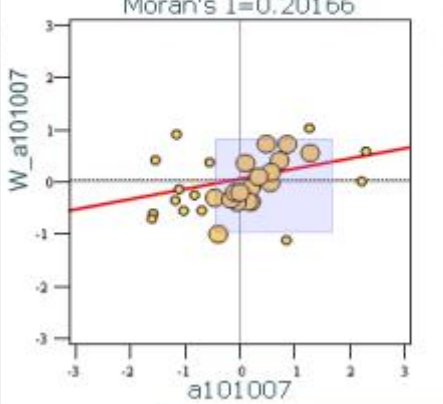


District Selection Coordinate Selection Observation Point
 Stat. Report Stat. Map Theme Layer
 Run

Choose method
 Spatial Statistics
 Global statistic
 Global Moran's I(Single Variable)
 Global Moran's I(Double Variable)
 Global Geary's C
 Local statistic
Local Moran's I(Single Variable)
 Local Moran's I(Double Variable)
 Local Geary's C
 Local Gi
 Spatial Weight
 Spatial weight visualization

Param selection
 Basic Parameter
 Variable: a101007
 Spatial Weight
 Spatial weight type: Rook contiguity
 order: 1
 Include lower orders:
 Standardization: Row Standardized
 Test
 Test type: Random Distribution
 Level of significance: 0.05

Map Satellite Mixed Terrain Map Operation
 District level: Province

Theme Layer List
Basic Layer List
 Base Layer
Reference Layer List
 (vms)topp:province_2000a
 (vms)topp:prefecture_2000
 (vms)topp:county_2000a
 (vms)topp:township_2000a
 (vms)topp:grid
 Result Layer
 Selection Layer

Local Moran's I(Single Variable)
 Statistical graph and theme map Output Table Params Info
 Moran's I=0.20166

 Hide Unsigned:
 Selection type: rectangle
 Size: 3
 Shape: circle
 Fill color: 
 Stroke color: 
 Legend:
 pattern pValue
 Not significant
 High-High
 Low-Low
 Low-High
 High-Low
 Exclude empty groups
 Set as selection groups

Questions about Spatial Explorer of Crime

- What kind data I should have for converting it into spatial explorer of crime?
- Can I add data into spatial explorer of crime by myself?
- When I download data, how to link my data with other socioeconomic and crime data via geo-explorer of crime?
- If I have crime data from other sources, what can I benefit from using spatial explorer of crime?
- What are the differences between spatial explorer of crime and some other online crime mapping tools such as <http://www.crimemapping.com>?

Workflows with Spatial Explorer of Crime

data-planet.com → Excel → usgeoexplorer.org

The screenshot displays the US Geo Explorer web application interface. The main map shows the United States with a color-coded classification of drug abuse per 100,000 persons. The legend on the left indicates the following classification values:

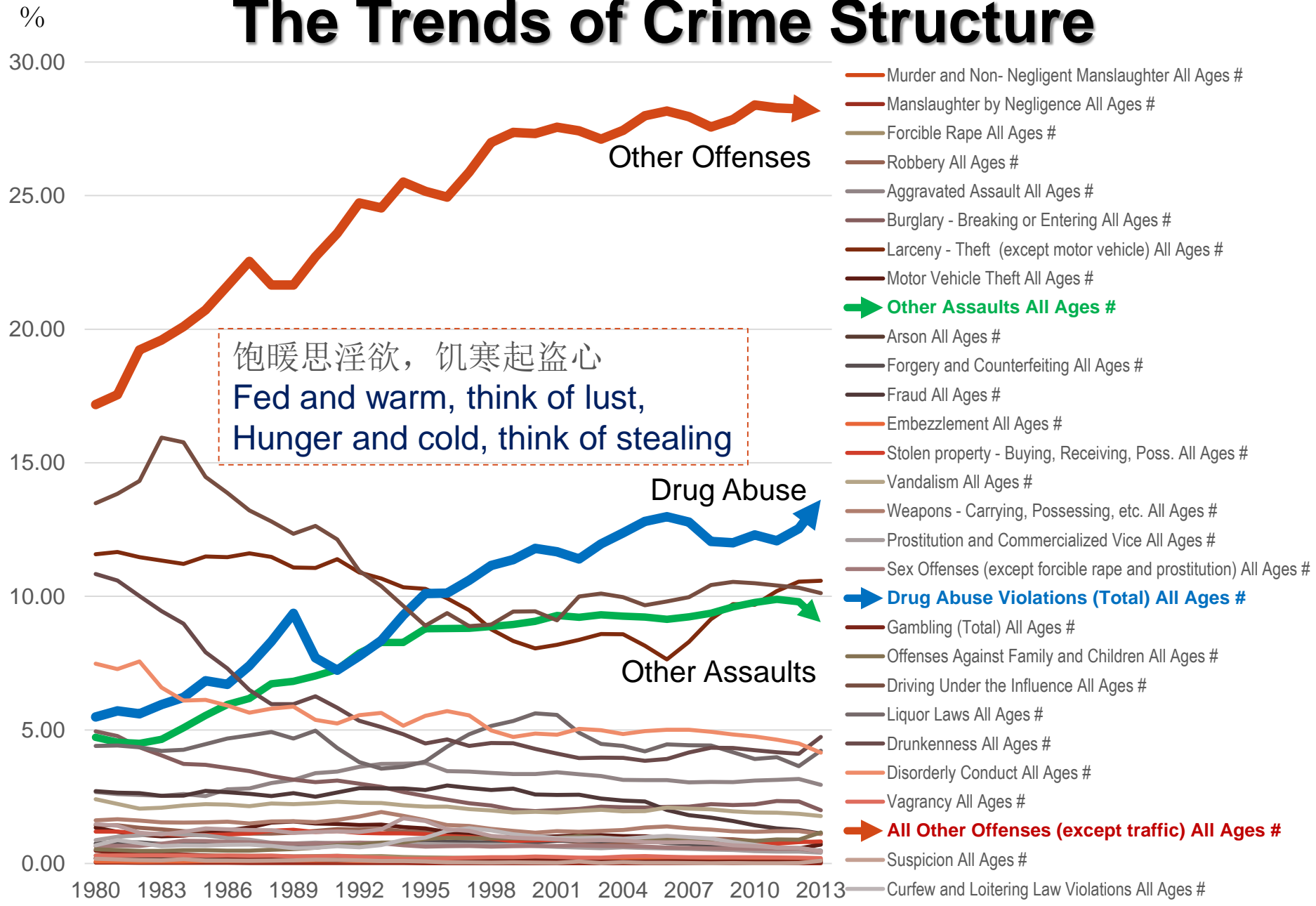
No.	Color	Classification Value
1	Lightest Yellow	0.00 to 213.22
2	Light Yellow	213.23 to 324.91
3	Yellow	324.92 to 446.80
4	Light Orange	446.90 to 475.52
5	Orange	475.53 to 597.81
6	Darkest Orange	597.81 to 4,414.31

The interface includes a sidebar with 'Map Export' options, 'Your Data' (listing 'crime_Upload' and 'Drug Abuse Per 100,000 Persons'), and 'Theme Map Options'. A red box highlights the 'Upload your data' button with the text 'upload the data'. The browser address bar shows 'usgeoexplorer.org/uetest/ugeclient1023/#app=739a&7724-selectedIndex=1'. The Windows taskbar at the bottom shows the system clock at 9:23 PM on 10/26/2015.

Applications

- ◆ Spatial **Patterns** of Crime
- ◆ Spatial **Trends** of Crime
- ◆ Crime and **Population**
- ◆ Crime and **Economy**
- ◆ Crime and **Environment**
- ◆ Crime and **Social Development**
- ◆ **Policy Impacts** on Local Crime
- ◆ **Location Decision** of Public Security Facilities

The Trends of Crime Structure



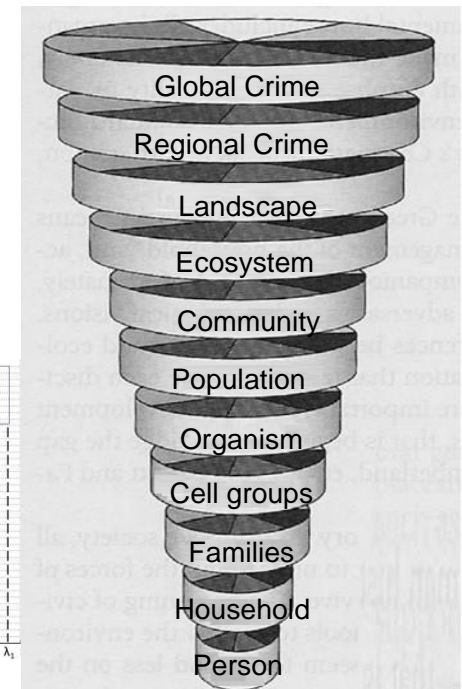
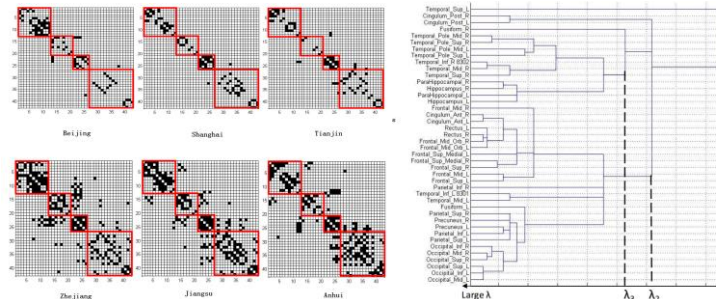
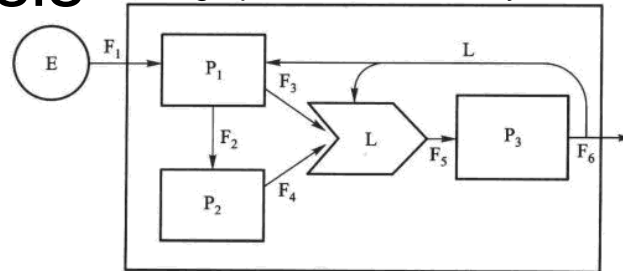
Data Source: FBI Arrest Report, <http://data-planet.com/>

- Murder and Non- Negligent Manslaughter All Ages #
- Manslaughter by Negligence All Ages #
- Forcible Rape All Ages #
- Robbery All Ages #
- Aggravated Assault All Ages #
- Burglary - Breaking or Entering All Ages #
- Larceny - Theft (except motor vehicle) All Ages #
- Motor Vehicle Theft All Ages #
- ➔ **Other Assaults All Ages #**
- Arson All Ages #
- Forgery and Counterfeiting All Ages #
- Fraud All Ages #
- Embezzlement All Ages #
- Stolen property - Buying, Receiving, Poss. All Ages #
- Vandalism All Ages #
- Weapons - Carrying, Possessing, etc. All Ages #
- Prostitution and Commercialized Vice All Ages #
- Sex Offenses (except forcible rape and prostitution) All Ages #
- ➔ **Drug Abuse Violations (Total) All Ages #**
- Gambling (Total) All Ages #
- Offenses Against Family and Children All Ages #
- Driving Under the Influence All Ages #
- Liquor Laws All Ages #
- Drunkenness All Ages #
- Disorderly Conduct All Ages #
- Vagrancy All Ages #
- ➔ **All Other Offenses (except traffic) All Ages #**
- Suspicion All Ages #
- Curfew and Loitering Law Violations All Ages #
- Runaways All Ages #

The Ecological Approach

- ❑ Ecological crime model (graphic model)
- ❑ Multi-scale analysis
- ❑ Ecological chain analysis
- ❑ Spatial data analysis and visualization
- ❑ Quantitative models
- ❑ Big data analysis
- ❑ Simulations
- ❑ Predictions

An graphic model of ecosystem



Problems with Data

- ❑ Data is inaccurate
- ❑ Data is incomplete
- ❑ Data is not comparable
- ❑ Data is not available in standard sources



Big Data for Spatial Analysis

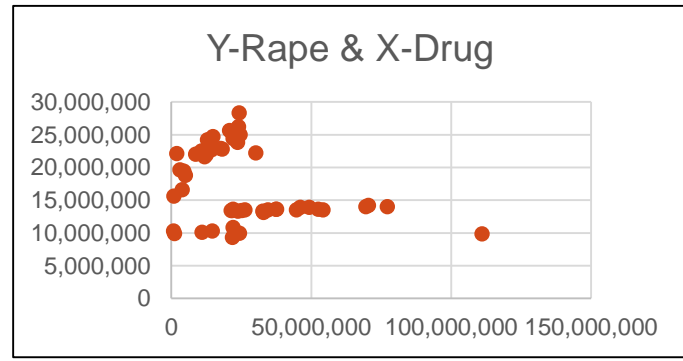
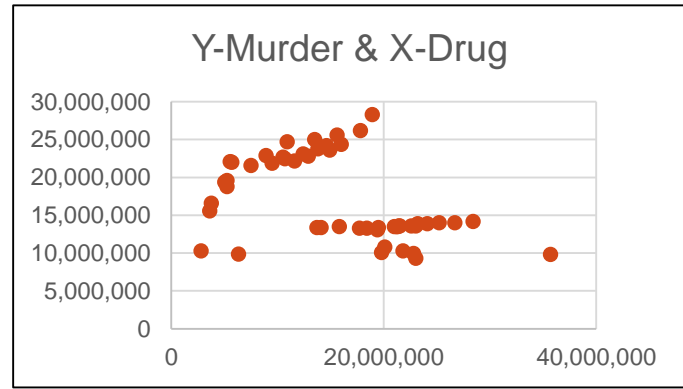
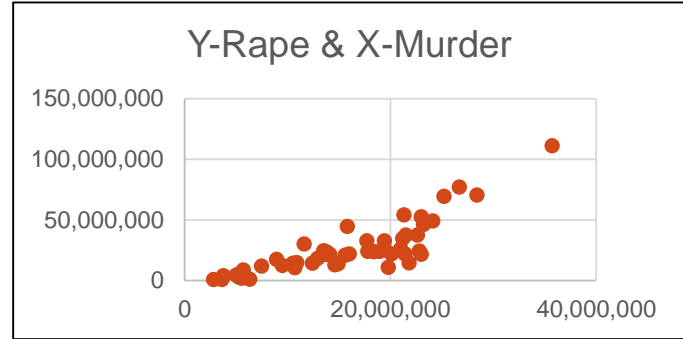
Data sources:

- Search engines (google, yahoo,...)
- Facebook
- Twitter
- Blogs
- WeChat
- QQ
- Users' data

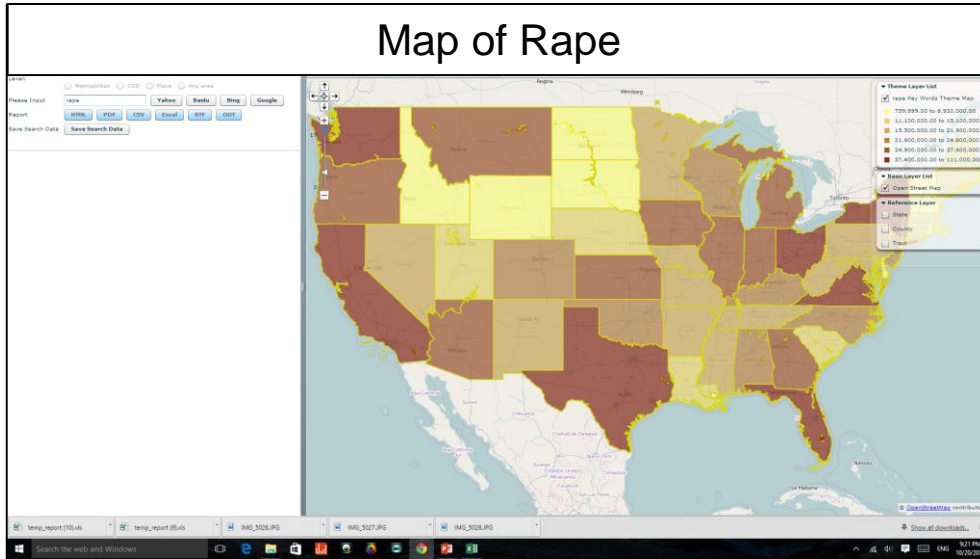
rape Key Words Theme Map			
Date:	20/10/2015		
name	code		Popularity
1 New York		36	111,000,000
2 Texas		48	79,100,000
3 California		06	72,300,000
4 Washington		53	68,500,000
5 Virginia		51	55,400,000
6 Florida		12	50,200,000
7 Ohio		39	46,700,000
8 Hawaii		15	37,400,000
9 Michigan		26	37,400,000
10 Georgia		13	37,300,000
11 Indiana		18	34,900,000
12 Oregon		41	33,900,000
13 Montana		30	32,300,000
14 Arizona		04	26,600,000
15 Kansas		20	25,700,000

Keyword Search Map: Murder

State	Alabama	Alaska	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas
Murder	22,900,000*	26,600,000*	17,900,000*	72,300,000*	23,900,000*	11,900,000*	6,900,000*	8,900,000*	13,400,000*	13,400,000*	13,400,000*	13,400,000*	13,400,000*	13,400,000*	13,400,000*	13,400,000*



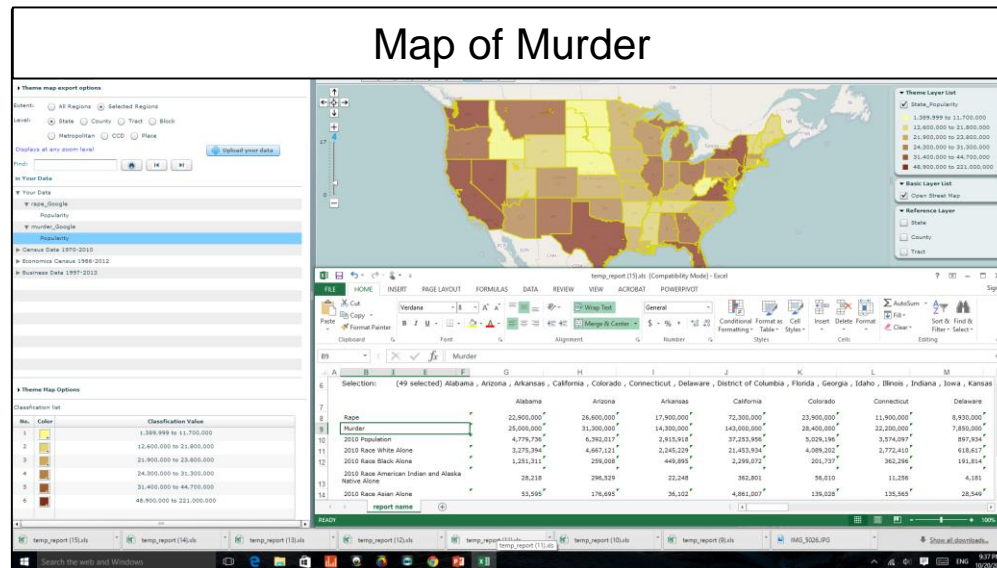
Big Data Application: Keyword Search



rape Key Words Theme Map

Date: 20/10/2015

	name	code	Popularity	
1	New York		36	111,000,000
2	Texas		48	79,100,000
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4	Washington		53	68,500,000
5	Virginia		51	55,400,000
6	Florida		12	50,200,000
7	Ohio		39	46,700,000
8	Hawaii		15	37,400,000
9	Michigan		26	37,400,000
10	Georgia		13	37,300,000
11	Indiana		18	34,900,000
12	Oregon		41	33,900,000
13	Montana		30	32,300,000
14	Arizona		04	26,600,000
15	Kansas		20	25,700,000
16	Iowa		19	25,200,000
17	Illinois		17	24,900,000
18	New Jersey		34	24,800,000
19	Colorado		08	23,900,000
20	Wisconsin		55	23,700,000
21	Oklahoma		40	23,400,000
22	Kentucky		21	23,000,000



Building An Research Infrastructure for Spatial Study of Crime and Society

