Read Time in Space
Spatio-temporal Analysis with US and China Data

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Time: the Most Challenge in Spatio-temporal Analysis

☐ **Availability**

☐ **Accessibility**

☐ **Comparability**

Case Study One

A Spatio-temporal Analysis of Population Landscape in China and US

Vanishing Villages and Culture in China

Counties with Population Loss (%) in China
(2000-2010)

Counties with Population Loss (%): 2000-2010
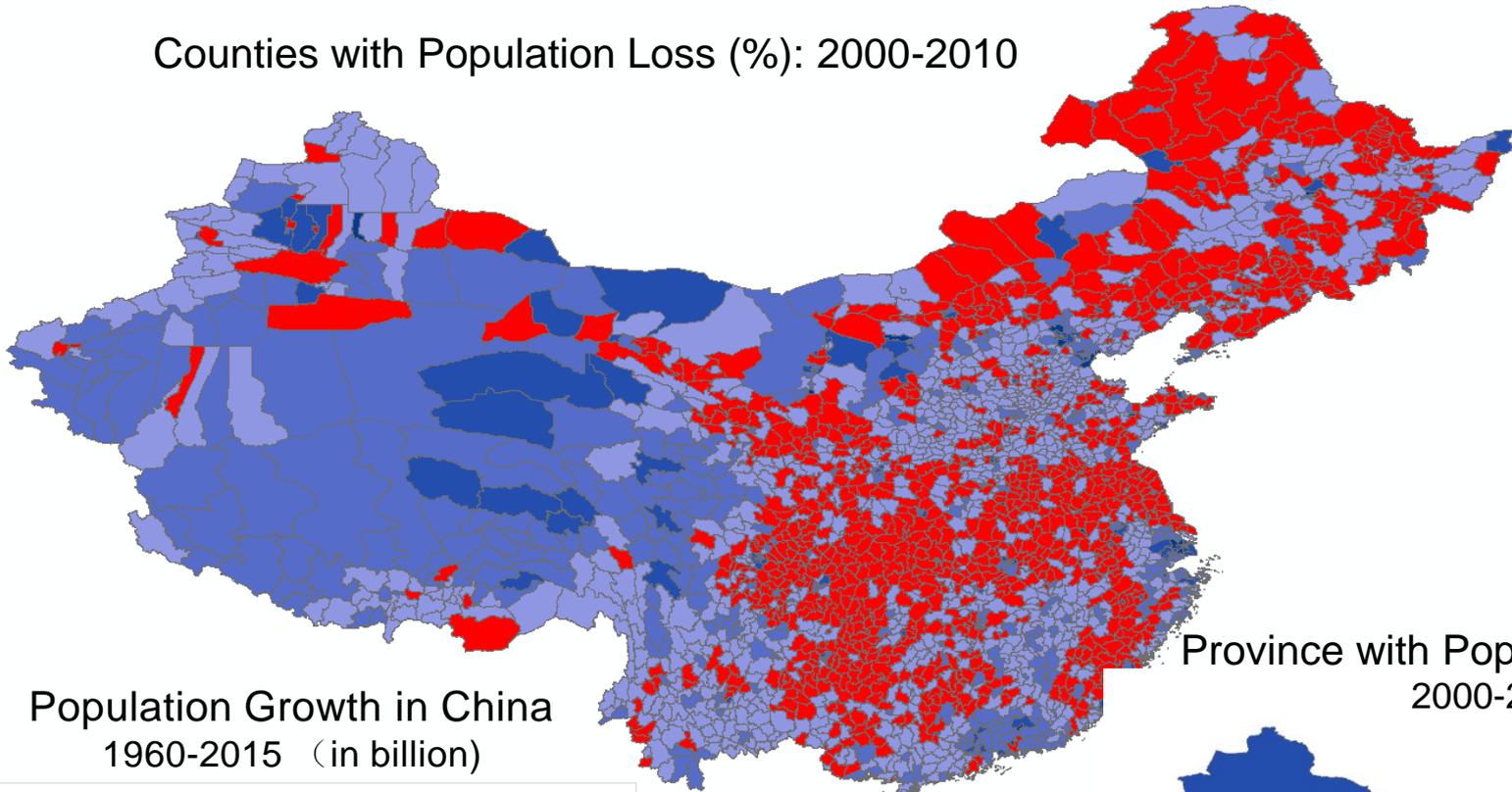
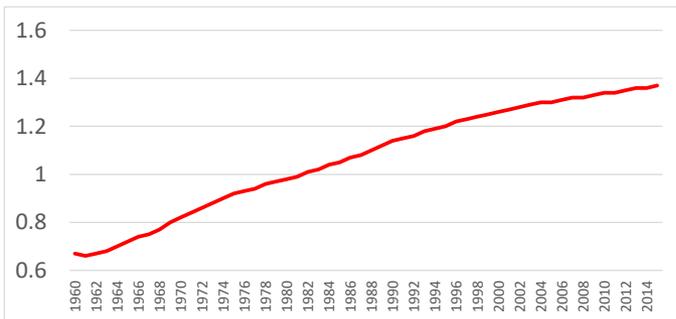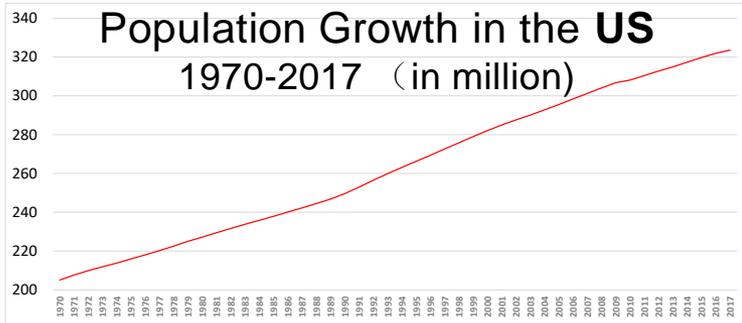Province with Population Loss (%)
2000-2010
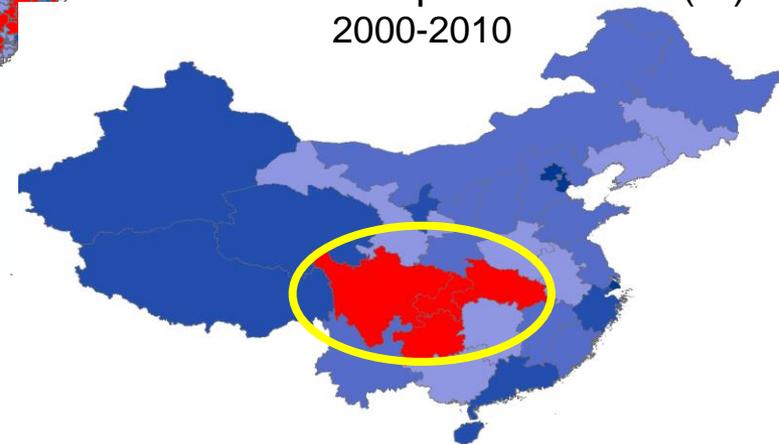
Population Growth in China
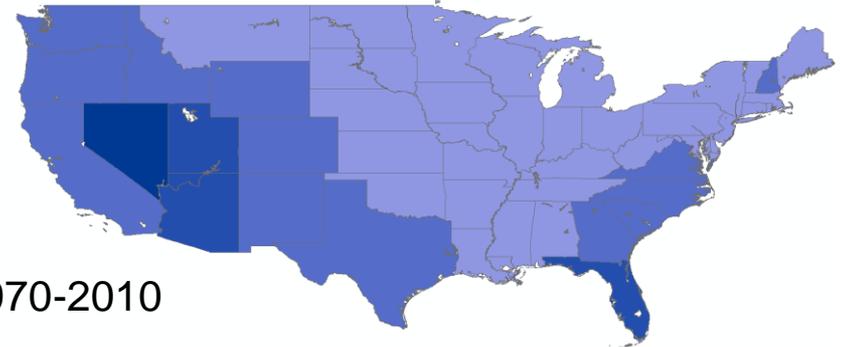1960-2015 （in billion）

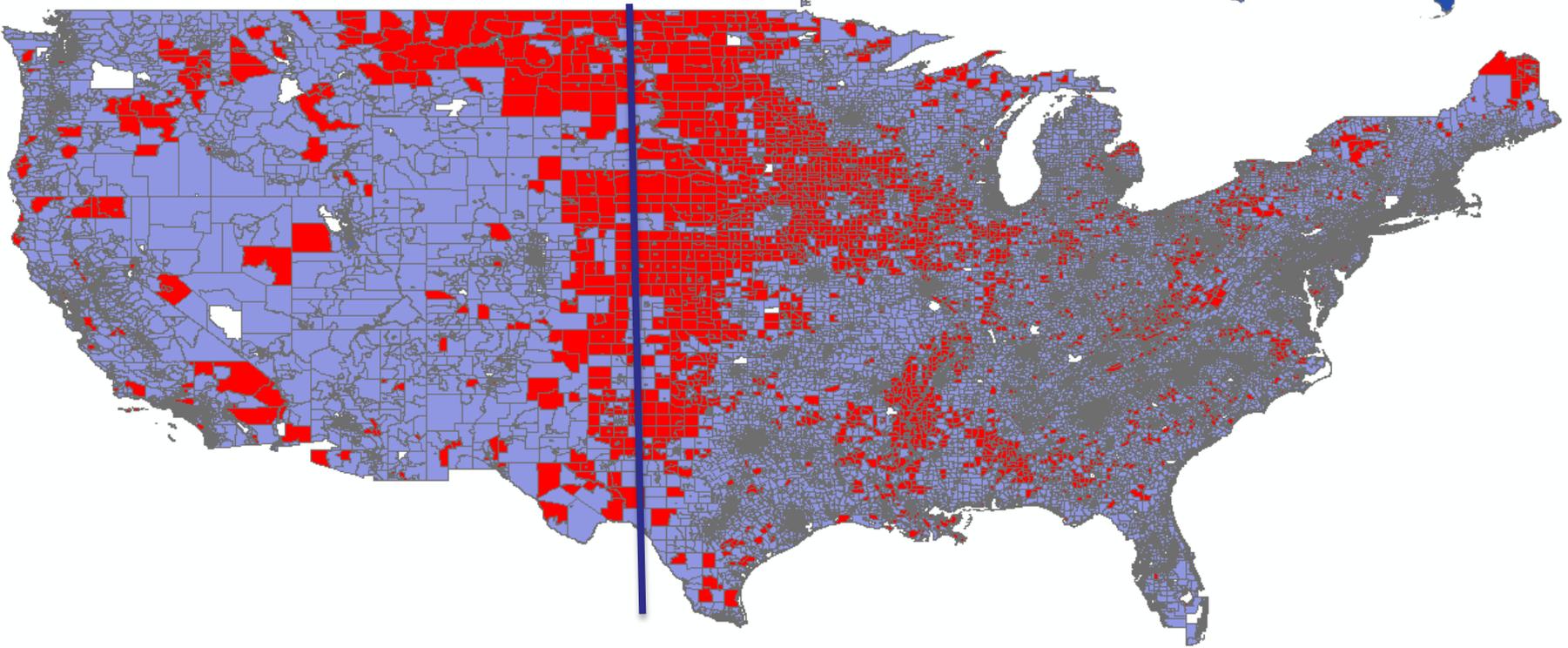# Tracts with Population Loss (%) in the US
(1970-2010)

Population Growth in the **US** 1970-2017 （in million）

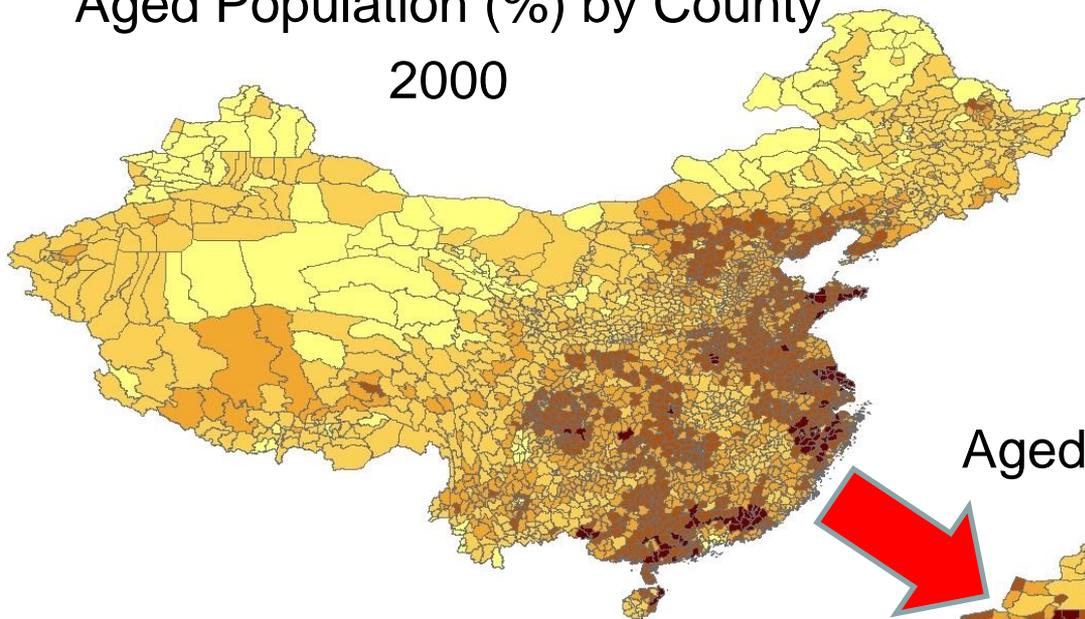Changes in Population by **State** (%): 1970-2010
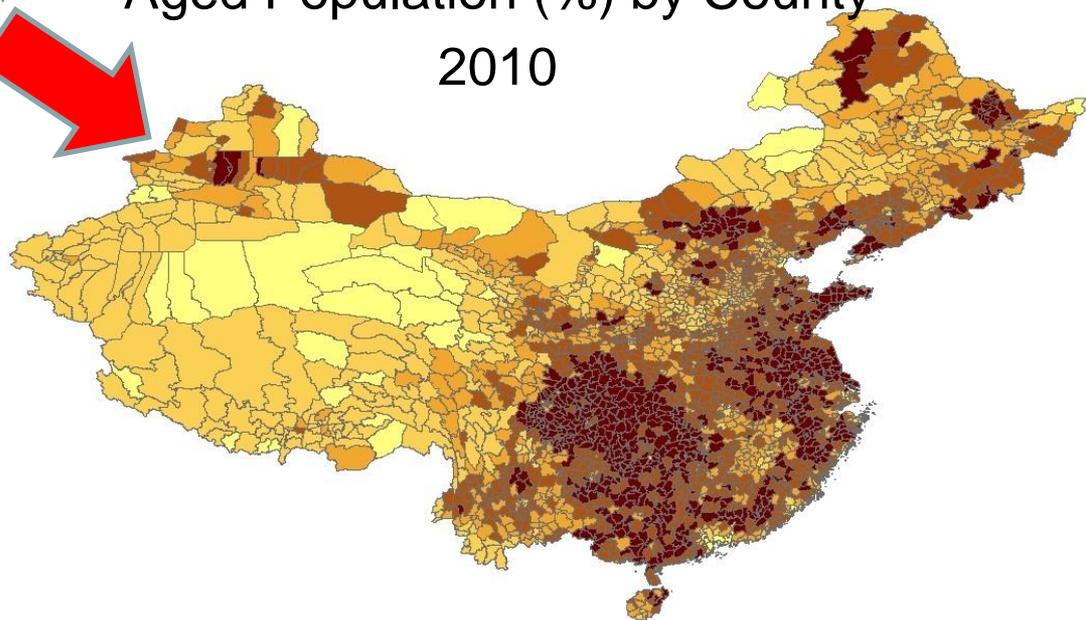
Tracts with Population Loss (%): 1970-2010

Counties with Aged Population (%) in China
(2000 – 2010)
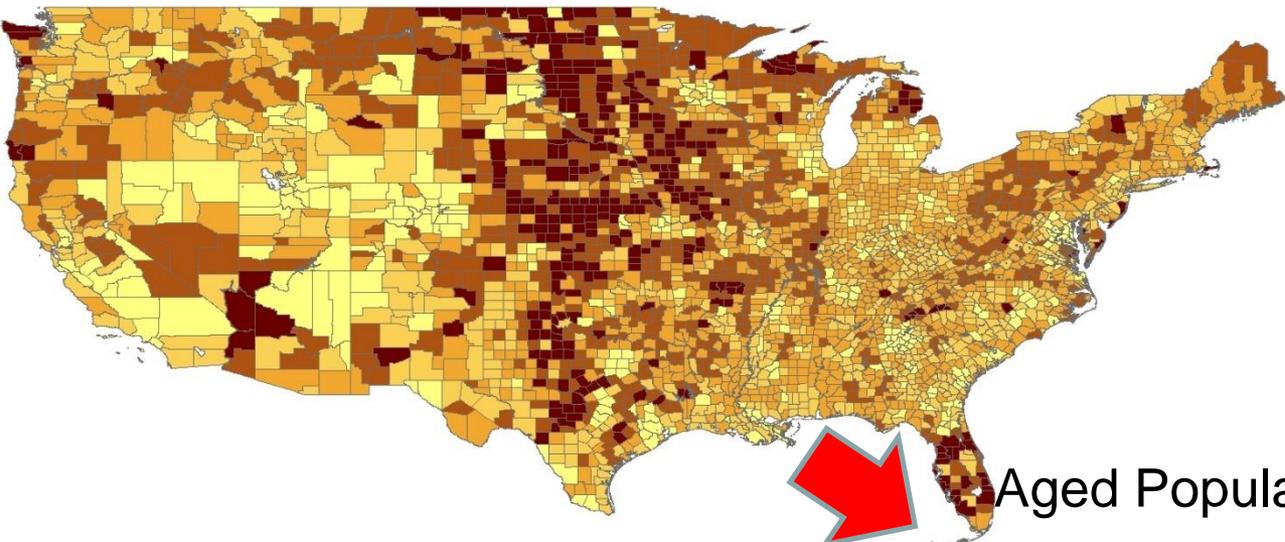
Aged Population (%) by County

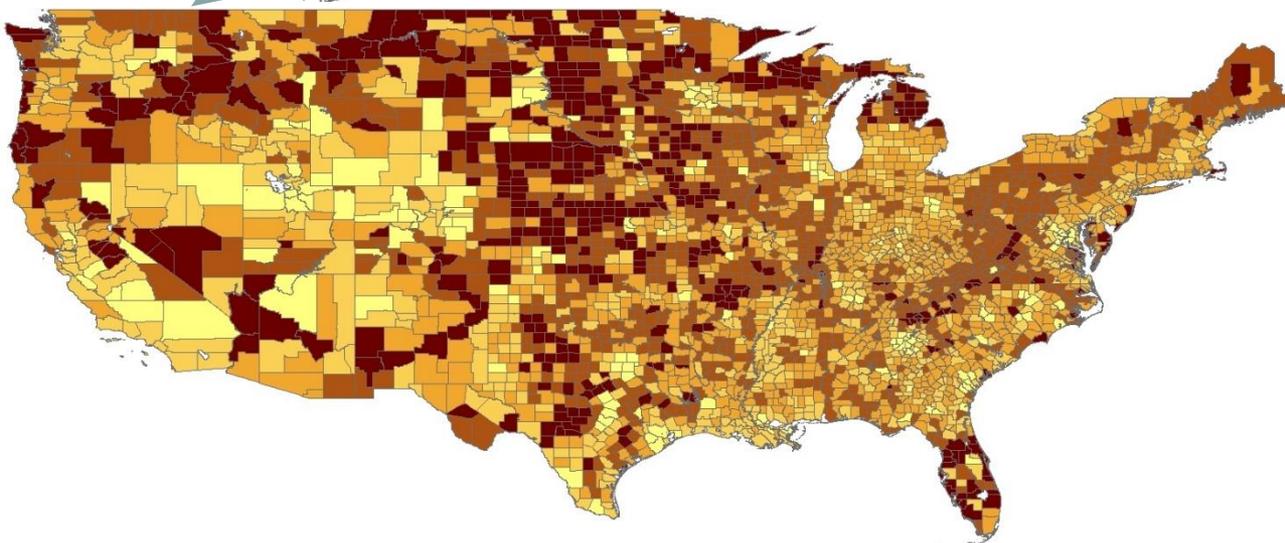2000

Aged Population (%) by County

2010

Counties with Aged Population (%) in the US
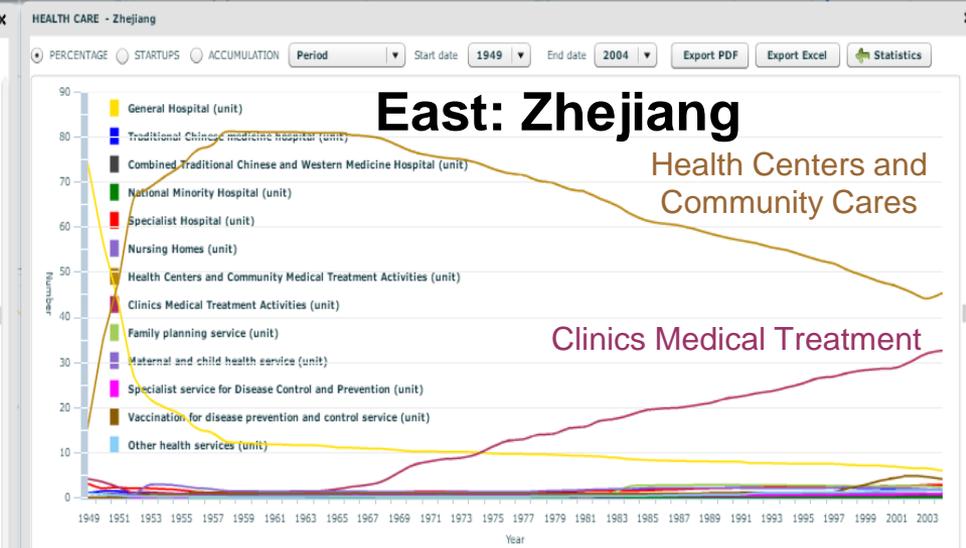## (2000 – 2010)

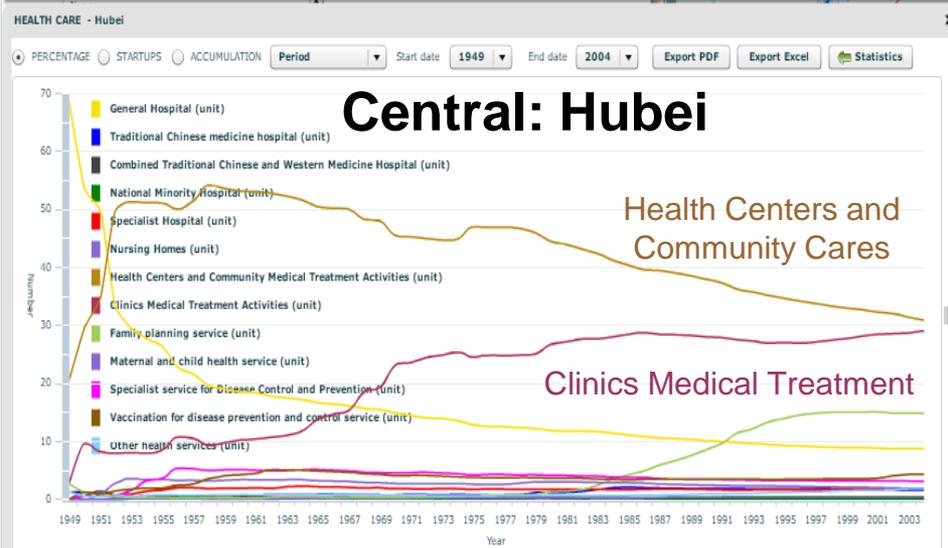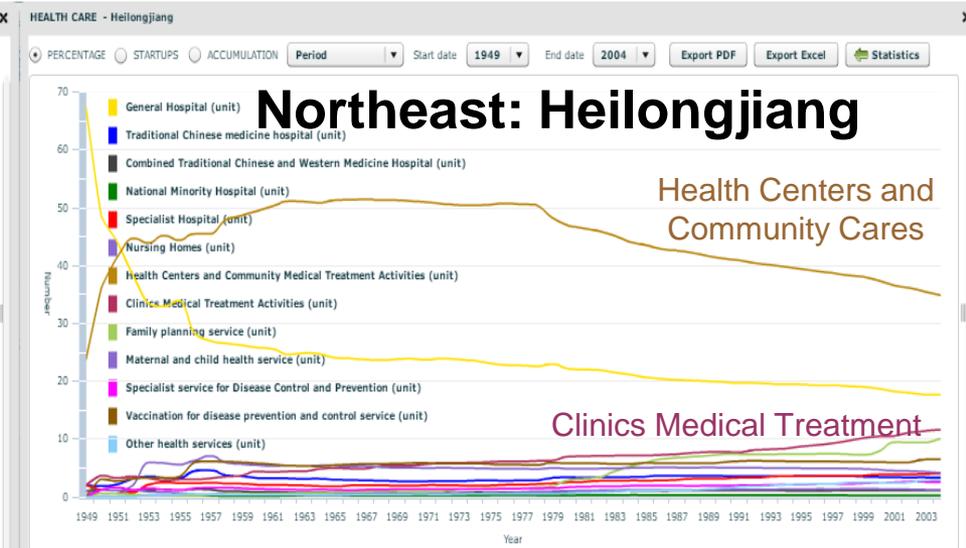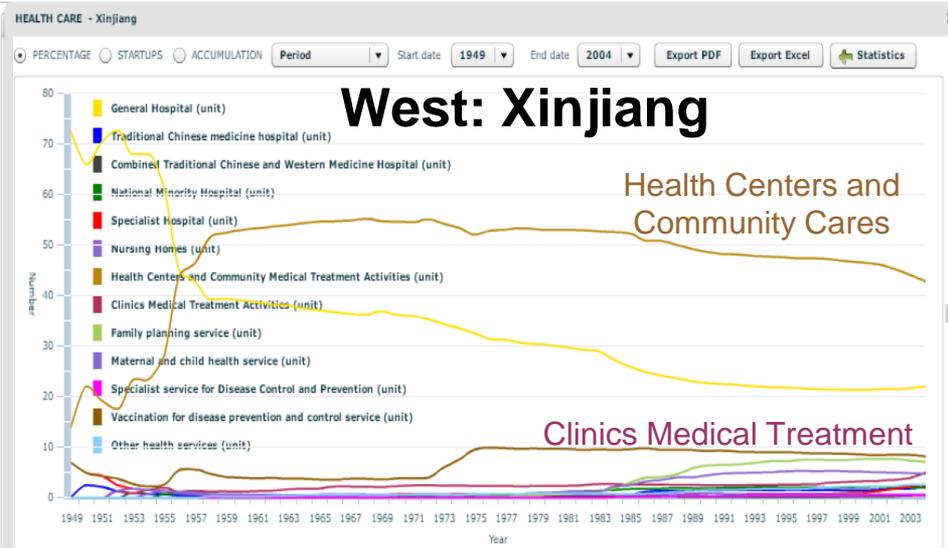Aged Population (%) by County in 2000

Aged Population(%) by County in 2010

Case Study Two

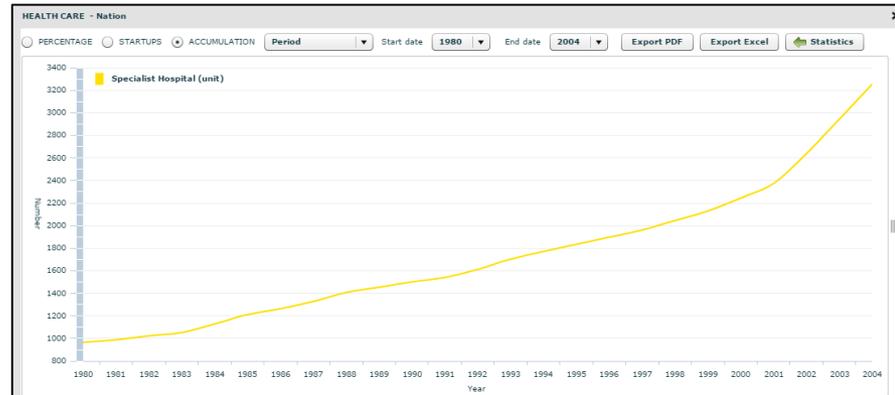## A Spatio-temporal Analysis of Health Care

Changes in Health Care in China
(1949 – 2004)

Changes in Health Care by Region
(1949 – 2004)

West: Xinjiang

Health Centers and Community Cares

Clinics Medical Treatment

Northeast: Heilongjiang

Health Centers and Community Cares

Clinics Medical Treatment

Central: Hubei

Health Centers and Community Cares

Clinics Medical Treatment

East: Zhejiang

Health Centers and Community Cares

Clinics Medical Treatment

Changes in Special Hospitals
(1980 – 2004)

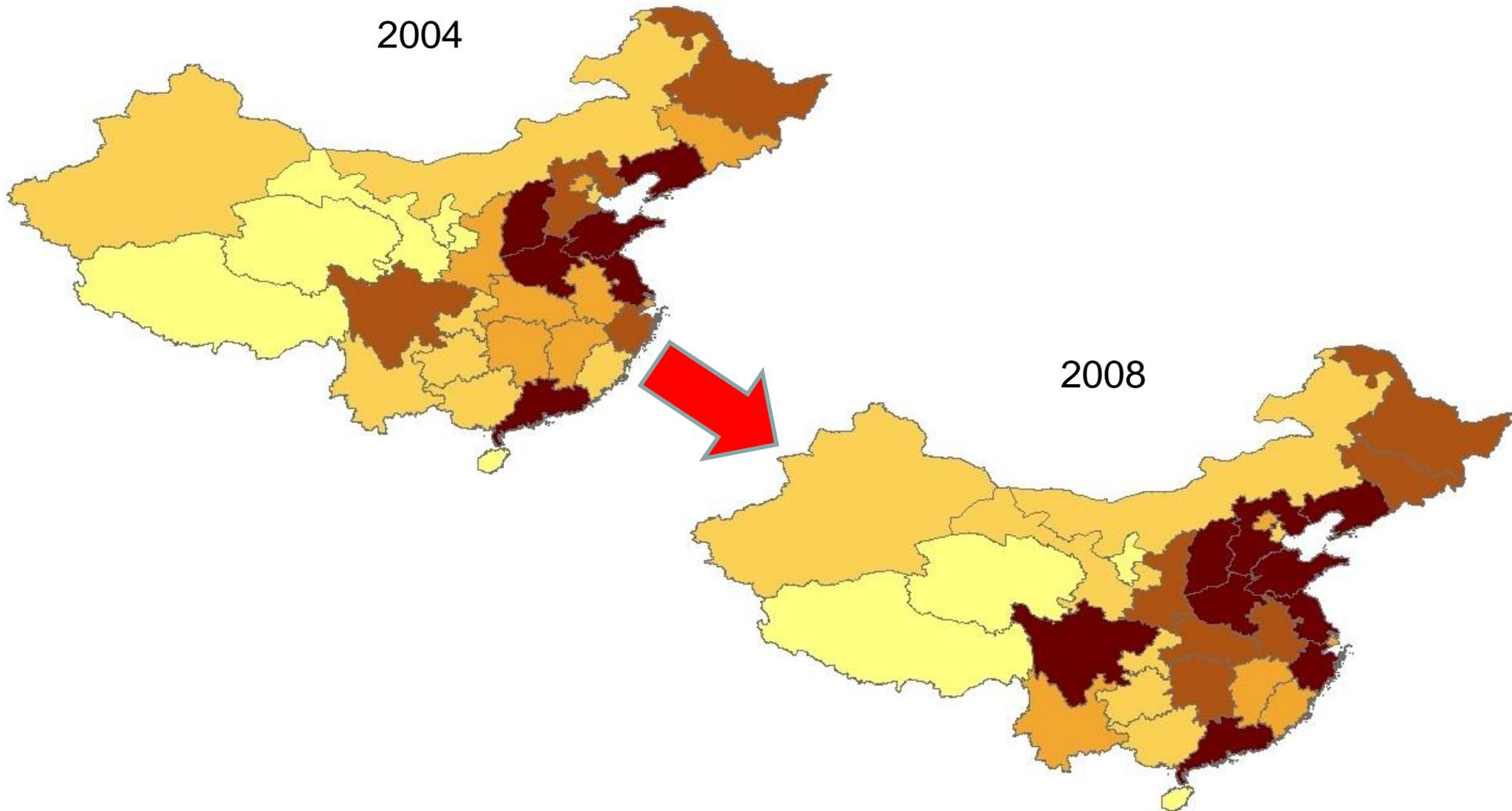**Accumulation**

Percentage

New Start Ups
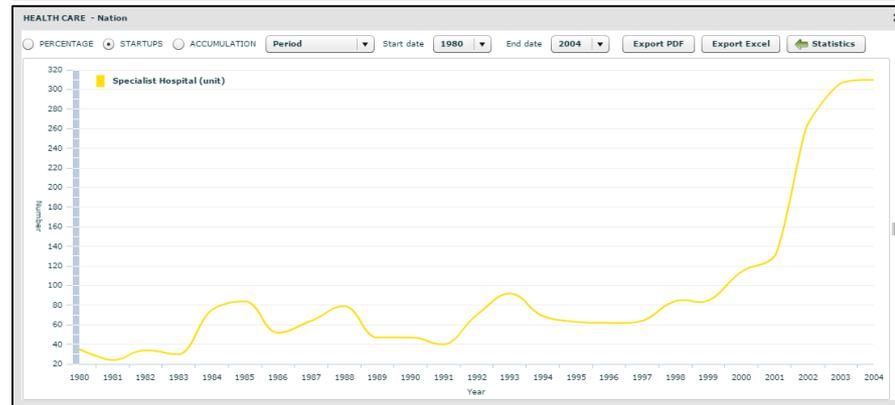
Growth of Special Hospitals in China
(2004 – 2008)

2004

2008

An Integration of Spatial and Temporal Data:

China Geo-Explorer

US Geo-Explorer

China Geo-Explorer

US Geo-Explorer

Primary Functions

Data Selection

- By administrative units (province, city, county, township)
- By groups
- By location (X&Y) and spatial range (km or miles)
- By time-series statistics (province, city and county)
- By establishments (province, city, county and ZIP)

Reporting

- Summary report
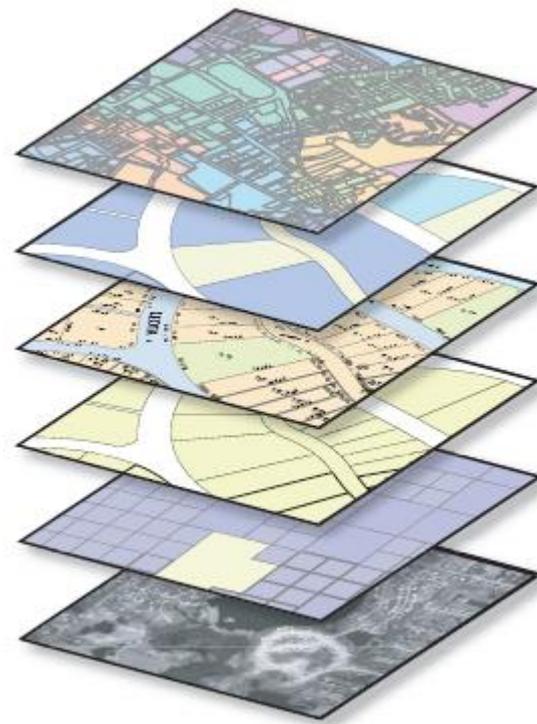- Comparison report
- Original data report

Export

- Data tables (Excel)
- Reports (Excel, Word, PDF)
- GIS maps (Shape)
- Maps (PDF)

Map Library with Metadata

- Pre-defined maps
- Easy links between maps of different spatial levels
- Easy links to related industries

Availability

Available Time Data in CGE

Left vertical axis (bottom to top): Sq Km Grid | ZIP | Township | County | Prefecture | Province

- **Government Statistics**
  - o Provincial Statistics (1949-)
  - o City Statistics (1996-)
  - o County Statistics (1997-)

- **Population Census**
  - o Census 1953
  - o Census 1964
  - o Census 1982
  - o Census 1990
  - o Census 2000
  - o Census 2010

- **Economic Census**
  - o Industrial Census 1995
  - o Basic Unit Census 2001
  - o Economic Census 2004 & 2008

- **Business Data at Firm Level** (> 7 million records)
  - o Year of establishment

- **Remote Sensed Data**
  - o Land Use data (1990, 1995, 2000, 2005, 2010)
  - o Yearly night-time light data (1992-)

Census & RS

Base Year: ● 2000 ○ 2010 ○ 2000-2010
Group: ● Single group ○ Multi-groups
Level: ● Province ○ City ○ County ○ Town

Region | Customized Report | Standard Report

Find:

- Census 2000
- Economic Census 2008
- Economic Census 2004
- Basic Unit Census 2001
- Industry Census 1995
- Land Use
- Nighttime lights

Business

Detailed Information

Name: Hefei Zheng He Automobile Co., Ltd. (Headquarter)
Responsible person: 苏青林
Type: Automobile Zheng Che Manufacturing Production
ZIP: 230031
Address: Anhui Hefei Shu Shan Qu You Dun Cun
Telephone: 0551-584234
Ownership: Other Limited
Starting year: 1997
Revenue: 1000-3000
Employee Count: 100-499

Google   Baidu   Wanfang Data

Go to Location Selection   Close

Statistics

Region | Year | Customized Report

Find:

- GROSS DOMESTIC PRODUCTS
- INDICES OF GROSS DOMESTIC PRODUCTS (preceding year=100)
- GROSS DOMESTIC PRODUCTS BY EXPENDITURE APPROACH
- POPULATION
- EMPLOYMENT, STAFF AND WORKERS
- TOTAL INVESTMENT IN FIXED ASSETS
- FLOOR SPACE OF BUILDINGS AND REAL ESTATE DEVELOPMENT
- OVERALL PRICE INDICES
- Urban Households Per Capital Annual /Disposable Income/Total(yuan)
- REVENUE AND EXPENDITURE
- DEPOSITS AND LOANS OF FINANCIAL INSTITIONS
- BASIC STATISTICS FOR AGRICULTURE
- GROSS OUTPUT VALUE AND INDICES OF FARMING,FORESTRY,ANIMAL
- PRODUCTION CONDITION FOR AGRICULTURE

Available Time Data in UGE

State

Metropolitan

County

CCD

TRACT

BLOCK

- **Presidential Election** (1984-2016)

- **Population Census**
  - Census 1970
  - Census 1980
  - Census 1990
  - Census 2000
  - Census 2010

- **Economic Census** (1986-)

- **Business Data** (1997-)

- **Business Records at Firm Level** (> 13 million records)
  - Year recorded

Level: ● State ○ County ○ Tract ○ Block
        ○ Metropolitan ○ CCD ○ Place ○ Any area

| Region | Customized Report | Standard Report |

Find:

▶ ☐ Presidential Election Data
▶ ☐ Census Data 1970-2010
▶ ☐ Economics Census 1986-2012
▶ ☐ Business Data 1997-2013

Detailed Information

Property ▲	Info
Address	PO BOX 18084
Co.Name	ALABAMA FIBROMYALGIA CTR
Contact	REGINA MC CLAIN
Employee Count	9
Employee Size	9
Fax	
Location	-86.586427 : 34.700901
Phone	2564288232
SIC Code	809974
SIC Description	SLEEP DISORDERS-DIAGNOSTIC/TRE
Sales Volume	1791
Starting Year	2009
State	AL
Type	OFFICES OF PHYSICIANS EXCEPT ME
Zip Code	35804

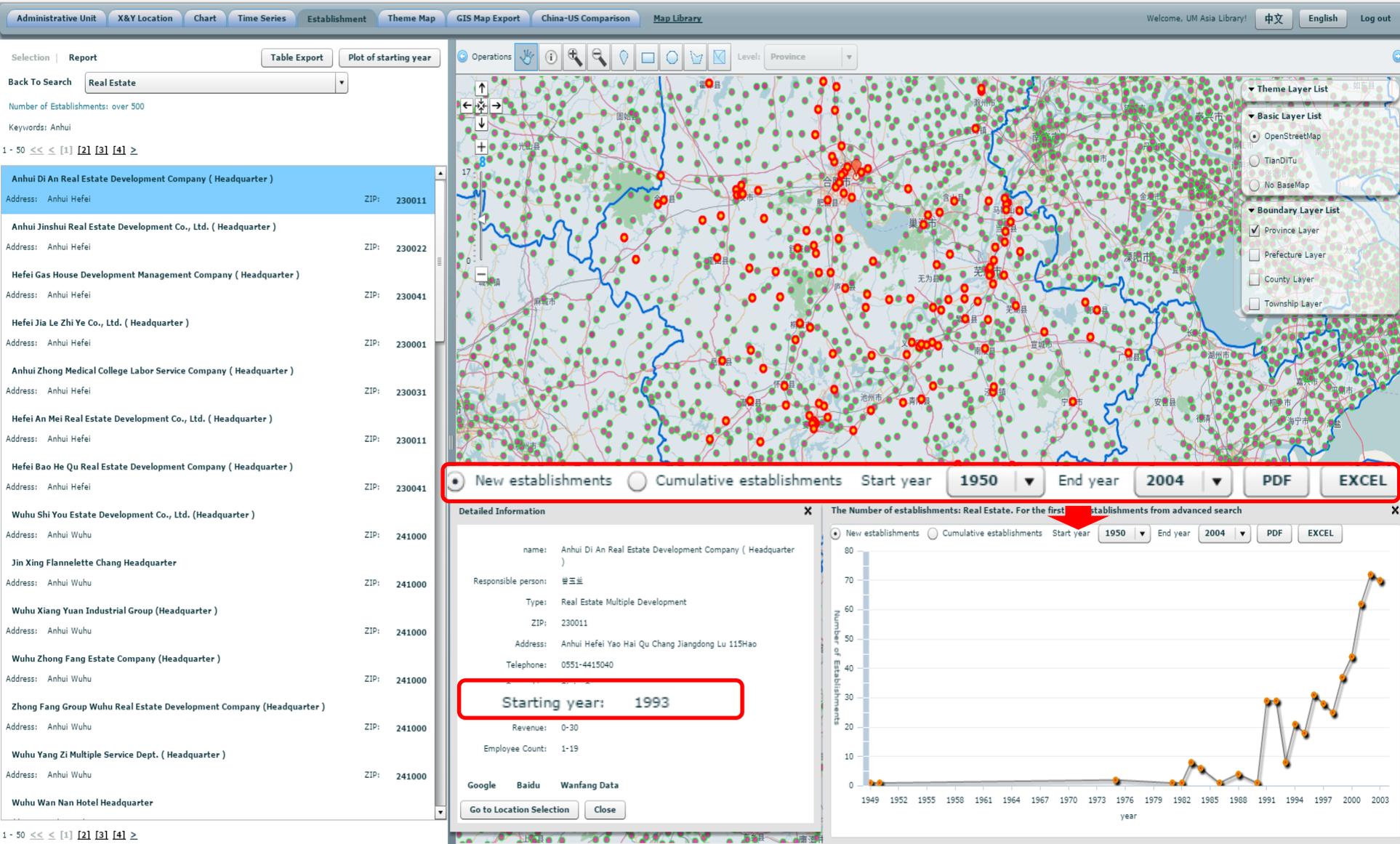# Administrative Units => Report

Chart => Yearly Statistics
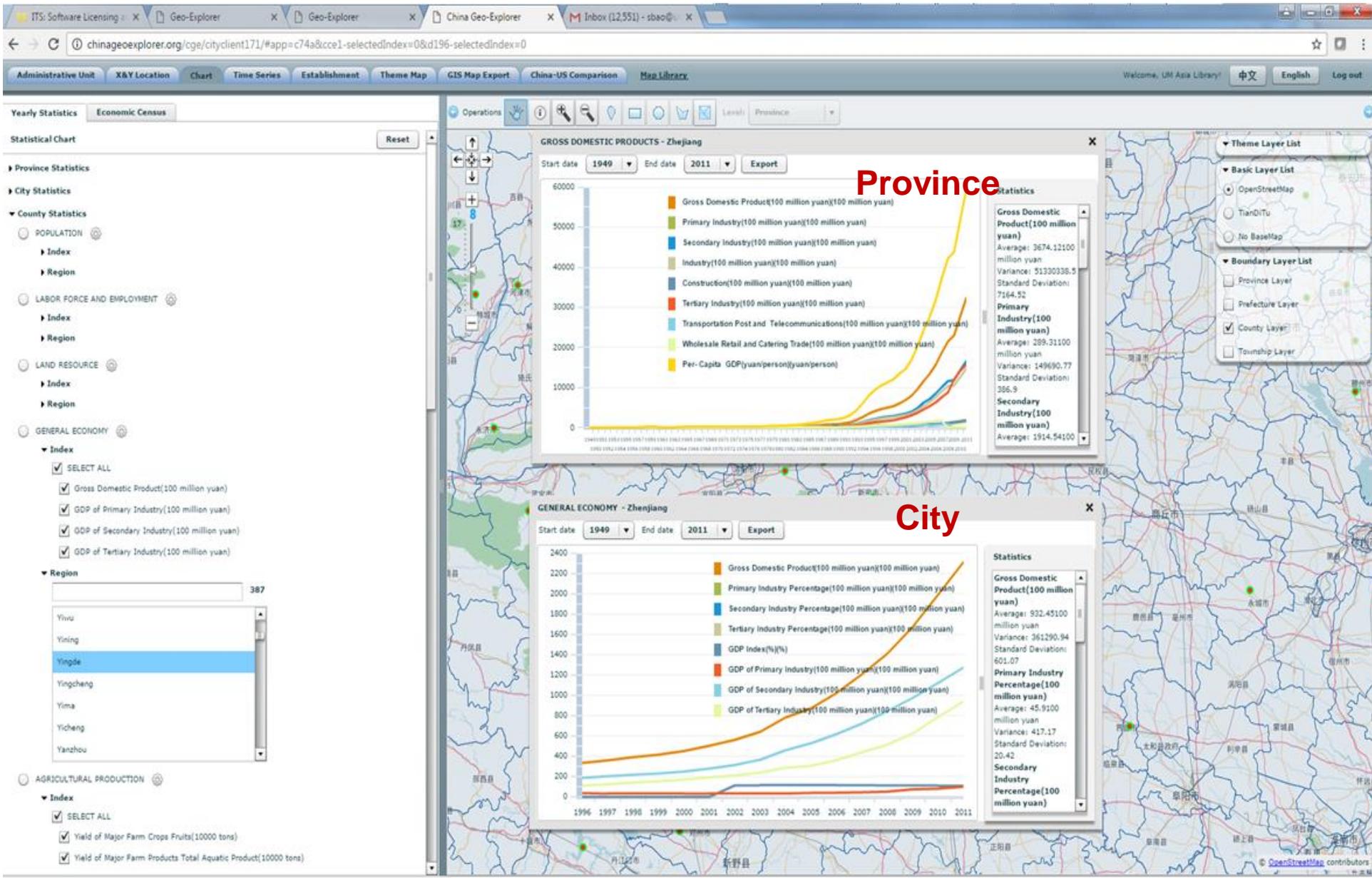
Accessibility

Charts => Economics Census
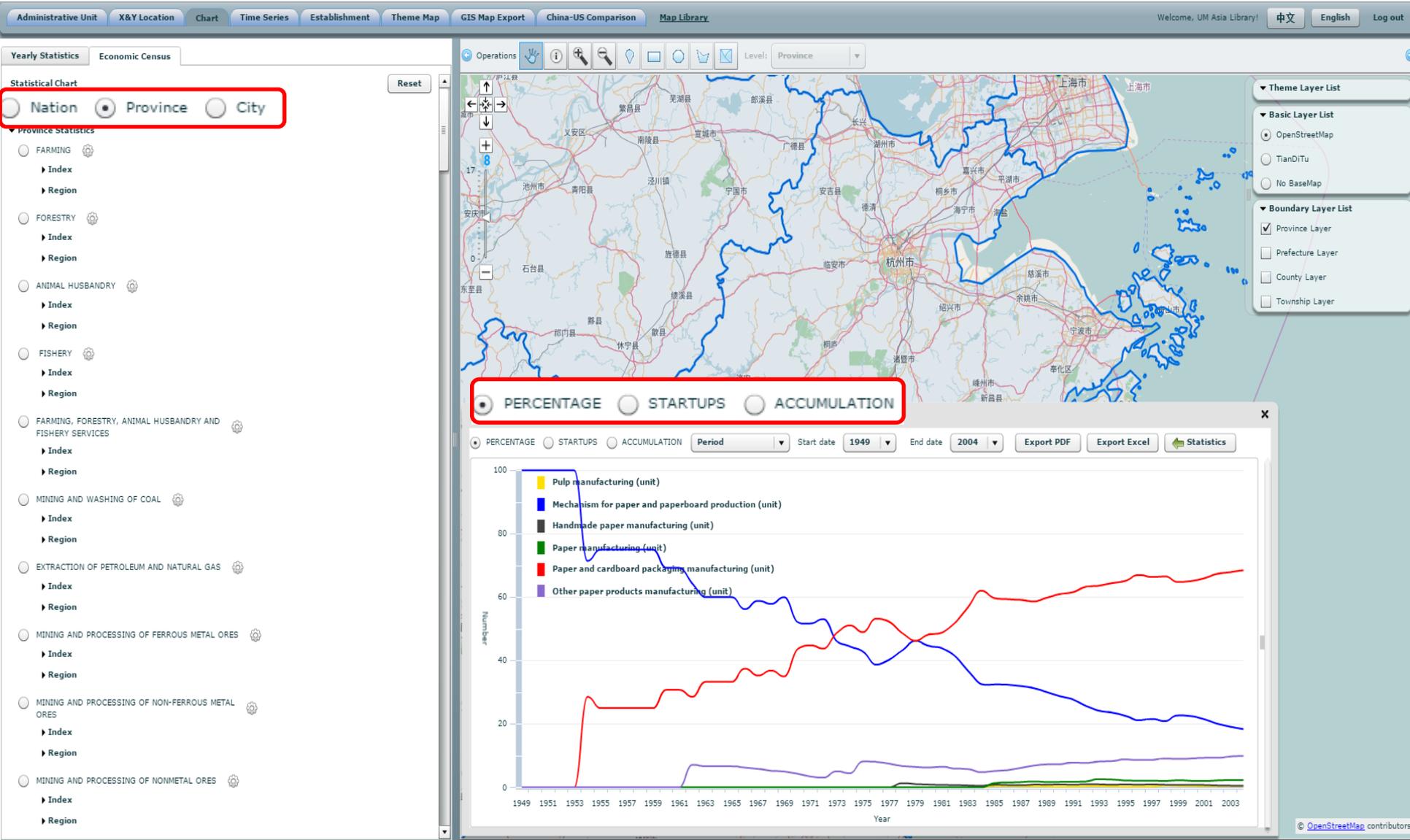
Establishment

Comparability

Base Maps

CHINA

US

Base Year: ● 2000   ○ 2010   ○ 2000-2010

CHINA	US
Province	State
Prefecture	Metropolitan
County	County
Township	CCD
Any Area	Place
	Tract
	Block
	Any Area

X & Y Location

Time Series => Panel Data

China-US Comparison

http://china-data-online.com

Contact

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