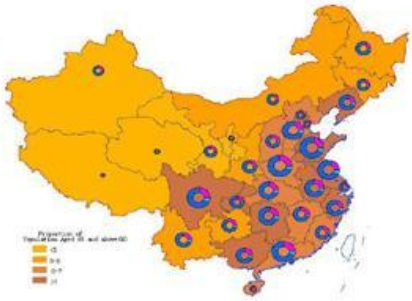
China Geo-Explorer
User's Guide



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China Geo-Explorer

Introduction

China Geo-Explorer is a web-based spatial data service that allows easy access to a rich collection of unique, authoritative, and comprehensive information from government statistics, population and economic censuses, and man y other data sources in a spatially integrated system with many powerful functions for exploratory spatial data analysis. Unlike many other GIS systems and mapping tools, China Geo -Explorer is compatible with most web browsers and does not require advanced GIS skills to learn and operate. With this spatial intelligence, users can generate maps, charts, tables, and reports using demographic and economic data from China for regional planning, business investment, population, housing, environmental assessment, public health and many other spatial studies. The features of this service include:

- Efficient data integration for spatial, non-spatial, and text data from different sources, formats and years
- Quick and accurate location analysis and spatial assessment
- Identification of spatial patterns and trends
- Generation of time-saving, easy-to-use, and customized reports
- Dynamic charts, tables, and maps
- Multiple options for data export to PDF, Excel, Word, or GIS Shapefiles

The primary China data sources for this online data service include:

- China 2000 Province Population Census Data with GIS Maps
- China 2000 City Population Census Data with GIS Maps
- China 2000 County Population Census Data with GIS Maps
- China 2000 Township Population Census Data with GIS Maps
- China 2010 Province Population Census Data with GIS Maps
- China 2010 City Population Census Data with GIS Maps
- China 2010 County Population Census Data with GIS Maps
- China 2010 Township Population Census Data with GIS Maps
- China 2000-2010 Province Population Census Data with GIS Maps
- China 2000-2010 City Population Census Data with GIS Maps
- China 2000-2010 County Population Census Data with GIS Maps
- China Population GRID Data with Township Boundary Maps
- China Historical County Population Census Data with GIS Maps
- China 1995 Industrial Census Data with GIS Maps (province, city, county, ZIP code)
- China 2001 Basic Unit Census Data with GIS Maps (province, city, county, ZIP code)
- China 2004 Economic Census Data with ZIP Maps (province, city, county, ZIP code)

- China Province, City and County Statistical Indicators with Maps
- Various geographic and environmental GIS maps

The basic GIS maps included:

- Province boundary map
- 2000 and 2010 Prefecture city boundary GIS maps
- 2000 and 2010 County/District boundary GIS maps
- Approximate 2000 township boundary GIS maps
- One sq km GRID GIS maps
- Various point GIS maps

1. System Interface

The interface of China Geo-Explorer (CGE) is primarily composed of two frames: the menu bar on the left side and Map bar on the right side (see Figure 1). The menu (Part C, Figure 1) includes the tabs at the top that allow the user to select the program to use. The geographic regions may be selected using "Map Operations" (Part B, Figure 1), "Level" provides several options for map display. Users can select to use either English or Chinese language in Part D.

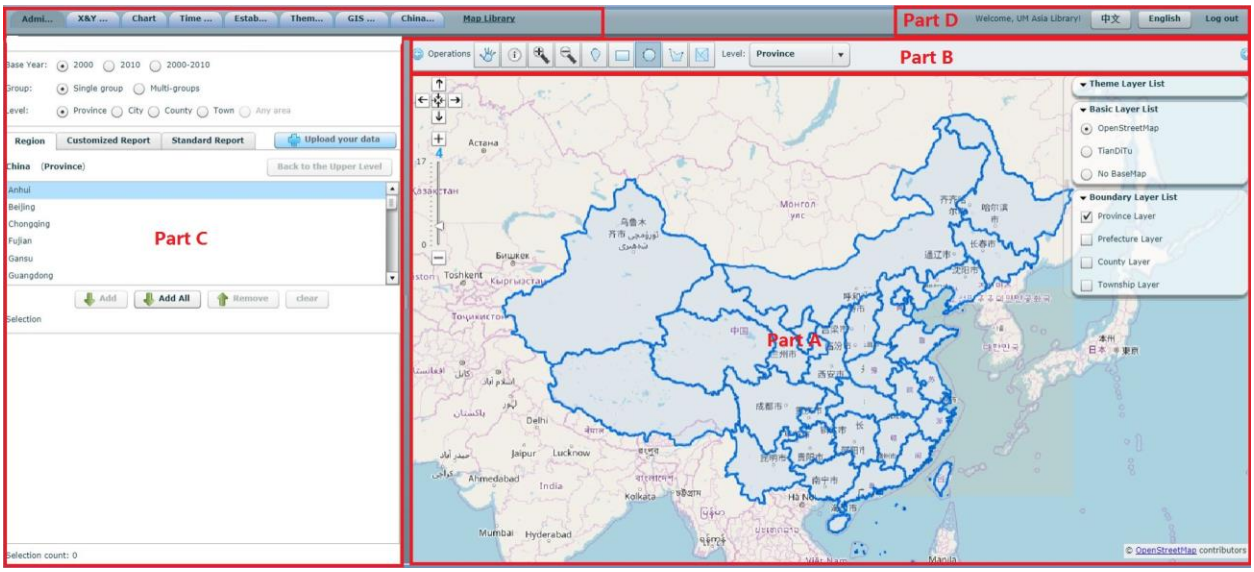


Figure 1. China Geo-Explorer

1.1 Menu

The menu (Part C) has options for selecting charts, maps and reports by using the tabs, "Administrative Unit", "X & Y Location", "Chart", "Time Series", "Establishment", "Theme Map", "GIS Map Export" and "China-US Comparison." Once a tab is selected, the menu to the left of the map window populates with the options appropriate for completing the task. The default view of the CGE is "Administrative Unit."

This part of the tool is used to select the base year, geographic area, and data to be examined. It lists the geographic areas available to the user. When areas are selected, it displays them in a list and if and how they are grouped. Also, the tool lists all of the datasets available in each tab and has the information on

different types of reports and output formats available to the user. This part of the interface allows the user to select a map or parts of the map, and its appearance, and how the data will be displayed on it.

1.2 Map Operations

The map window shows the current map layer(s) and displays the selections made from the menu, if appropriate. It may also be used to select areas of the map to be considered in the examination of a selected dataset. “Map Operations” (Part B, Figure 1) is the spatial toolbar at the top of the map window (Part A, Figure 1) with navigation buttons for the map, a directional tool for viewing the map (on the left), and a selector for map layers (on the right) which is static and available for use whenever the map is in use. Unlike the menu, the tools in the map window never change and are intended only to manipulate the map.

This spatial toolbar (Figure 2) is usable only when the map is selected and can be used to select geographic areas when using the “Administrative Units,” “X & Y Location,” and “Establishment” tabs.

Figure 2. Map Operations Toolbar

The function of each icon on the spatial toolbar are:

Open/Close Map Window

Pan

Identify

Zoom In

Zoom Out

Spatial Query by Point

Spatial Query by Envelope

Spatial Query by Circle

Spatial Query by Polygon

Clear Current Selection

List of Administrative Units

Open/Close Map Layer List

Below the spatial toolbar, on the left side of the map window, is the directional tool for viewing the map. This tool is always visible in the map window and is usable when the map is selected. The default setting is “4” where the country and the province boundaries are visible as well as neighboring countries. The range on the zoom is from “0” where the entire world is viewed and “17” where the view is the arbitrary 1 square kilometer as established by Google Maps. This tool is used when the zoom is set at 12 or more, in the “Administrative Unit” menu when in single group mode, it enables the option “Any area” in the administrative level selection.

On the right-hand side of the map window, there is a layer tool that allows the users to select which layers to display. This tool is always visible in the map window and is usable when the map is selected. By default, all reference layers are visible and OpenStreetMap is the base map.

1.3 Data and Geographic Areas Selections

1.3.1 Data Selection

Each of the features in the CGE has multiple databases associated it. For example, Administrative Unit has several databases: Census 2000, Census 2010, Census 2000-2010, Economic Census 2008, Economic Census 2004, Basic Unit Census 2001, Industry Census 1995, Land Cover, and Nighttime lights. The variables for each database are organized into categories, which display when a database is selected. For example in Administrative Units, if Census 2000 is selected, the triangle points downwards and a list of categories is revealed, each with a checkbox and triangle next to it. When a category is selected, the triangle next to the name turns and faces downward revealing a list of categories with a checkbox and triangle next to the names. Selecting a new category reveals a list of variable names and labels with a

checkbox next to each but no triangle. This is the lowest level of selection for the dataset. The user should be aware that selecting a category of variables selects all of the variables contained therein.

1.3.2 Geographic Area Selection

Similarly, each feature in the CGE has geographic information associated with it. The geographic information can be at the national, province, city, county, town, or custom levels, depending on the feature. For example, Administrative Unit has all provinces listed in the "Region" tab which is populated with the provinces by default. If the user wishes to work at the "Province" level, the appropriate province name is selected. If "City," "County," or "Town" level is chosen, the province must be selected first. The cities, counties, or towns of that province then populates the "Region" box and the choices can be made at the appropriate level.

1.4 China Geo-Explorer – Output

Many of the programs, Administrative Unit, X & Y Location, and Time Series in the China Geo-Explorer allow the user to generate reports from data housed in the system. The options available are the creation of a webpage (HTML), a document (PDF), a comma-separated values (CSV), a spreadsheet (Excel), a text document (RTF), and a document suitable for use with open source document programs (ODT), such as Open Office from Apache (https://www.openoffice.org/). Some features, Chart allows the user to generate a chart with statistics and data and an optional map and/or a dataset from which the statistics have been drawn. In a few features, Theme Map and China-US Comparison, the map is the central output with several reports available in the China-US Comparison feature. Each of the reports, charts, tables, and datasets have the China Data Center's logo or name at the top of the output, the name of the report, the date that it was generated, the data used to generate the report, the number of geographic areas selected and their names, followed by the report of the data or the chart, map, or dataset. There is a copyright notice saying that all rights are reserved by China Geo-Explorer in the report.

2. Administrative Units

The Administrative Units allows users to generate a variety of reports using data taken from the population, economic, administrative, industry censuses and land use surveys that are based on the selection of one or more administrative units. Using either the spatial toolbar or menu option, the process starts by selecting the base year for the data, either 2000, 2010, or 2000-2010, and single or multi-groups to report on a single geographic area, or on multiple geographic regions, and report at administrative units, including province, city, county, town, or any area levels.

2.1 Administrative Units – using Menu

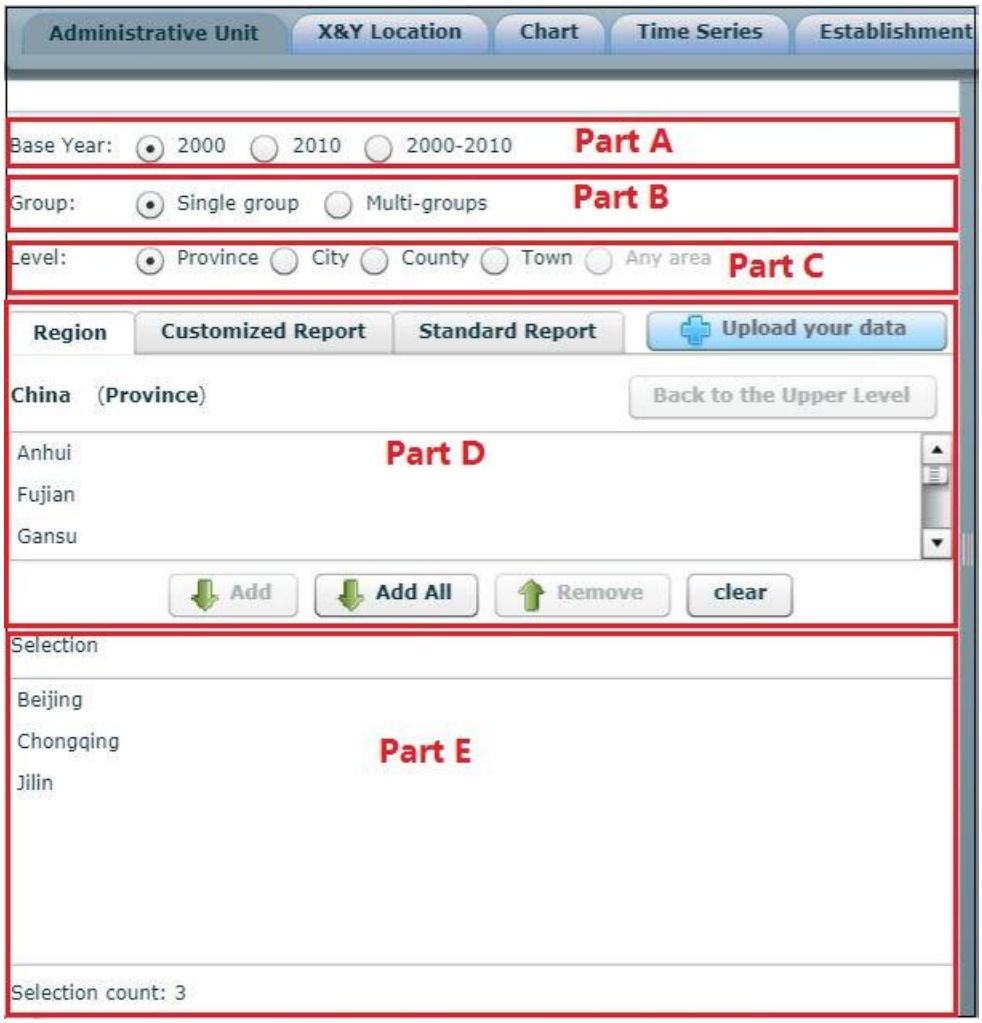


Figure 3. Administrative Unit, Single-group Menu

2.1.1 Base Year

The first step using the Administrative Units menu is to select the year for the data, either 2000, 2010, or 2000 – 2010 (Part A, Figure 3). Next is the group option which allows users to produce charts, maps, and reports on either single or multi-group (Part B, Figure 3) of an administrative unit(s).

2.1.2 Group

The multi-groups option allows the user to define several groups with several regions within each group (Figure 4) and it adds options for the multiple groups to the menu under Selection (Part C, Figure 4). When the groups are organized, the map will display the choices with a distinct color for each group. The names of the groups can be edited, the color and transparency of the group's display can be changed, (Part D, Figure 4), groups can be added or deleted, or grouped by an Index (Part C, Figure 4). The map generated by this menu can be exported (Part B, Figure 4).

2.1.3 Level

After the group mode is identified, the user selects from four administrative levels: Province, City, County (including urban district, county, and county level city) and Town (including Jiedao, Xiang, and Zhen) and any area (Part C, Figure 3). The option for “Any area” is limited to use in the single group mode, and those selected areas where the spatial toolbar’s zoom level is ≥ 13, regardless of the level selected. Up to 20 shapes with a maximum total area of 300 km² can be selected using the “Any area” tool.

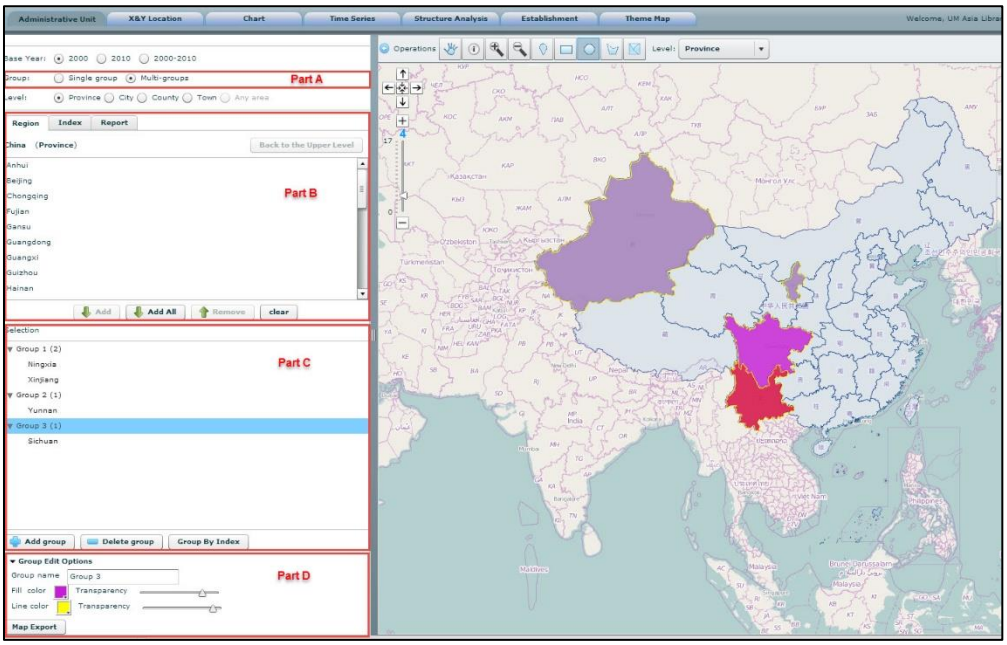


Figure 4. Administrative Unit, Multi-group Menu

Clicking on the “Group by Index” button after the groups are selected, opens the following window (Figure 5). The user can identify the specific data to be displayed in Part A and the manner in which it will be displayed in Part B, and classification list shows what the values will align to the colors on the map in Part C, and the option to exclude empty groups is in Part D. To create the map, the “Confirm” button is clicked in Part E and the user is returned to the menu.

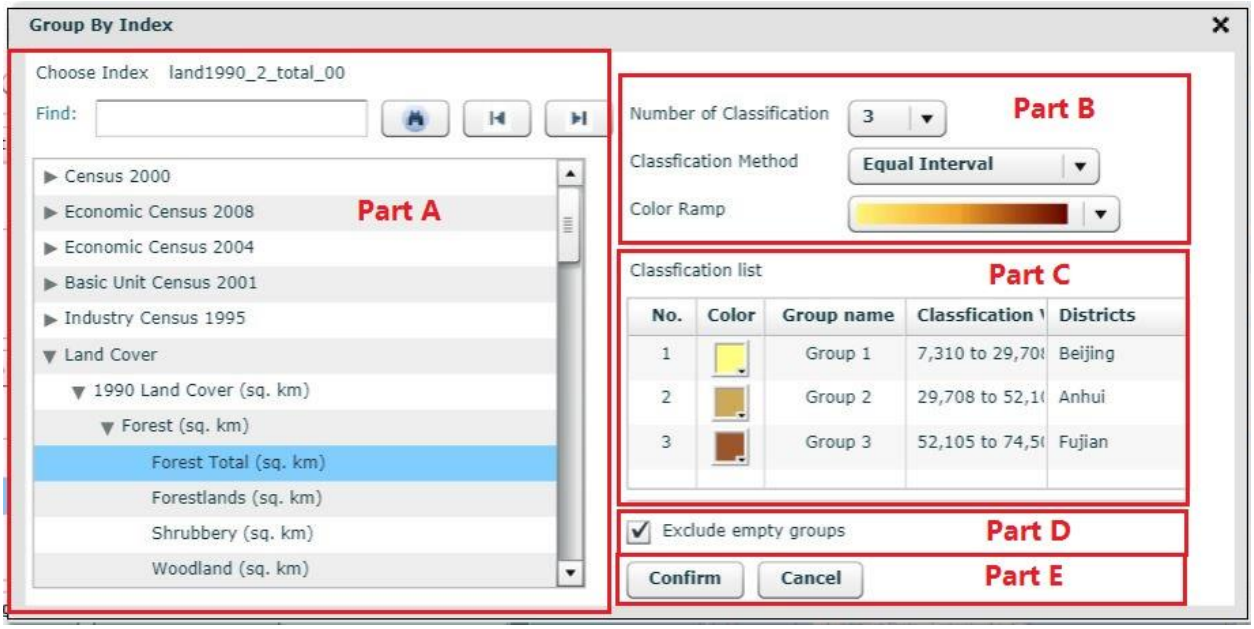


Figure 5. Administrative Unit, Group by Index Options

In the final option for the multi-group mode, the user can select "Map Export" (Part D, Figure 4) to export the map in a format usable for a document or website (Figure 6). The user can title the map, select the format for the export, either a PDF or JPEG file, define the orientation of the page, and choose to include the base map, legend, and compass.

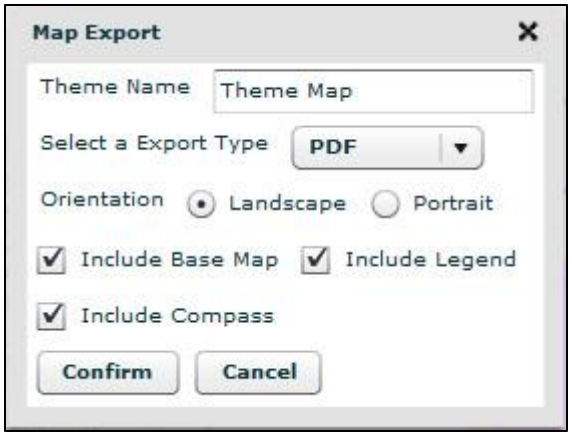


Figure 6. Administrative Unit, Group by Index option, Map Export

2.1.4 Region

Under the tab for "Region," provinces (Part D, Figure 3) are listed and can be selected by either clicking the province name or clicking the "Add All" button below the list. The selections are moved into the Selection box (Part E, Figure 3) and highlighted on the map. Double-click on the province name selected to display its name on the map in English and Chinese. Provinces can be deselected by highlighting the province name(s) and clicking the "Remove" button (Part D, Figure 3) above the "Selection" box or the list can be cleared by clicking the "Clear" button. If a city, county, town or custom area is selected, the

user starts by selecting the appropriate province. The selected province's name replaces the line under the "Region" tab that says "China (Province)" (on the left-hand side, above the box with the provinces listed) and the cities, counties, or towns for the selected province populates the box (Part B, Figure 4). To return to the beginning of the Region selection process, click on the "Back to the Upper Level" button.

2.1.5 Customized Report

After the region has been selected, the user may select the tab for "Customized Report," which is a list of data (Part C, Figure 7) available for the year selected in the previous section. Also available is the type of report that can be chosen (Part B, Figure 7), either "Summary Report," "Compare Report," or "Original Report." If the user selects "Original Report," a dialog box will open where the user will need to specify how to rank the Index results and sort the data in either ascending or descending order (Figure 8). These options allow the report to be used in a website (HTML), dropped into a document (PDF), incorporated into a document that is being written (RTF and ODT) or perform calculations in programs like Excel or SPSS using the data in Excel or CSV (Part A, Figure 7). Next to these buttons is a counter of the number of indices that have been selected (Part A, Figure 7).

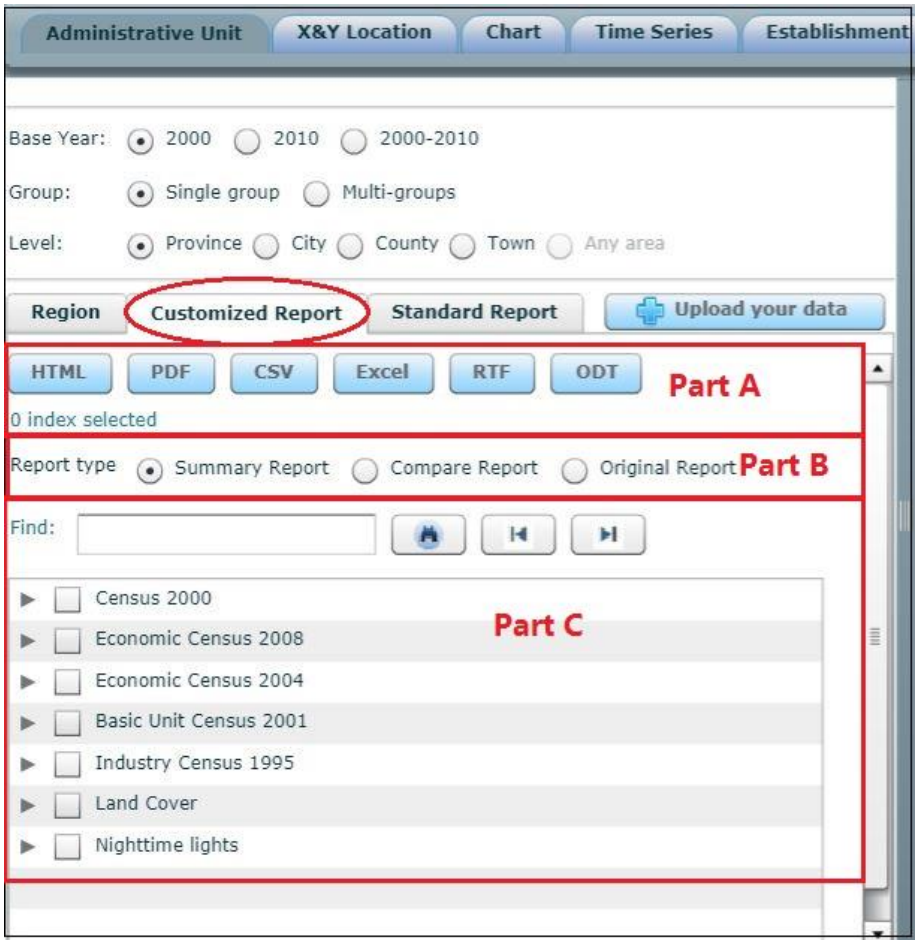


Figure 7. Administrative Unit, Index

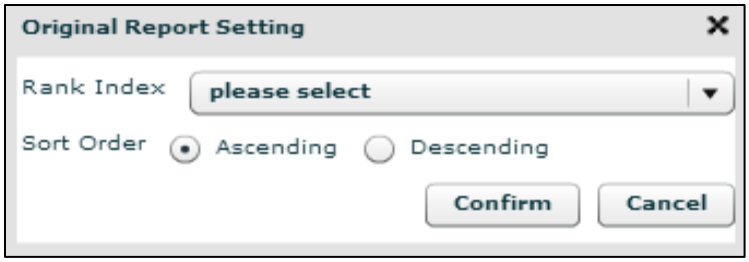


Figure 8. Administrative Unit, Index, Original Report Setting

2.1.6 Standard Report

Under the "Standard Report" tab, the user can select from a number of pre-defined reports after the user has selected the region, the user also can elect to produce a map with the report by selecting that option under Report Options (Part B, Figure 9) and the format in which the data can be saved, exported, displayed, or printed (Part A, Figure 9). These options allow the report to be dropped into a document (PDF), incorporated into a document that is being written (RTF and ODT) or perform calculations in programs like Excel or SPSS using the data in Excel, and the user can specify that a map be included in the report (Part C, Figure 9) and the program confirms the geographic area that will be included in the report (Part D, Figure 9). To edit this section, the user needs to return to the "Region" tab and make the necessary changes.

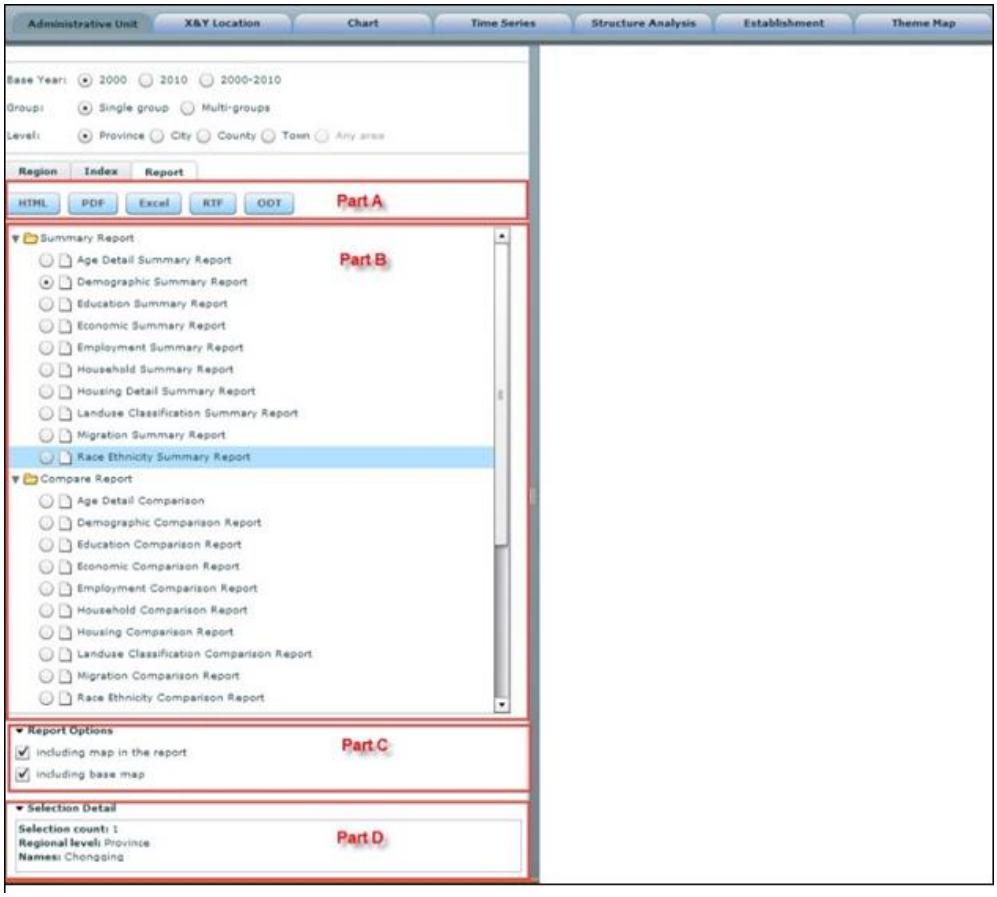


Figure 9. Administrative Unit, Report

2.2 Administrative Units – using Map Operations

Using the spatial toolbar requires that the user first make several selections in the menu, Base Year for the data and Group (Part A and B, Figure 3). Then, switching to the spatial toolbar (Part A and B, Figure 10). The user identifies the administrative level (Part A, Figure 10) and then the geographic areas may be selected using the query by circle, rectangle, or polygon tools (Part B, Figure 10). Administrative units can also be selected and de-selected using the Spatial Tool using the Pointer tool (Part B, Figure 10). Figure 10 shows an example of using the "Query by Circle" button in Part B to draw a circle in the map layer selecting the region(s) by highlighting the location(s) on the map, and writing the name of the region(s) into the Selection frame of the single-group mode menu (Part E, Figure 3) or the multi-group mode menu (Figure 4). The user returns to the appropriate menu to complete the specific selection(s) of the data and Report tab (Figure 9) and to save, export, display, or print from the Report menu (Part A, Figure 9) or the Customized Report (Part A, Figure 7).

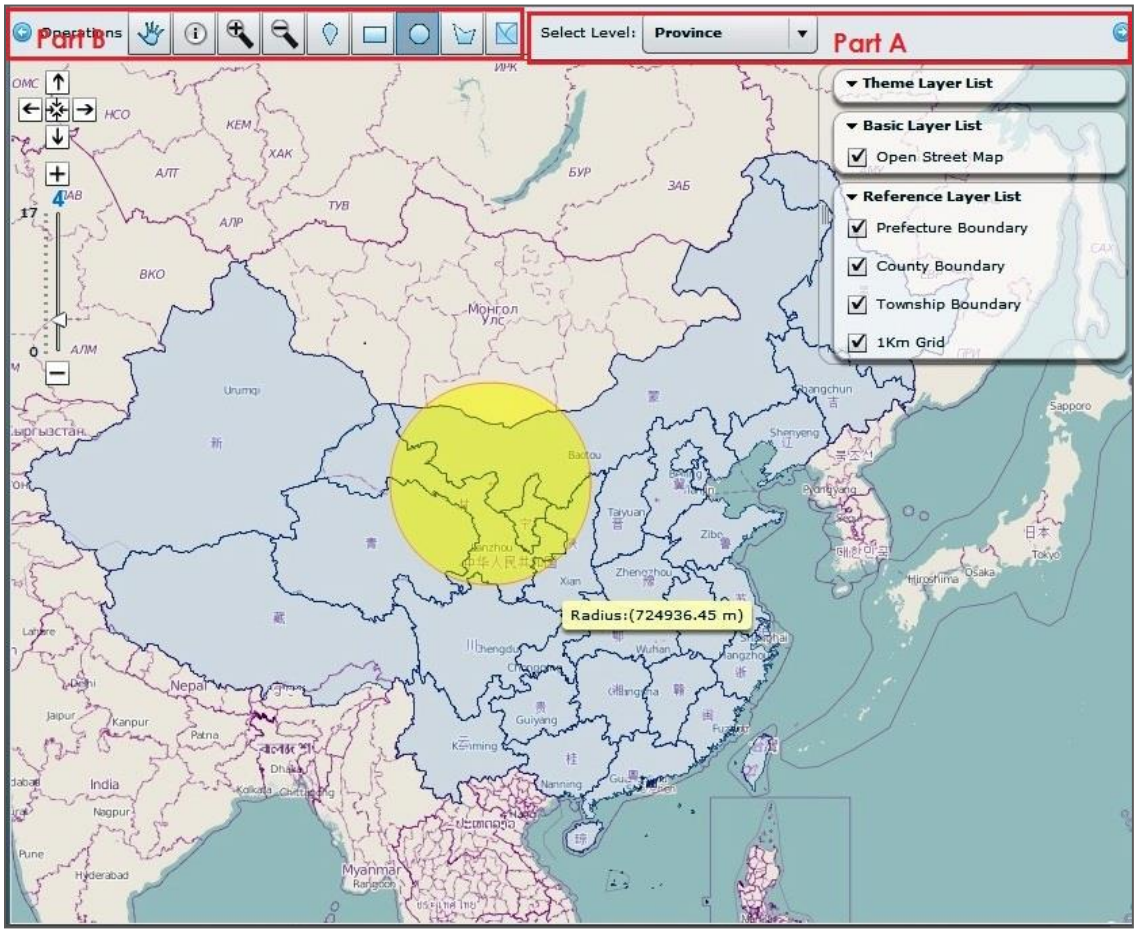


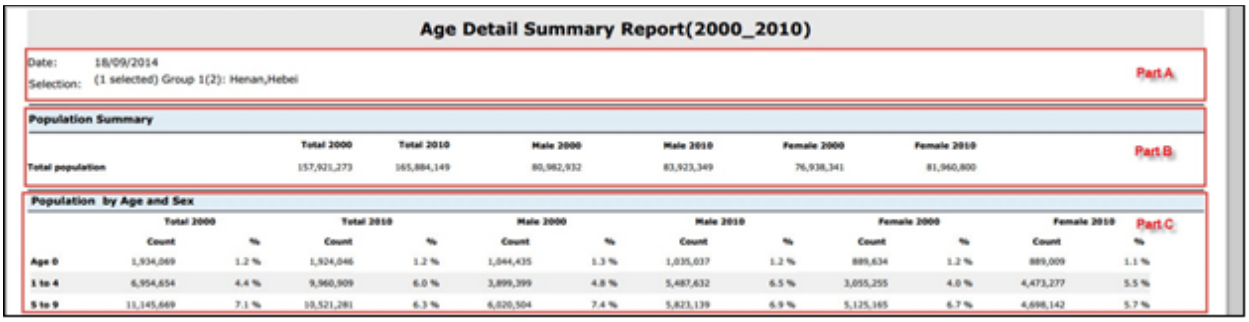
Figure 10. Administrative Unit, Map Option, Map View with spatial Toolbar

2.2.1 Administrative Units – Output

In this section, the output can be in Summary Report, Compare Report or Original Report in multiple formats, PDF, and HTML outputs open in a new browser window and can be saved or copied from there. CSV, Excel, RTF, and ODT outputs launch a new browser window with a "Save As" window that points to

the Download folder on the hard drive of the computer in use. The location where the file is saved can be changed by the user and the file name can also be changed. The PDF option allows the user to print or save the file from the browser window by clicking on the desired icons in the bottom right-hand side of the window.

Index



Age Detail Summary Report(2000_2010)

Date: 18/09/2014
Selection: (1 selected) Group 1(2): Henan,Hebei

Part A

Population Summary

	Total 2000	Total 2010	Male 2000	Male 2010	Female 2000	Female 2010
Total population	157,921,273	165,884,149	80,982,932	83,923,349	76,938,341	81,960,800

Part B

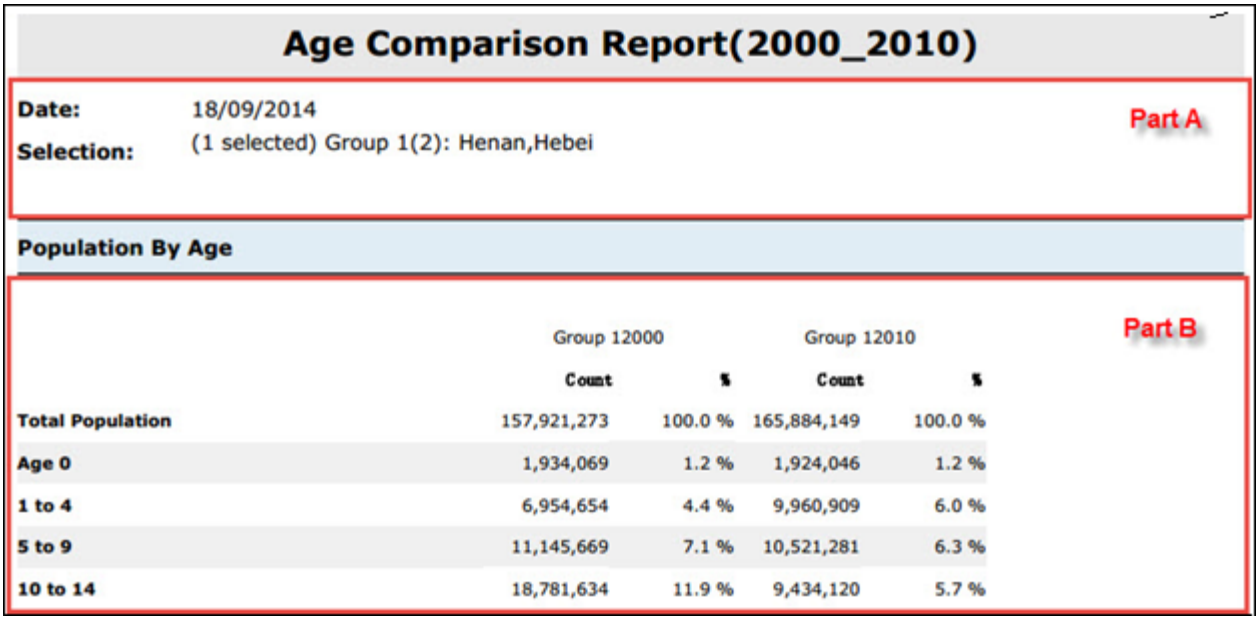
Population by Age and Sex

	Total 2000		Total 2010		Male 2000		Male 2010		Female 2000		Female 2010	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Age 0	1,934,069	1.2 %	1,924,046	1.2 %	1,044,435	1.3 %	1,035,037	1.2 %	889,634	1.2 %	889,009	1.1 %
1 to 4	6,954,654	4.4 %	9,960,909	6.0 %	3,899,399	4.8 %	5,487,632	6.5 %	3,055,255	4.0 %	4,473,277	5.5 %
5 to 9	11,145,669	7.1 %	10,521,281	6.3 %	6,020,504	7.4 %	5,823,139	6.9 %	5,125,165	6.7 %	4,698,142	5.7 %

Part C

Figure 11. Administrative Unit, Index, Summary Report

The Summary Report (Figure 11) confirms in the title the name of the report and the data used. In this case, age categories for 2000 and 2010 are displayed. Part A confirms the provinces displayed and the date the report was run. Part B is a summary of the report for the provinces selected by year and gender and totals. Part C is the breakdown of the age groups with count and percentage of the population by gender, year, and totals. The icons for saving and printing the file are at the bottom of the right-hand side of the page, not shown.



Age Comparison Report(2000_2010)

Date: 18/09/2014
Selection: (1 selected) Group 1(2): Henan,Hebei

Part A

Population By Age

Part B

	Group 12000		Group 12010	
	Count	%	Count	%
Total Population	157,921,273	100.0 %	165,884,149	100.0 %
Age 0	1,934,069	1.2 %	1,924,046	1.2 %
1 to 4	6,954,654	4.4 %	9,960,909	6.0 %
5 to 9	11,145,669	7.1 %	10,521,281	6.3 %
10 to 14	18,781,634	11.9 %	9,434,120	5.7 %

Figure 12. Administrative Unit, Index, Comparison Report

The Comparison Report (Figure 12) confirms in the title the name of the report and the data used. In this case, age comparisons for 2000 and 2010 are displayed. Part A confirms the provinces displayed and the

date the report was run. Part B is the breakdown of the age groups with count and percentage of the population by gender, year, and totals with each province displayed in separate columns.

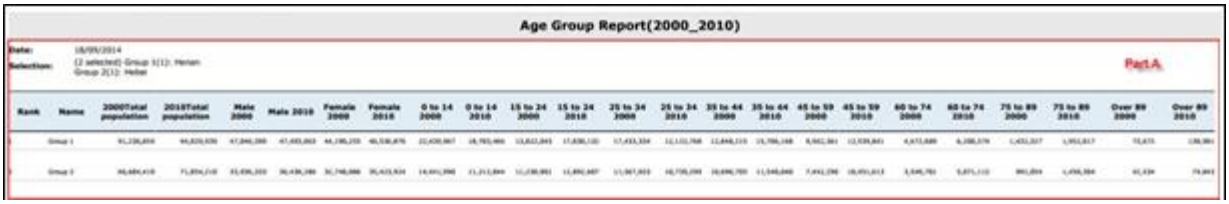
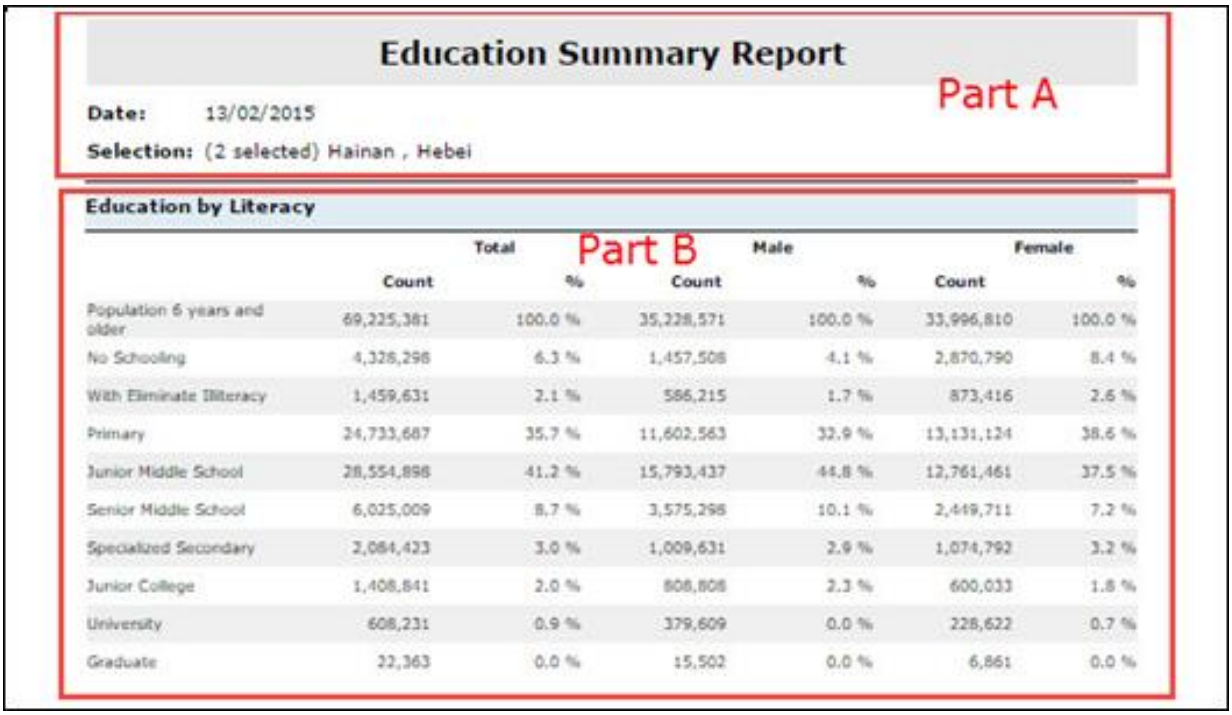


Figure 13. Administrative Unit, Index, Original Report

The Original Report – Age Group Report (2000_2010), (Figure 13) – confirms in the title the name of the report and the data used at the very top of the report. In this case, age groups for 2000 and 2010 are displayed. Part A confirms the groups displayed and the date the report was run followed by the breakdown of the age groups with count by gender, year, and totals in columns with each group displayed on separate rows.

Report



Education Summary Report

Part A

Date: 13/02/2015

Selection: (2 selected) Hainan , Hebei

Education by Literacy

Part B

	Total		Male		Female	
	Count	%	Count	%	Count	%
Population 6 years and older	69,225,381	100.0 %	35,228,571	100.0 %	33,996,810	100.0 %
No Schooling	4,328,298	6.3 %	1,457,508	4.1 %	2,870,790	8.4 %
With Eliminate Illiteracy	1,459,631	2.1 %	586,215	1.7 %	873,416	2.6 %
Primary	24,733,687	35.7 %	11,602,563	32.9 %	13,131,124	38.6 %
Junior Middle School	28,554,898	41.2 %	15,793,437	44.8 %	12,761,461	37.5 %
Senior Middle School	6,025,009	8.7 %	3,575,298	10.1 %	2,449,711	7.2 %
Specialized Secondary	2,084,423	3.0 %	1,009,631	2.9 %	1,074,792	3.2 %
Junior College	1,408,841	2.0 %	808,808	2.3 %	600,033	1.8 %
University	608,231	0.9 %	379,609	0.0 %	228,622	0.7 %
Graduate	22,363	0.0 %	15,502	0.0 %	6,861	0.0 %

Figure 14. Administrative Unit, Report, Age Summary Report

The Summary Report (Education Group Report (2000), (Figure 14) confirms in the title the name of the report and the data used at the very top of the report. In this case, education completed by individuals for 2000 is displayed. Part A confirms the groups displayed and the date the report was run, followed by the breakdown of the educational levels completed on the row and the sex, and totals in columns with percentages. The icons for saving and printing the file are at the bottom of the right-hand side of the page, not shown.

Demographic Comparison Report

Part A

Date: 13/02/2015

Selection: (2 selected) Group 1(1): Guangdong
Group 2(1): Guizhou

Household Summary

Part B

	Group 2		Group 1	
	Count	**Percent**	**Count**	**Percent**
Total Households	9,338,955	100.0 %	21,538,730	100.0 %
Family Households	9,239,409	98.9 %	18,762,127	87.1 %
Collective Households	99,546	1.1 %	2,776,603	12.9 %
Total Population	34,881,702	100.0 %	83,945,617	100.0 %
Agricultural Population	29,732,599	85.2 %	62,402,478	74.3 %
Non-Agricultural Population	5,149,103	14.8 %	21,543,139	25.7 %
Population in Family Households	34,591,772	98.1 %	69,739,958	81.8 %
Population in Collective Households	655,923	1.9 %	15,485,049	18.2 %
Average Size: Family Households	3		3	
Sex Ratio: Family Households	108		103	
Sex Ratio: Collective Households	239		104	

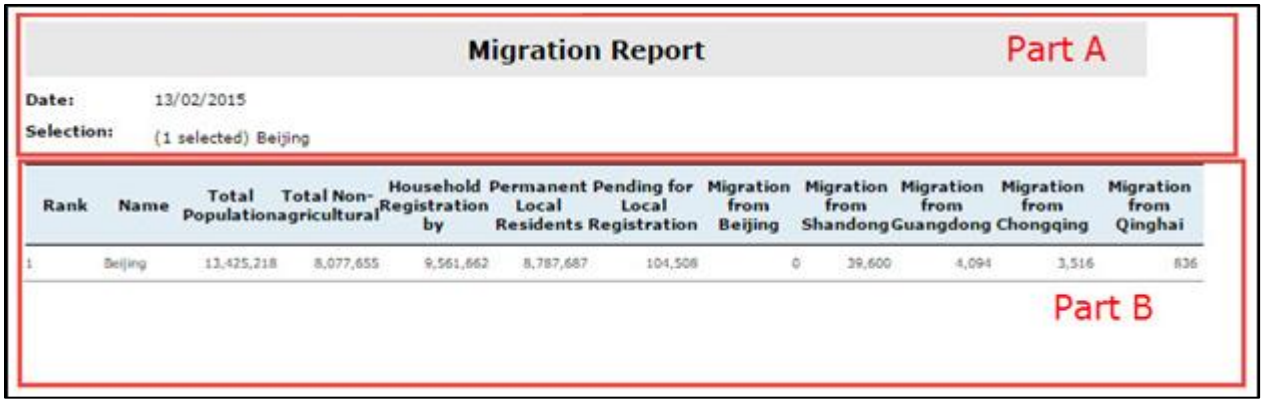
Literacy

Part C

	Group 2		Group 1	
	Count	**Percent**	**Count**	**Percent**
Total Population 15 and Over	24,613,920	100.0 %	64,673,917	100.0 %
Illiterate Population - Total	4,886,140	19.9 %	3,343,069	5.2 %
Illiterate Population - Males	1,276,469	38.1 %	556,863	10.4 %
Illiterate Population - Females	3,609,671	30.6 %	2,786,206	8.6 %

Figure 15. Administrative Unit, Report, Demographic Comparison Report

The Demographic Comparison Report (Figure 15) confirms in the title the name of the report and the data used at the very top of the report and the geographic groups selected. In this case, the demographics of the groups is displayed in three sections (only two sections are shown here.) Household Summary, Literacy, and Marital Status, shown here on the rows of the report. Part A confirms the groups displayed and the date the report was run followed by the breakdown of the household makeup, including the average family size by the group and the sex ratio for family households and collective households. In Part C, the literacy number and rate for the total population by groups is shown and the number and rate of illiteracy by sex by the group is shown. The icons for saving and printing the file are at the bottom of the right-hand side of the page, not shown.



Migration Report

Part A

Date: 13/02/2015

Selection: (1 selected) Beijing

Rank	Name	Total Population	Total Non-agricultural	Household Registration by	Permanent Local Residents	Pending for Local Registration	Migration from Beijing	Migration from Shandong	Migration from Guangdong	Migration from Chongqing	Migration from Qinghai
1	Beijing	13,425,218	8,077,655	9,561,662	8,787,687	104,508	0	39,600	4,094	3,516	836

Part B

Figure 16. Administrative Unit, Report, Original Report

The Migration Report (Figure 16) confirms in the title the name of the report and the data used at the very top of the report and the geographic area selected. In this case, the migration, both in and out, is shown here on the columns of the report. Part A confirms the group displayed and the date the report that was run. In Part B, the breakdown of the migration from regions, and the numbers of local residents, and pending in-migrations is shown. The icons for saving and printing the file are at the bottom of the right-hand side of the page, not shown.

2.3 Upload your data

The Upload Data function can be used to import users' data by downloading an Excel template for the selected regions or all regions, then adding corresponding data to index selected by the user, and uploading the Excel data file into the system in order to create the report or GIS map.

Figure 17. The Upload My Data Button in the Menu Bar

Click the Upload Your Data button (at the lower right in Figure 17), and the upload data functions screen will be shown in Figure 18. In Part I, there are the functions the user can use to download the template and upload their own data. Part II is a sample template for uploaded data. Column A displays the codes and column B displays corresponding region names. Columns C and D are the data that correspond to the indexes selected by the user.

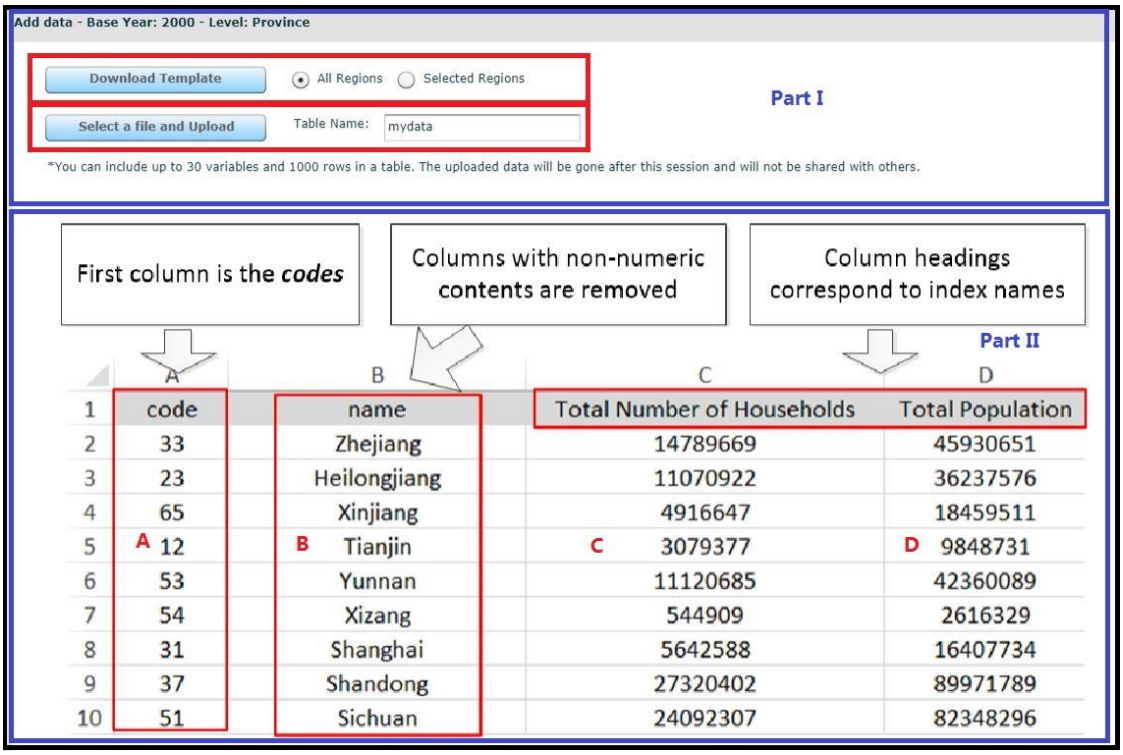


Figure 18. The Upload My Data Functions Screen

The user can download a template for all regions or selected regions for reference. Clicking the Download Template button in the top left of Part I (Figure 18) after selecting All Regions (default) or Selected Regions. The code of the regional level in the template depends on the Level selected in Figure 17. The template will download an Excel data file, which includes all province codes and names if the Province Level is selected and All Regions selected (default). Otherwise, if Selected Regions is clicked, it will download a template only for selected regions.

Using the Select a file and Upload button (in Part I of Figure 18) loads the user's data. Before uploading, enter a name in Table Name, then click Select a file and Upload to select and upload the data file with the format as same as the template. After confirming, the data will be added to the system. The limitation for the uploaded data is that up to 30 variables (indexes) and 1000 rows are allowed in a table, and the uploaded data will only be available during the current session.

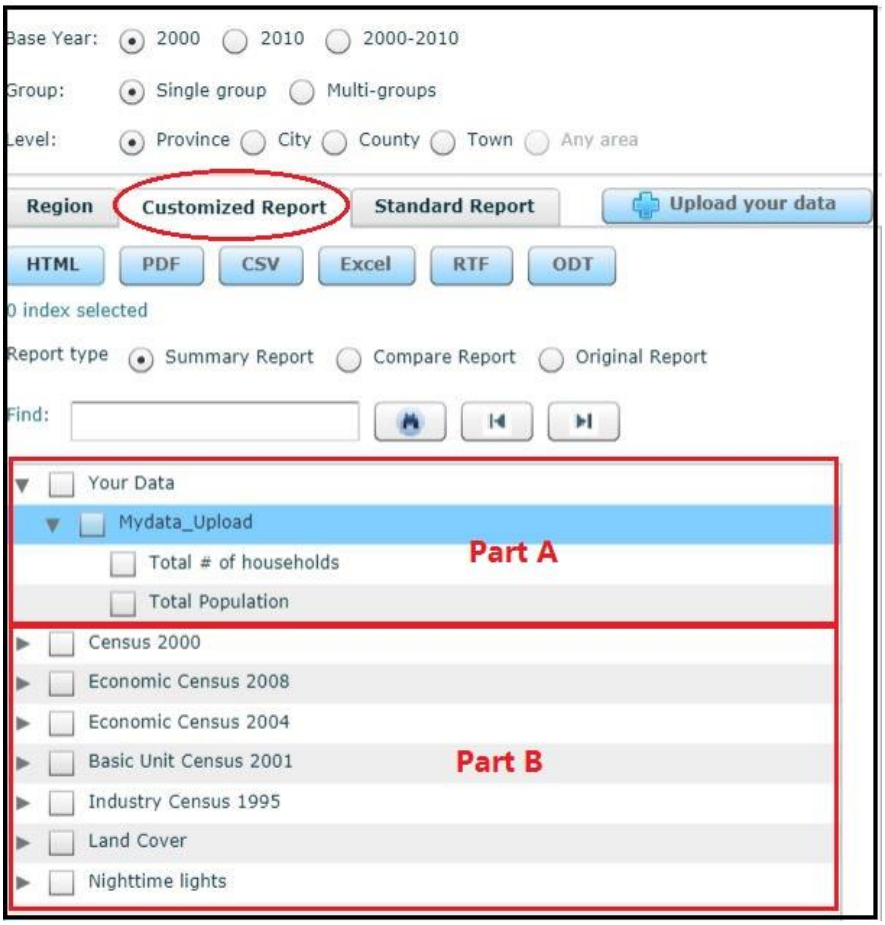


Figure 19. The Menu Screen After Uploading User's Data.

The user's data, after being uploaded successfully, will be shown as in Part A (Figure 19). The user can select Indexes from Your Data to create customized reports and GIS maps, similar to the use of the data in Part B.

3. X & Y Location

In the X & Y Location tab, the user will select the geographic region(s) that they wish to examine using the "Location" tab, and then using the Customized Report or Standard Report tabs to create reports for the data selected. The region can be selected by inputting the label, latitude, and longitude, selecting from the map or menu, or uploading a text file with the coordinates.

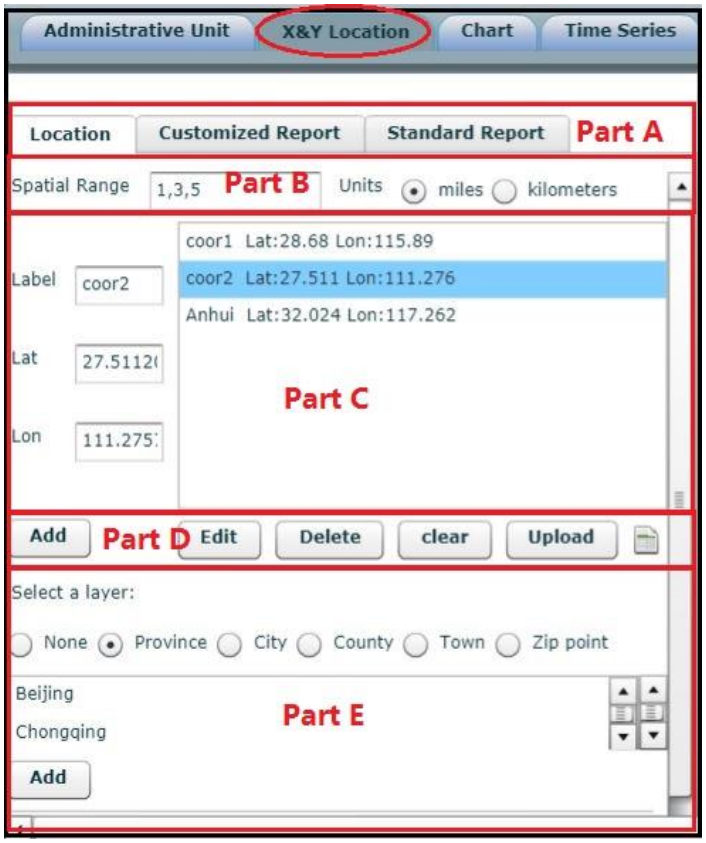


Figure 20. X & Y, Location, Menu

3.1 X & Y Location – Using Menu

3.1.1 Location

In Part C, the user can enter the coordinates as shown in Figure 20 by typing in the coordinate's label and coordinates for each desired area. Start by entering the desired coordinate's "Label," "Lat," and "Lon" in the boxes on the left side of Part C, above the "Add" button and then click on the "Add" button to move this information into the coordinate's box. The user can also edit coordinates entered into the box, select and delete an entry, or clear the box using the buttons adjacent to the Add button in Part D. The user can also upload coordinates in a text document using the "Upload" button. There is an example of an appropriate file under the document icon next to the "Upload" button. In Part E in Figure 20, a map layer can be selected by clicking one of the radio buttons that indicates the level of administrative data: Province, City, County, Town, ZIP point, or None.

When "Province" is selected a hyperlinked blue dot on the map will show the locations of the provinces. Clicking on the blue dot, adds the location with the latitude and longitude to the "Location" box in Part C. A list of the provinces is displayed in the window in Part E. The user can also click on the desired province by selecting it from the list and clicking on the "Add" button at the bottom of the window or double-click on the province's name to select it.

When “City” is selected a hyperlinked green dot will show the locations of the cities. Clicking on the green dot adds the location with the latitude and longitude to the Location box in Part C. A list of the cities and their provinces is displayed in the window in Part E. The user can also click on the desired city by selecting it from the list and clicking on the “Add” button at the bottom of the window or double-click on the city’s name to select it.

When “County” is selected, a hyperlinked green and red dot will show the locations of the counties. Clicking on the green and red dot adds the location with the latitude and longitude to the Location box in Part C. A list of the counties and their cities and provinces is displayed in the window in Part E. The user can also click on the desired county by selecting it from the list and clicking on the “Add” button at the bottom of the window or double-click on the county’s name to select it.

When “ZIP point” is selected, a pink dot will show their locations. Hovering over the map reveals red and blue hyperlinked dots adds the location with the latitude and longitude to the “Location” box in Part C. A list of ZIP points is also displayed in the window in Part E. The user can also click on the desired ZIP point by selecting it from the list and clicking on the “Add” button at the bottom of the window or double-click on the ZIP point code to select it.

When “Town” is selected, all provinces in China are listed in Part A (Figure 21) first. The user can select the desired town by clicking the desired province, city and county from the list, then all towns for the selected county are displayed in Part C (Figure 22). The user can click on the desired town by selecting it from the list and clicking on the “Add” button at the bottom of the window or double-click on the town’s name to select it.

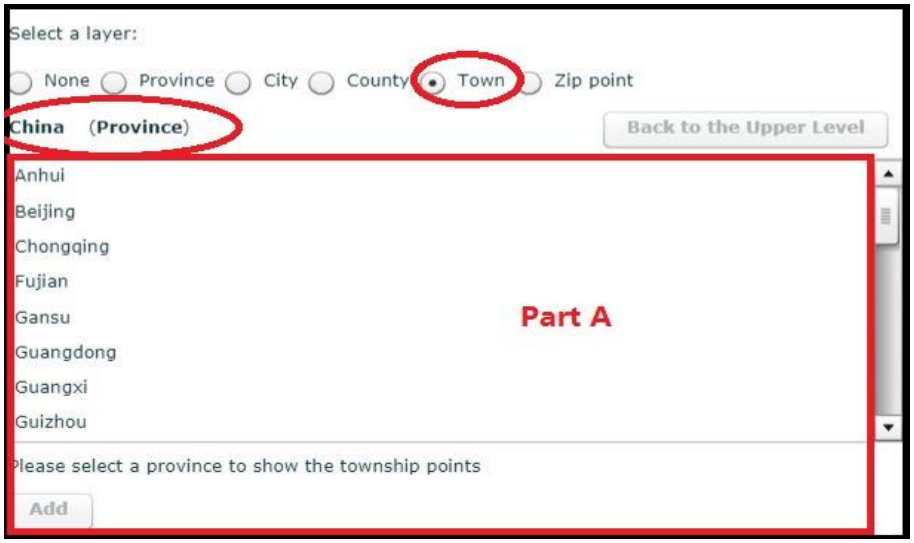


Figure21. X & Y, Location – the Screen for Selecting “Town” as a Map Layer

A green and the yellow dot will also show the locations of the towns on the right map. Hovering over the map reveals green and yellow hyperlinked dots, clicking on the green and yellow dot adds the location with the latitude and longitude to the “Location” box.

The name of the selected province, city and county information are showed on Part B (Figure 22). The level of administrative data can be back one level by clicking the Back to the Upper-Level bottom in Part B.

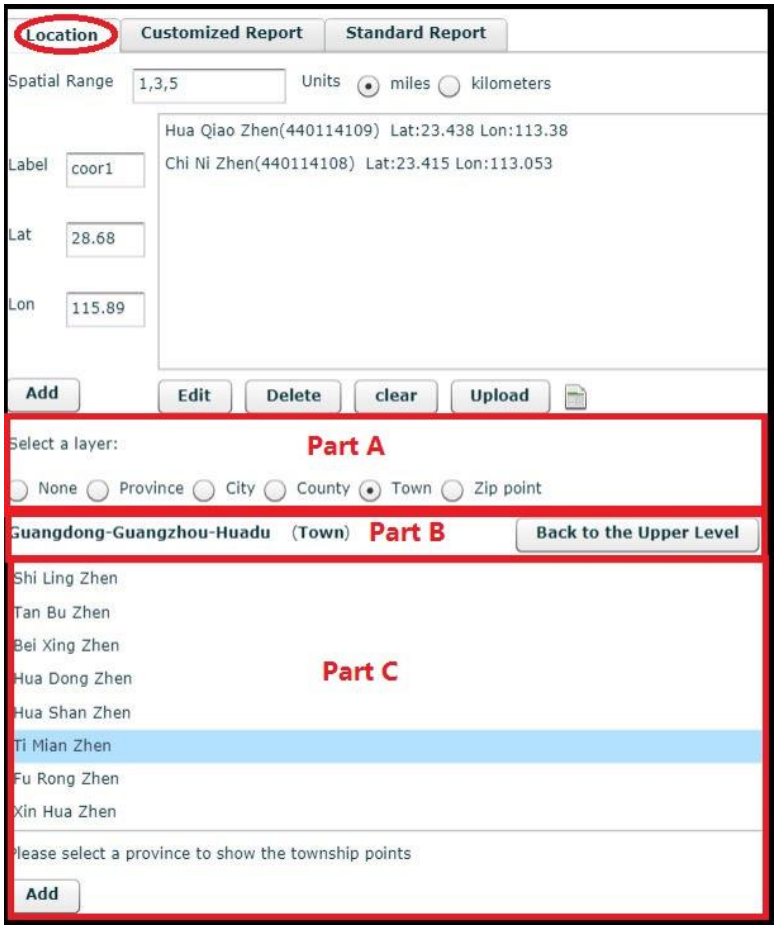


Figure22. X & Y, Location – the Screen for Selecting "Town" as a Map Layer

When "None" is selected, the map will show the provinces with the names in Chinese and the administrative boundaries drawn in. None of the other features will be clickable on the map and no geographic locations are available in the layer window.

3.2 X & Y Location – Using Map Operations

Using "Map Operations," the geographic area can be selected and will enter the selection into the Coordinates window of the Menu (Figure 23). Start by selecting the appropriate spatial range (Part B). The default setting for the spatial range is 1, 3, and 5 miles from the coordinate listed in Part A. The width of the range can be changed by entering a new range into the box next to "Spatial Range" and set the unit of measurement to either miles or kilometers in Part B. The user also can use the point tool in the map toolbox as seen in Figure 23.

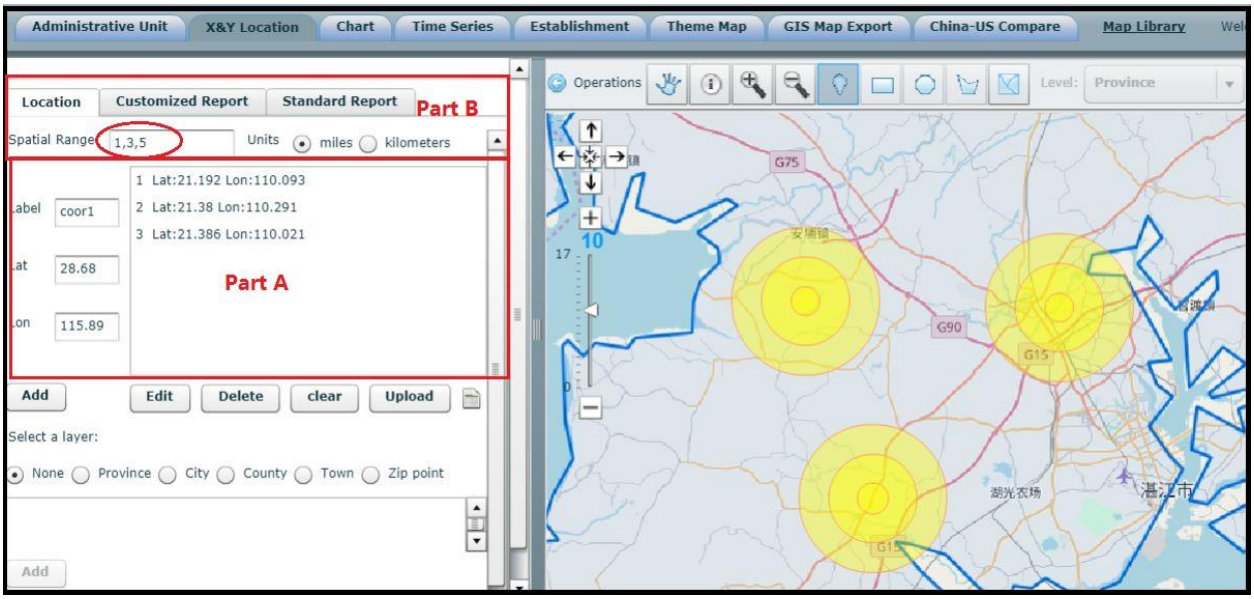


Figure 23. X & Y Location, Using Map Operations

3.2.1 Customized Report

After the region has been selected, the user may select the "Customized Report" tab, which user can create a customized report. Indexes can be selected from a list of available data for the region (Part B Figure 24) and how many indexes selected will showed in Part A. Also available is the type of report that can be chosen (Part A, Figure 24), either "Summary Report," "Compare Report," or "Original Report."

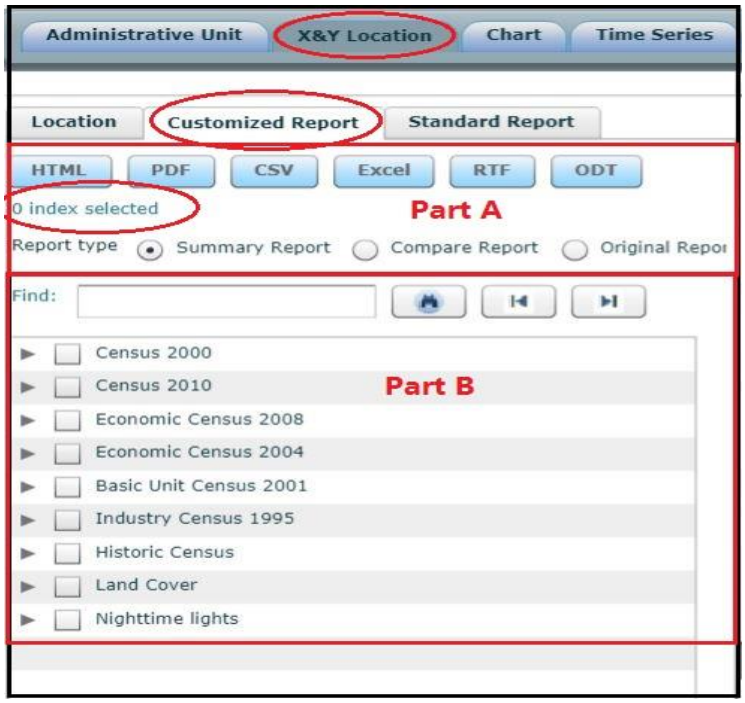


Figure24. X & Y Location, Index, Report

If the user selects “Original Report,” a dialog box will open where the user will need to specify how to rank the results and sort the data in either ascending or descending order (Figure 8). Also available is the format in which the data can be saved, exported, displayed, or printed (Part A, Figure 25). There are nine databases associated with this feature: “Census 2000,” “Census 2010,” “Economic Census 2008,” “Economic Census 2004,” “Basic Unit Census 2001,” “Industry Census 1995,” “Historic Census,” “Land Use,” and “Nighttime lights.” Each of these options has multiple data options beneath that can be selected and selecting the highest level will include all of the data beneath. Clicking on the triangle next to the name of the data option, such as Census 2000, opens further options. When there are no longer triangles next to data options, the lowest level options has been reached. The Find box on the top of Part B can be used to search the data relative to a keyword entered.

3.2.2 Standard Report

Under the “Standard Report” tab, the user can select from a number of pre-defined reports (Part B, figure 25) after the user has selected the region. In Part A, the user selects the type of output, either HTML, PDF, Excel, RTF, or ODT. These options allow the report to be used on a website (HTML), dropped into a document (PDF), use the data or map in a document being written, RTF or ODT, or perform calculations in programs like Excel or SPSS using the data. The user also can elect to produce a map with the report by selecting that option under “Report Types” (Part C, Figure 25). The program confirms the geographic area that will be included in the report (Part D, Figure 25). To edit this section, the user needs to return to the “Location” tab and make the necessary changes.

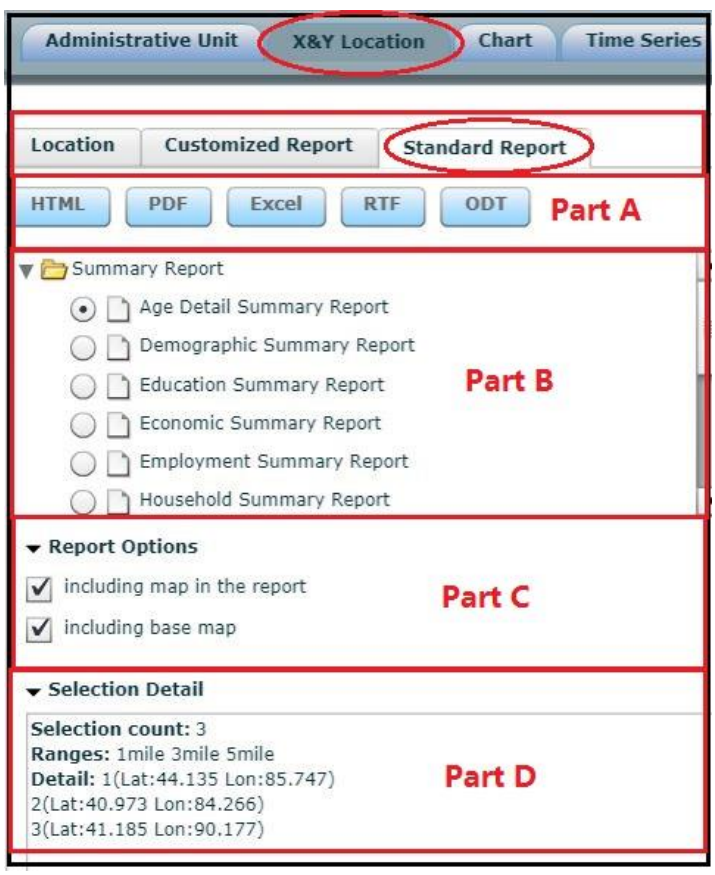


Figure 25. X & Y Location, Standard Report

3.2.3 X & Y Location – Output

In this section, the output can be in “Summary Report,” “Compare Report,” or “Original Report” in multiple formats. PDF and HTML outputs open in a new browser window and can be saved or copied from there. Excel, RTF, and ODT outputs launch a new browser window with a “Save As” window that points to the Download folder on the hard drive of the computer in use. The location where the file is saved can be changed by the user and the file name can also be changed.

Customized Report

Summary Report

Date: 15/01/2018

Selection: (1 places selected) 1(lat: 36.05 lon:103.81)
Ranges: 1mile 3mile 5mile

2000 Total Number of Households	412,786

Figure 26. X & Y Location, Customized Report, Summary Report

The Summary Report (Figure 26) confirms in the title the name of the report and the data used. In this case, the total number of households for 2000 in the specified coordinates are displayed for the coordinates (Lat: 36.05 Lon: 103.81) and the total number of households for 2000 is listed.

Compare Report

Date: 15/01/2018

Selection: (1 places selected) 1(lat: 36.05 lon:103.81)
Ranges: 1mile 3mile 5mile

	1(1mile)	1(3mile)	1(5mile)
2000 Total Number of Households	78,511	246,377	334,352

Figure 17. X & Y Location, Customized Report, Compare Report

The Compare Report (Figure 27) begins with the name of the report and the data used and the place selected and when the report was created. In this case, the total number of households for 2000 for 1 mile, 3 miles, and 5 miles from the coordinate points (Lat: 36.05 Lon: 103.81) are displayed in columns.

Original Report

Date: 15/01/2018

Selection: (1 places selected) 1(lat: 36.05 lon:103.81)
Ranges: 1mile 3mile 5mile

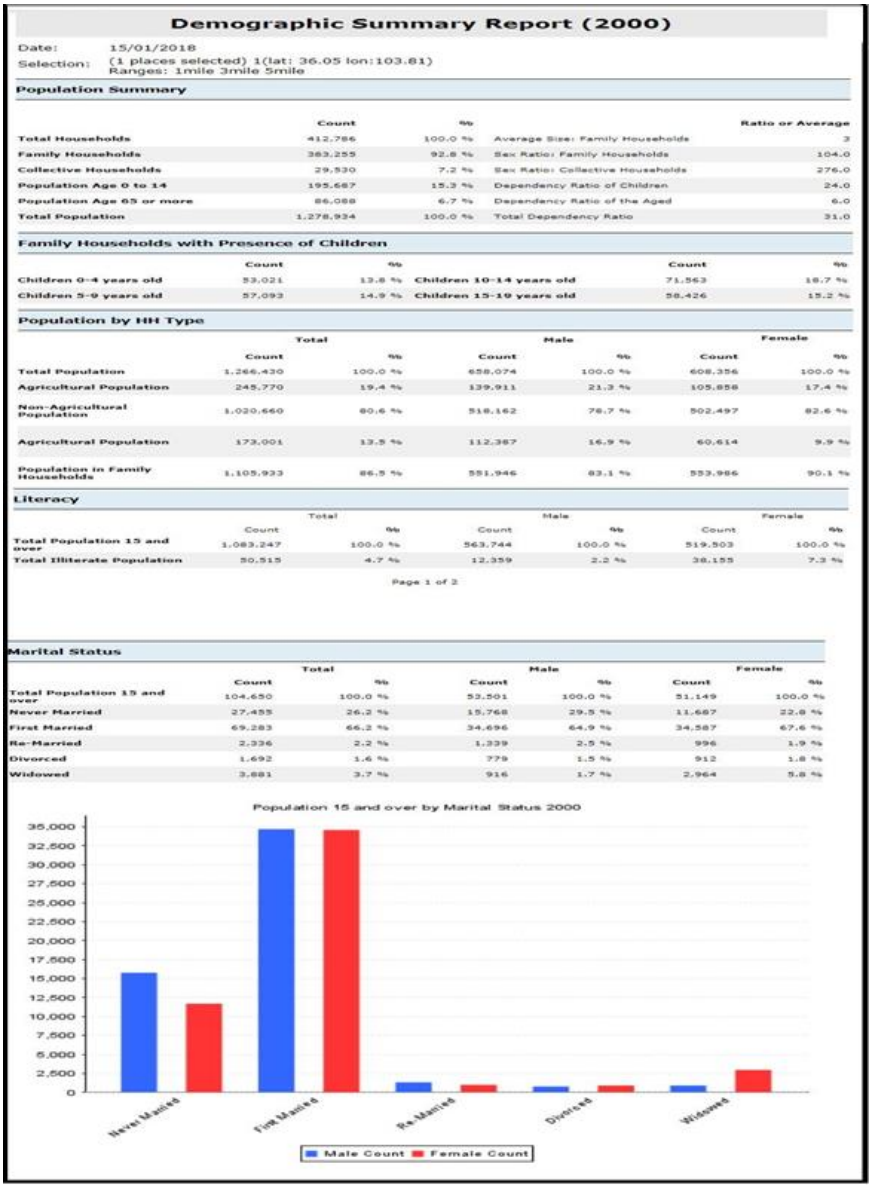
	name	range	2000 Total Number of Households
1	1(1mile)		78511
2	1(3mile)		246377
3	1(5mile)		334352

Figure 28. X & Y Location, Index, Original Report

The Original Report (Figure 28) begins with the name of the report and the data used and the place selected and when the report was created. In this case, the total number of households for 2000 for 1 mile, 3 miles, and 5 miles from the coordinate points (Lat: 36.05 Lon: 103.81) are displayed in rows.

Standard Report

The Summary Report (Demographic Summary Report (2000), (Figure 29) confirms in the title the name of the report and the data used at the very top of the report and the geographic region selected (combined), in this case, Lat: 36.05 Lon: 103.81. This report starts with a summary of the population with count and percentages given for the geographic region, followed by the family households with the presence of children, and population by household type, followed by the literacy of the population. The report continues to give the population by marital status and a chart of the population 15 and over by Marital Status 2000.



Demographic Summary Report (2000)

Date: 15/01/2018
Selection: (1 places selected) 1(lat: 36.05 lon:103.81)
Ranges: 1mile 3mile 5mile

Population Summary

	Count	%		Ratio or Average
Total Households	412,786	100.0 %	Average Size: Family Households	3
Family Households	383,255	92.8 %	Sex Ratio: Family Households	104.0
Collective Households	29,530	7.2 %	Sex Ratio: Collective Households	276.0
Population Age 0 to 14	195,687	15.3 %	Dependency Ratio of Children	24.0
Population Age 65 or more	86,088	6.7 %	Dependency Ratio of the Aged	6.0
Total Population	1,278,934	100.0 %	Total Dependency Ratio	31.0

Family Households with Presence of Children

	Count	%		Count	%
Children 0-4 years old	53,021	13.8 %	Children 10-14 years old	71,563	18.7 %
Children 5-9 years old	57,093	14.9 %	Children 15-19 years old	58,426	15.2 %

Population by HH Type

	Total		Male		Female	
	Count	%	Count	%	Count	%
Total Population	1,266,430	100.0 %	658,074	100.0 %	608,356	100.0 %
Agricultural Population	245,770	19.4 %	139,911	21.3 %	105,858	17.4 %
Non-Agricultural Population	1,020,660	80.6 %	518,162	78.7 %	502,497	82.6 %
Agricultural Population	173,001	13.5 %	112,387	16.9 %	60,614	9.9 %
Population in Family Households	1,105,933	86.5 %	551,946	83.1 %	553,986	90.1 %

Literacy

	Total		Male		Female	
	Count	%	Count	%	Count	%
Total Population 15 and over	1,083,247	100.0 %	563,744	100.0 %	519,503	100.0 %
Total Illiterate Population	50,515	4.7 %	12,359	2.2 %	38,155	7.3 %

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Marital Status

	Total		Male		Female	
	Count	%	Count	%	Count	%
Total Population 15 and over	104,650	100.0 %	53,501	100.0 %	51,149	100.0 %
Never Married	27,455	26.2 %	15,768	29.5 %	11,687	22.8 %
First Married	69,283	66.2 %	34,696	64.9 %	34,587	67.6 %
Re-Married	2,336	2.2 %	1,339	2.5 %	996	1.9 %
Divorced	1,692	1.6 %	779	1.5 %	912	1.8 %
Widowed	3,881	3.7 %	916	1.7 %	2,964	5.8 %

Figure 29. X & Y Location, Standard Report, Summary Report

Employment Comparison Report(2000)

Date: 15/01/2018

Selection: (1 places selected) coor1(lat: 36.05 lon:103.81)
Ranges: 1mile 3mile 5mile

Employment Status

	coor1(1mile)		coor1(3mile)		coor1(5mile)	
	Count	Percent	Count	Percent	Count	Percent
Employed Population	10,367	1.0	33,861	1.0	47,468	1.0
Unemployed Population	7,839	1.0	29,101	1.0	39,732	1.0
Current Students	1,496	0.2	8,647	0.3	12,532	0.3
Housework	1,400	0.2	5,183	0.2	7,073	0.2
Retired	3,180	0.4	9,422	0.3	12,346	0.3
Lost the Ability to Work (Disabled)	167	0.0	531	0.0	740	0.0
Never Worked, and Looking for a Job	477	0.1	1,655	0.1	2,287	0.1
Lost their Job, and Looking for a Job	670	0.1	2,204	0.1	2,811	0.1
Other	446	0.1	1,457	0.1	1,940	0.0

Employed Population by Occupation

	coor1(1mile)		coor1(3mile)		coor1(5mile)	
	Count	Percent	Count	Percent	Count	Percent
Government Agencies	581	5.6 %	1,734	5.1 %	2,302	4.8 %
Professional Technical	2,346	22.6 %	6,749	19.9 %	8,914	18.8 %
Clerical and Related	2,022	19.5 %	5,066	15.0 %	6,790	14.3 %
Sales and Service	2,920	28.2 %	9,515	28.1 %	12,884	27.1 %
Farming, Forestry, Husbandry, Fishery and Water Conversancy	54	0.5 %	1,267	3.7 %	2,764	5.8 %
Production and Transportation	2,414	23.3 %	9,495	28.0 %	13,772	29.0 %
Other Occupations	27	0.3 %	32	0.1 %	39	0.1 %

Employed Population by Industry

	coor1(1mile)		coor1(3mile)		coor1(5mile)	
	Count	Percent	Count	Percent	Count	Percent
Farming, Forestry, Animal Husbandry and Fishery	52	0.5 %	1,278	3.8 %	2,773	5.8 %
Mining and Quarrying	23	0.2 %	89	0.3 %	129	0.3 %
Manufacturing	1,594	15.4 %	6,653	19.6 %	10,036	21.1 %

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Electric Power, Gas and Water Production and Supply	160	1.5 %	596	1.8 %	854	1.8 %
Construction	617	6.0 %	2,479	7.3 %	3,446	7.3 %
Geological Prospecting and Water Conservancy	31	0.3 %	126	0.4 %	184	0.4 %
Transportation, Storage, Postal and Telecommunications Services	794	7.7 %	2,481	7.3 %	3,519	7.4 %
Wholesale and Retail Trade, Catering Services	2,538	24.5 %	7,625	22.5 %	10,313	21.7 %
Banking and Insurance	511	4.9 %	941	2.8 %	1,217	2.6 %
Real Estate Management	190	1.8 %	399	1.2 %	493	1.0 %
Social Services	970	9.4 %	3,207	9.5 %	4,060	8.6 %
Health Care, Sport and Social Welfare	315	3.0 %	1,158	3.4 %	1,427	3.0 %
Education, Culture and Arts, Radio, Film and Television	837	8.1 %	2,410	7.1 %	3,346	7.0 %
Scientific Research and Polytechnic Services	375	3.6 %	1,425	4.2 %	1,766	3.7 %
Government Agencies, Party Agencies and Social Organizations	1,222	11.8 %	2,616	7.7 %	3,400	7.2 %
Other Sectors	130	1.3 %	372	1.1 %	497	1.0 %

Figure 30. X & Y Location, Standard Report, Compare Report

The Compare Report (Employment Comparison Report 2000), (Figure 30) confirms in the title the name of the report and the data used at the very top of the report and the geographic region selected, in this

case, Lat: 36.05 Lon: 103.81. This report starts with a summary of the employment status by the range from the X & Y location on the map in count and percentages, followed by the population by occupation also given in range from the X & Y location in count and percentages, followed by the employed population by industry displayed in the format as above. The report continues to a second page and continues the section on the employed population by industry.

The Original Report Household Report (2000), (Figure 31) confirms in the title the name of the report and the data used in the report and the geographic region selected, in this case, Lat: 36.05 Lon: 103.81. This report has the ranges, 1 mile, 3 miles, and 5 miles on the row with the total households, family households, collective households, and household sizes in miles.

Household Report(2000)

Date: 15/01/2018

Selection: (1 places selected) coor1(lat: 26.05 lon:103.81)
Ranges: 1mile 3mile 5mile

Rank	Name	Total Households	Family Households	Collective Households	Household Size-One Person	Household Size- Two Person	Household Size- Three Person	Household Size- Four Person	Household Size- Five Person	Household Size- Six Person	Household Size- Seven Person
1	coor1(5mile)	4,477	4,473	3	325	588	1,024	1,753	590	141	39
2	coor1(3mile)	1,643	1,642	1	119	215	375	643	216	51	14
3	coor1(1mile)	231	231	0	16	30	52	90	30	7	2

Figure 3118. X & Y Location, Report, Original Report

4. Chart

In the Chart tab, the user can generate charts on either “Yearly Statistics” tab or “Economic Census” tab (Part A, Figure 32). The default setting is on Yearly Statistics tab.

4.1 Yearly Statistics

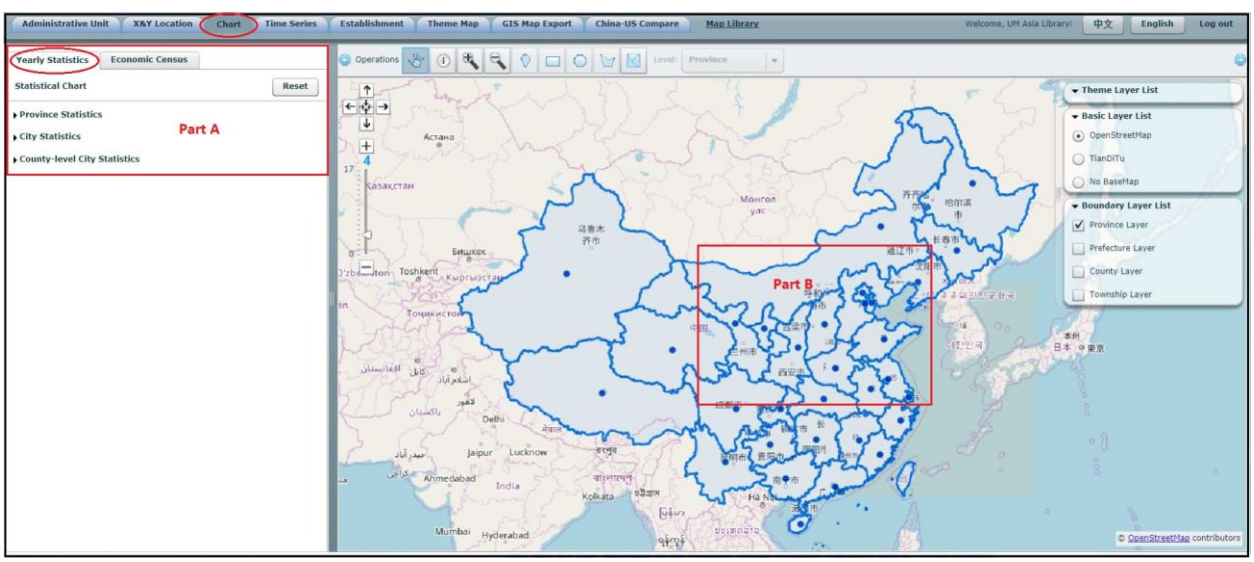


Figure 32. Chart Menu

In the Yearly Statistics tab, the user can generate charts based on “Province,” “City,” “County,” statistics. The chart and the associated statistics are displayed in a pop-up window and the user can edit the time period displayed in the box and can be exported in PDF format by clicking on the “Export” button.

4.1.1 Province Statistics

The default setting of the Yearly Statistics tab shows the map view with blue dots on each of the provinces (Part B, Figure 32) and the data that is selected is the “Gross Domestic Product,” which will display for each of the provinces when the blue dot or hyperlink is clicked. The link will turn red when the cursor hovers over it. To clear choices from the interface, click the “Reset” button in the upper right-hand corner of the Menu. This restores the defaults for all options, which generally is the first dataset in the list. Next to each of the available data is a gear icon, which allows the user to select the scaling for the data.

Province Statistics Using Menu

These data are a basic descriptor of the Province, include economic indicators such as “Gross Domestic Product,” “Total Investments in Fixed Assets,” and “Revenue and Expenditure.” It has social indications such as “Population,” “Basic Statistics for Education,” “Basic Statistics on Culture”. There are indicators on the community resources, such as “Transportation,” “Postal,” and “Telecommunication Services,” “Floor Space of Buildings and Real Estate Development,” and “Natural Resources.”

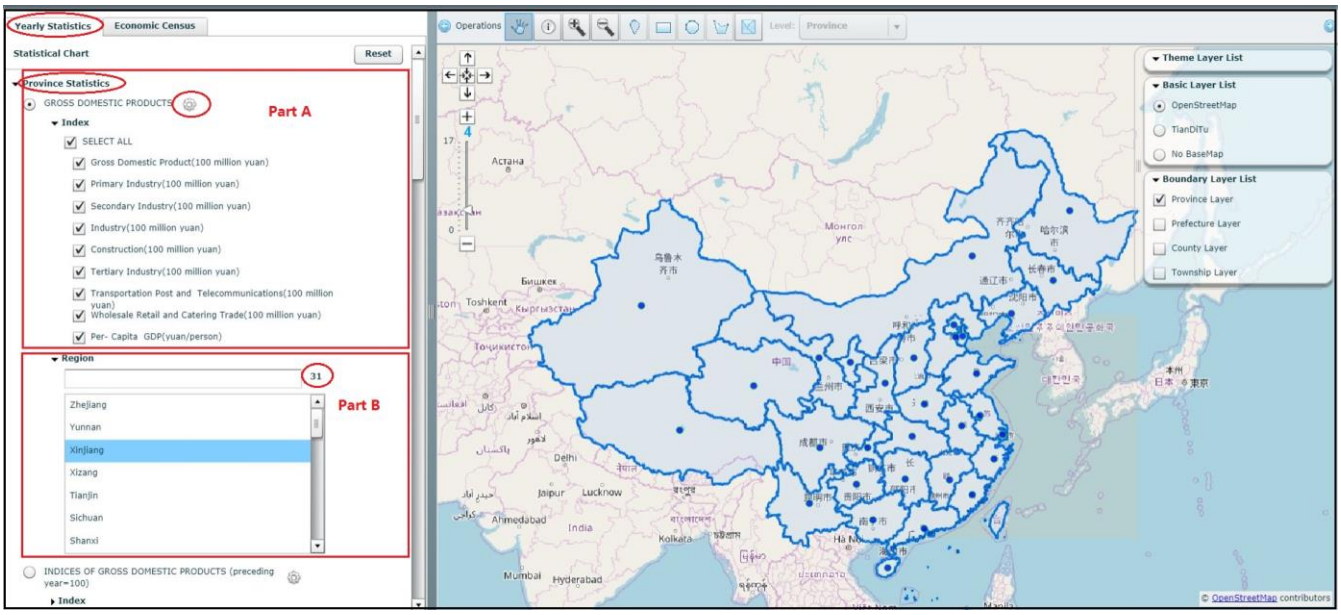


Figure 33. Yearly Statistics, Province Statistics

Figure 34. Yearly Statistics, Province Statistics, Layer Scale Setting

To create a chart, the user selects the link for "Province Statistics," which opens the options for data and geographic regions (Figure 33, Chart, Province Statistics). In Part A, the user checks on "Index" to select the dataset to be displayed on the Chart. By default, each of the options has a checked box but the user can de-select data that is not required. Next to the heading for the category of data is a gear icon, which allows the user to select the minimum and maximum scale for the map layers (Figure 34) In Part B, the geographic region is selected by clicking on "Observation List" but only one of the provinces can be chosen at a time. Next to the box for the selection from the "Observation List" is a count of the number of provinces that can be selected. When both the data and the geographic region are selected, the chart launches in a separate window (Figure 35). If a new province is chosen subsequently, a new window will open with the chart on top of the previous chart.

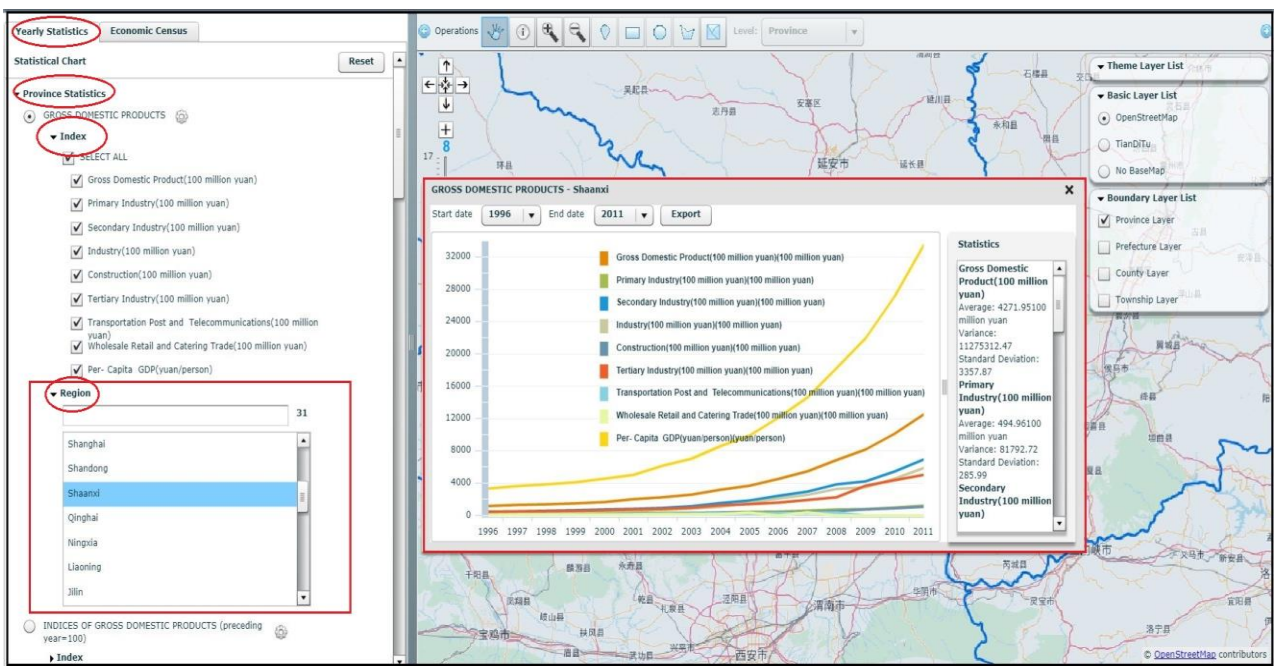


Figure 35. Yearly Statistics, Province Statistics, with Chart Displayed

The chart window confirms the information in the chart at the very top of the window, in this case (Figure 36), the data are the "Gross Domestic Product" for the province, "Zhejiang." It lets the user change the time frame for the chart and export the chart and data in Part A. If the "Export" button is selected, the chart and table with the data will open in PDF format in a new browser window. Part B is the actual chart with the data selected displayed as lines colored as described in the legend. Part C

displays the values for the chart in a table format and has links to internet search results for the province at the bottom of the table.

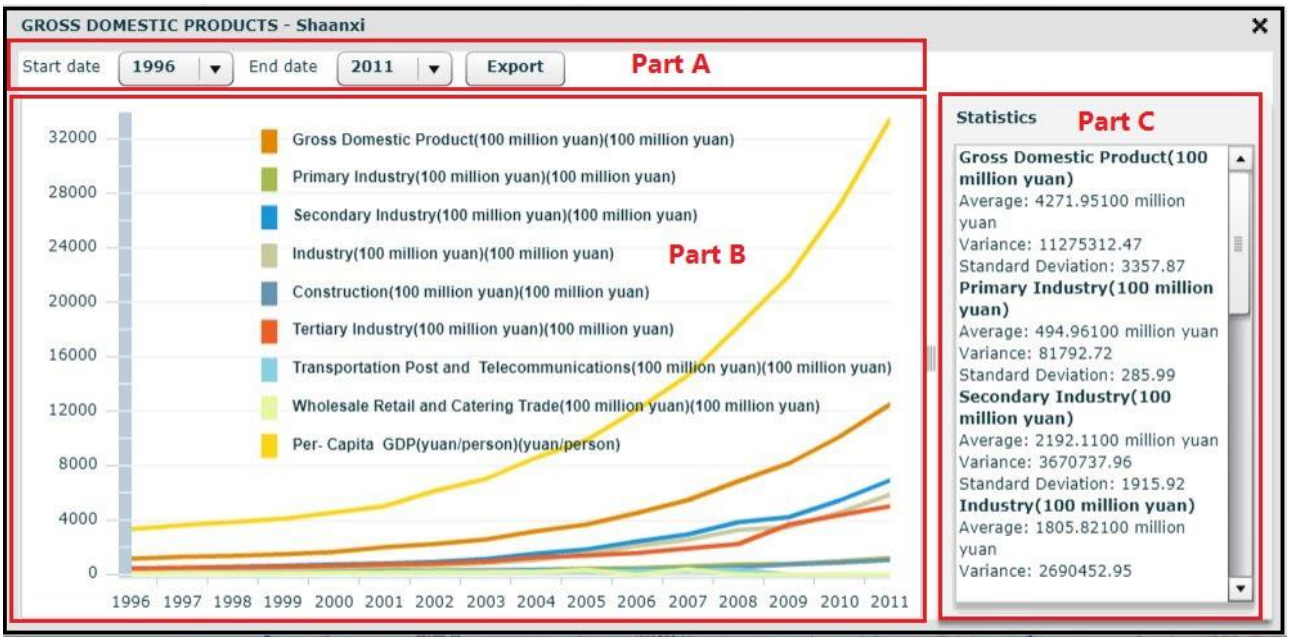


Figure 36. Yearly Statistics, Province Statistics, Chart

Province Statistics – Using Map Operations

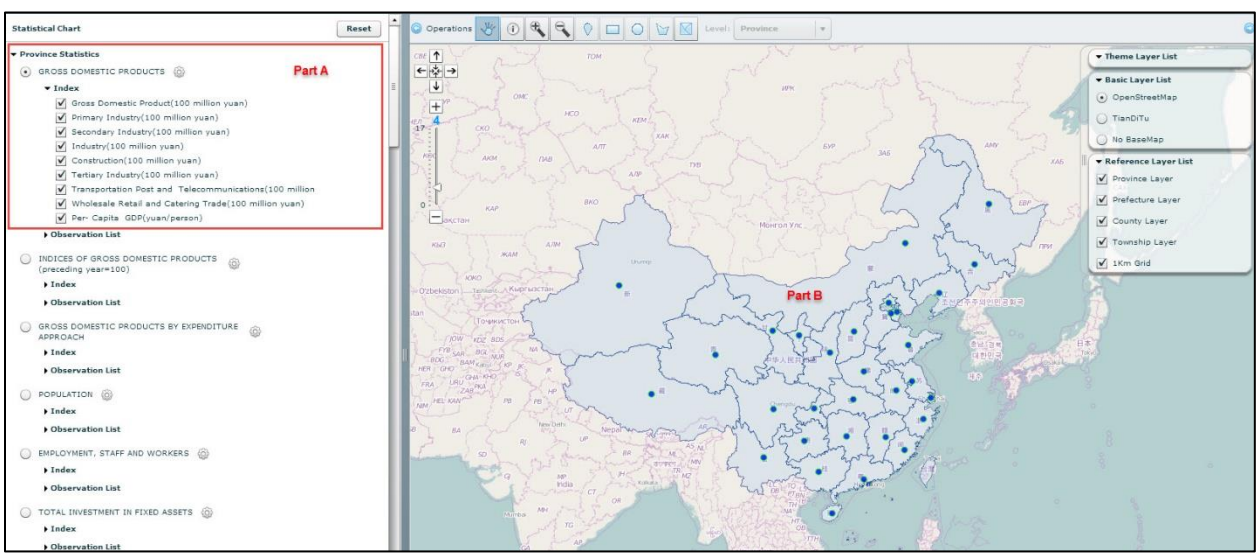


Figure 37. Chart, Province Statistics, Using Map Window

The user has the option to select the province using the map window by clicking the radio button to select the data group. Below, the data will have checked boxes next to them. The user can deselect as required (Part A, Figure 37). A blue dot appears on the map in each of the provinces that is a hyperlink to the chart (Part B, Figure 37). Hovering over the dot turns it red. Clicking on it launches the chart with the data selected. As above, the chart's timeline can be adjusted as needed in this window and the chart and table can be exported in PDF format.

4.1.2 City Statistics

These data are basic descriptors of the City and include economic indicators such as “Commercial Economy,” “Investments in Fixed Assets,” and “Finance and Banking.” It has social indications such as “Population,” “Number of Full-time Teachers,” and “Culture.” There are indicators on the community resources, such as “Number of Schools,” “Public Health,” and “Transportation.” However, until the user selects a new data source for the chart, the default will remain loaded in the map view. Opening the “City Statistics” option and clicking the radio button for any data will display green dots or hyperlinks for the cities in the “Observation List.” The link will turn red when the cursor hovers over it.

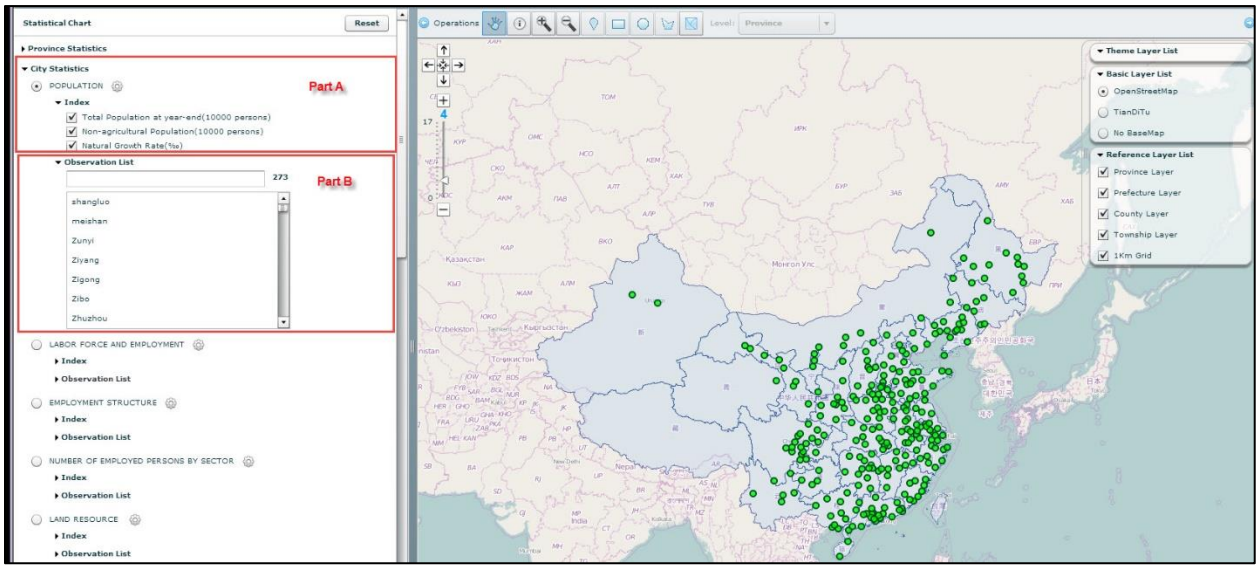


Figure 38. Yearly Statistics, City Statistics

City Statistics – Using Menu

To create a chart, the user selects the link for “City Statistics,” which opens the options for data and geographic regions (Figure 38, Yearly Statistics, City Statistics). In Part A, the user checks on “Index” to select the dataset to be displayed on the Chart. By default, each of the options has a checked box but the user can de-select data that is not required. In Part B, the city is selected by clicking on “Observation List” but only one of the cities can be chosen at a time. Alternately, the user can select the city by clicking on a green dot in the map view. Next to the box for the selection from the “Observation List” is a count of the number of cities that can be selected. When both the data and the city are selected, the chart launches in a separate window (Figure 39). If a new city is chosen subsequently, a new window will open with the chart on top of the existing chart. To print or save the table and chart, click on the “Export” button in Part A.

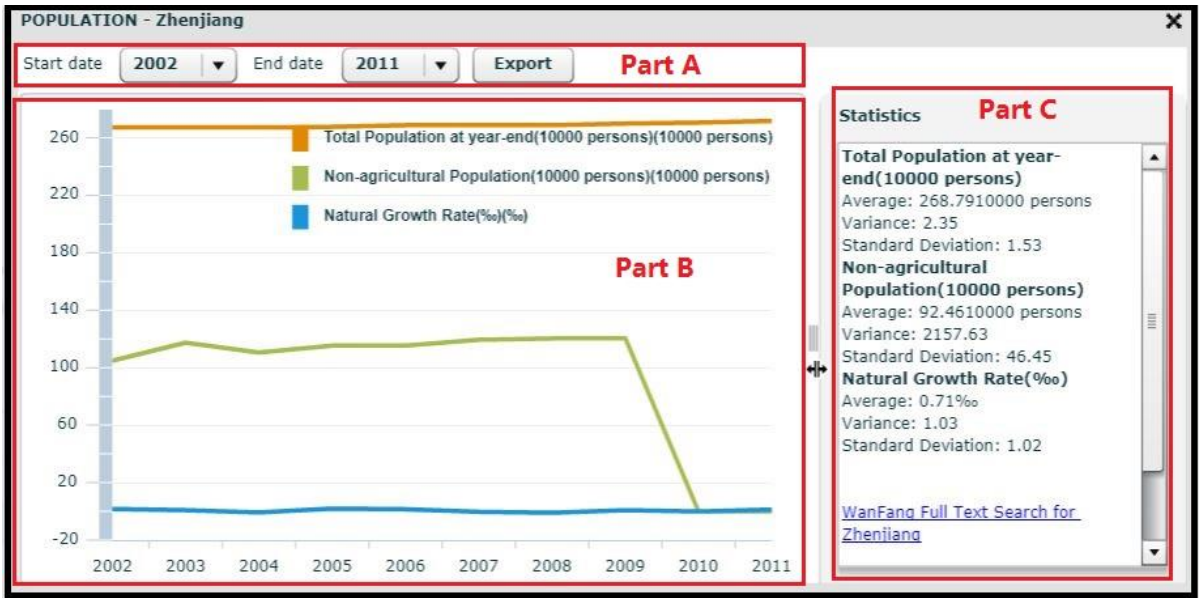


Figure 39. Chart, City Statistics, Chart

The chart window confirms the information in the chart at the very top of the window, in this case (Figure 39), the data are the "Population" for the city, Zhenjiang. It lets the user change the time frame for the chart and export the chart and data in Part A. If the "Export" button is selected, the chart and table with the data will open in PDF format in a new browser window. Part B is the actual chart with the data selected displayed as lines colored as described in the legend. Part C displays the values for the chart in a table format and has links to internet search results for the province at the bottom of the table.

City Statistics – Using Map Operations

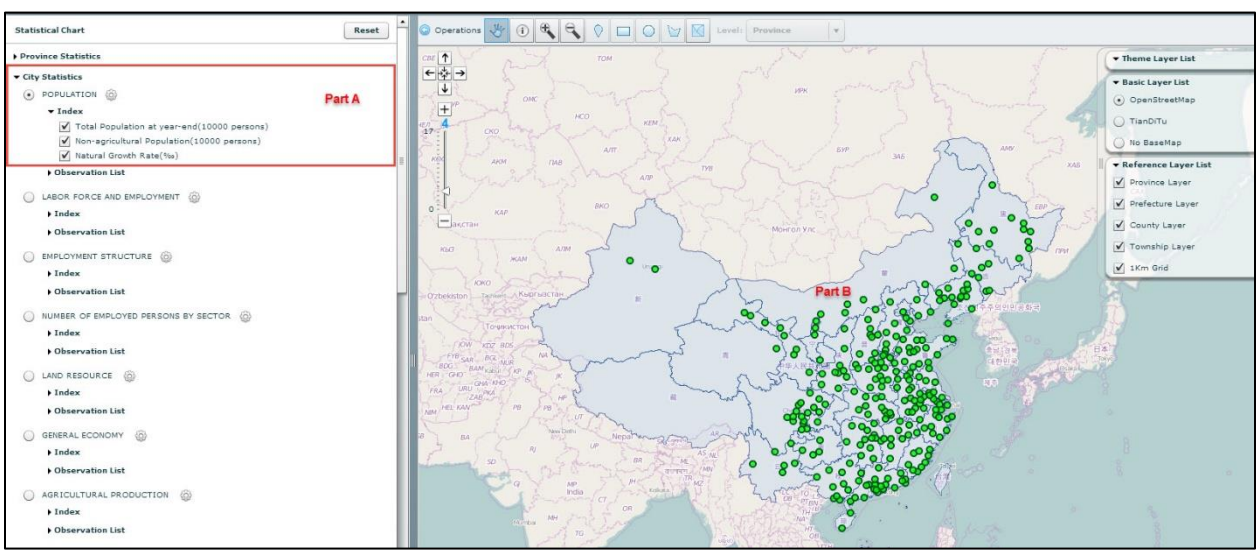


Figure 40. Yearly Statistics, City Statistics, Map View

The user has the option to select the city using the map window by clicking the radio button to select the data (Part A. Figure 40). The list below the chosen data group has data with checked boxes. The user can de-select data that are not required. A green dot appears on the map for each of the cities that is a hyperlink to the chart (Part B, Figure 40). Hovering over the dot turns it red. Clicking on the dot launches the chart with the data selected. As above, the chart's timeline can be adjusted as needed in the chart window, and the chart and table can be exported in PDF format (Figure 39). The formatting and options for the chart are the same for these data as for those for the province data (Figure 39).

4.1.3 County Statistics

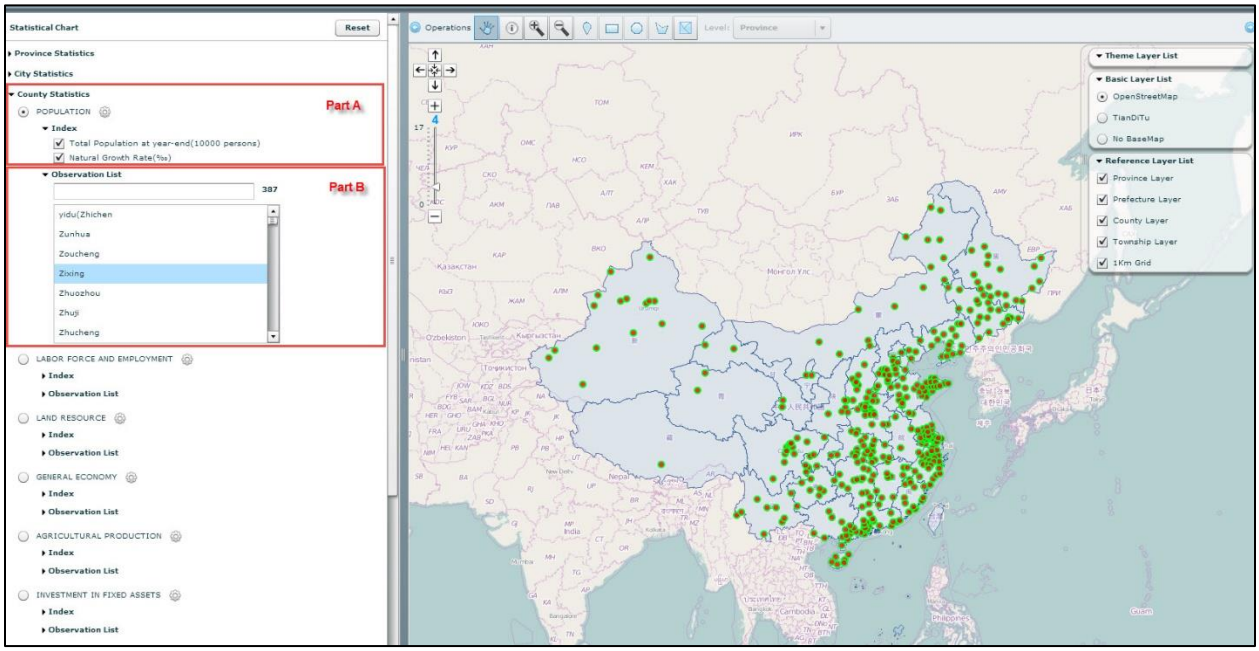


Figure 19. Yearly Statistics, County Statistics

County Statistics Using Menu

To create a chart, the user selects the link for "County Statistics," which opens the options for data and geographic regions (Figure 41, Chart tab, County Statistics). In Part A, the user checks on "Index" to select the dataset to be displayed on the Chart. By default, each of the options has a checked box but the user can de-select data that is not required. In Part B, the county is selected by clicking on "Observation List" but only one of the counties can be chosen at a time. Alternately, the user can select the county by clicking on a green and red dot in the map view. Next to the box for the selection from the "Observation List" is the number of counties that can be selected. When both the data and the county are selected, the chart launches in a separate window. To print or save the table and chart, click on the "Export" button in Part A (Figure 39).

County Statistics – Using Map Operations

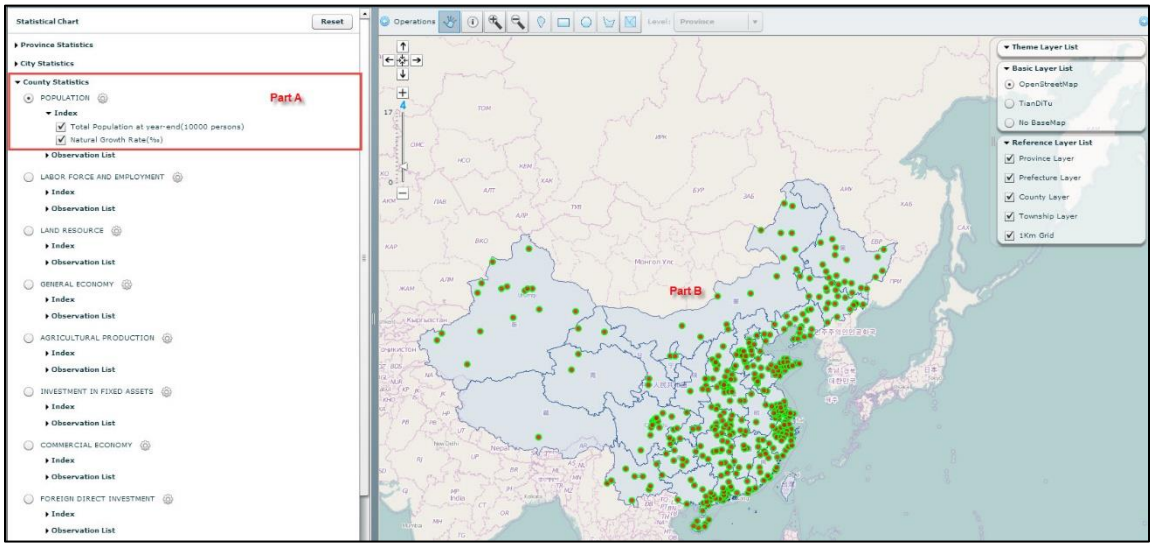


Figure 42. Yearly Statistics, County Statistics, Map View

The user has the option to select the city using the map window by clicking the radio button to select the data (Part A. Figure 42). The list below the chosen data group has data with checked boxes. The user can de-select data that are not required. A green dot appears on the map for each of the counties that is a hyperlink to the chart (Part B, Figure 42). Hovering over the dot turns it red. Clicking on the dot launches the chart with the data selected. As above, the chart's timeline can be adjusted as needed in the chart window and the chart and table can be exported in PDF format (Figure 43). To print or save the table and chart, click on the "Export" button in Part A in the upper right-hand corner.

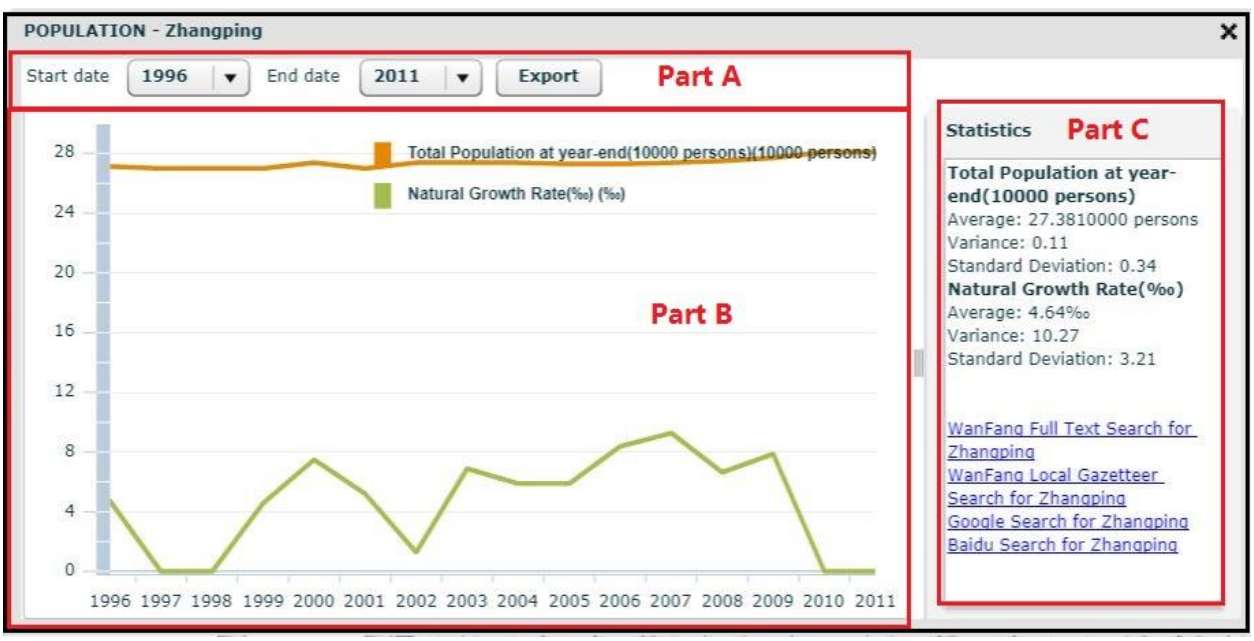


Figure 43. Yearly Statistics, County Statistics, Chart

The chart window confirms the information in the chart at the very top of the window, in this case (Figure 43), the data are the "Population" for the county, "Zhangping." It lets the user change the time frame for the chart and export the chart and data in Part A. If the "Export" button is selected, the chart and table with the data will open in PDF format in a new browser window. Part B is the actual chart with the data selected displayed as lines colored as described in the legend. Part C displays the values for the chart in a table format and has links to internet search results for the province at the bottom of the table.

4.1.4 Chart – Output

The output for this tab is found in the displayed chart or table and can be saved by using the "Export" button which is next to the End date of the displayed chart or table. The appearance of the output is the same as that seen in the display of the table and chart.

4.2 Economic Census

Economic Census tab allows the user to look at data at the Nation, Province, or City levels and displays the data in a chart and table. The data include economic, social, cultural, and natural resources. The chart and table display the data over time. The national level is selected by default.

4.2.1 National Statistics

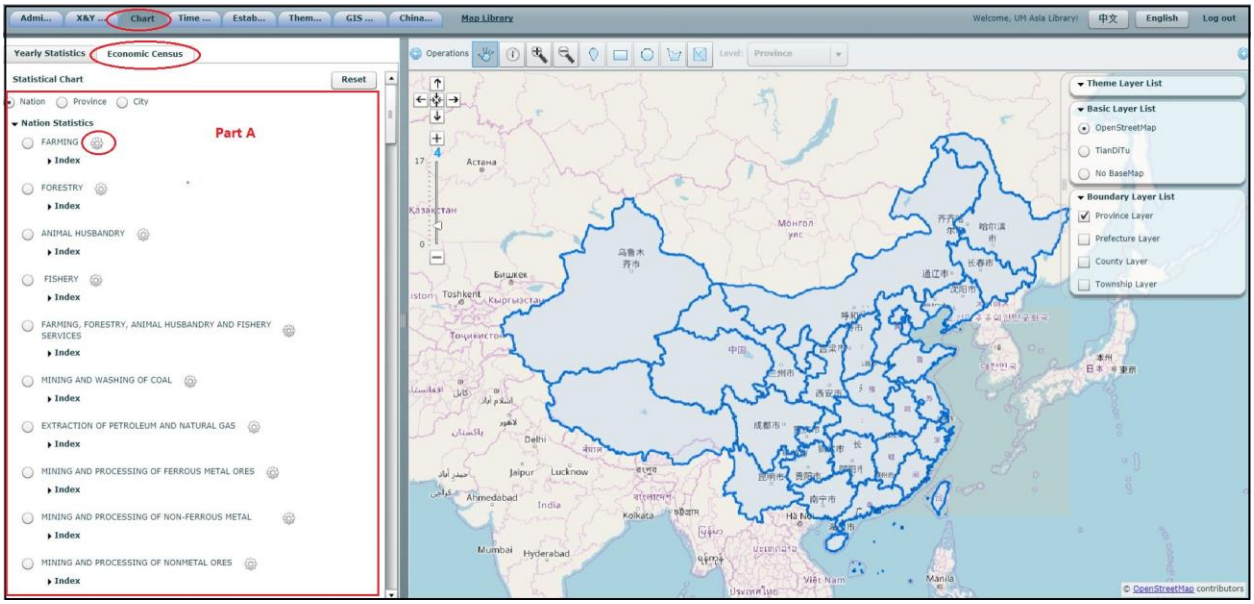


Figure 20. Economic Census, Nation Statistics

Nation Statistics – Using Menu

These data are a basic descriptor of the "Nation," and include economic indicators such as "Farming", "Forestry", "Manufacture", "Education", "Health Care", "Transport", "Computer Services" (Part A, Figure 44). As the data are aggregated at the national level, there is no "Observation List" or option to click a link on the map.

To create a table and chart, the user selects the link for “Nation Statistics,” which opens the options for data (Figure 44, Economic Census tab, Nation Statistics). In Part A, the user clicks the radio button for the topic that they wish to examine. Further refinement of the selection can be made by opening the “Index” and de-selecting options that are not required.

Figure 21. Economic Census, National Statistics, Layer Scale Setting

Next to the box for the selection of data category (Part A, Figure 44), there is a gear icon that allows the user to select the minimum and maximum scale for the map layers (Figure 45).

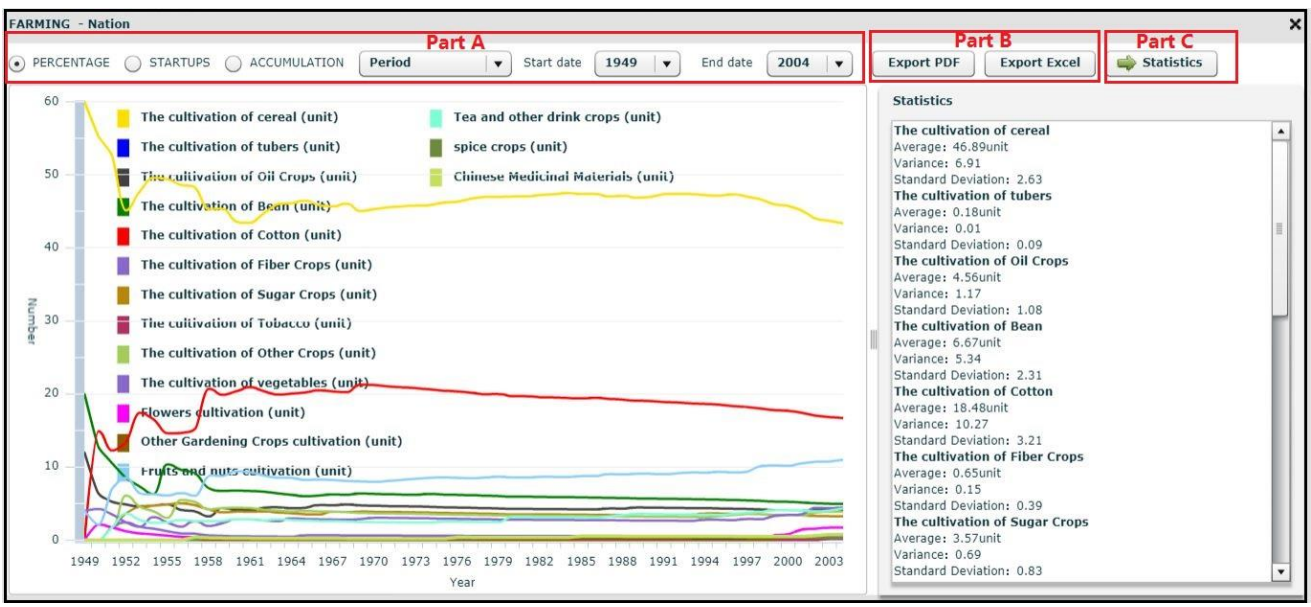


Figure 22. Economic Census, Nation Statistics, Chart and Table Output

When the data are selected, the chart launches in a separate window (Figure 46). If a new data category is chosen subsequently, a new window will open with the chart on top of the existing chart. In Part A of the chart window, the user can adjust the time range to display in the chart and change the measure to display, either percentages, startups, or accumulation. The time period can be changed in several ways. By default, the display is all data from 1949 through 2004. The user has the option to adjust the range by clicking on the button “Period,” and selecting from the options, from the “last two year” to “last ten years.” Also, the exact dates for the start date and end date can be changed by specifying the exact years in the drop down boxes next to those options. In Part B, the user can export the data in Excel format or the chart and table can be exported in a PDF format. In Part C, the user can display the optional table. By default, the table window is closed and the arrow on the “Statistics” button is pointing

to the left. To open it, click on the “Statistics” button and the arrow will point to the right. In this tab, there are no links to searches on the geographic region.

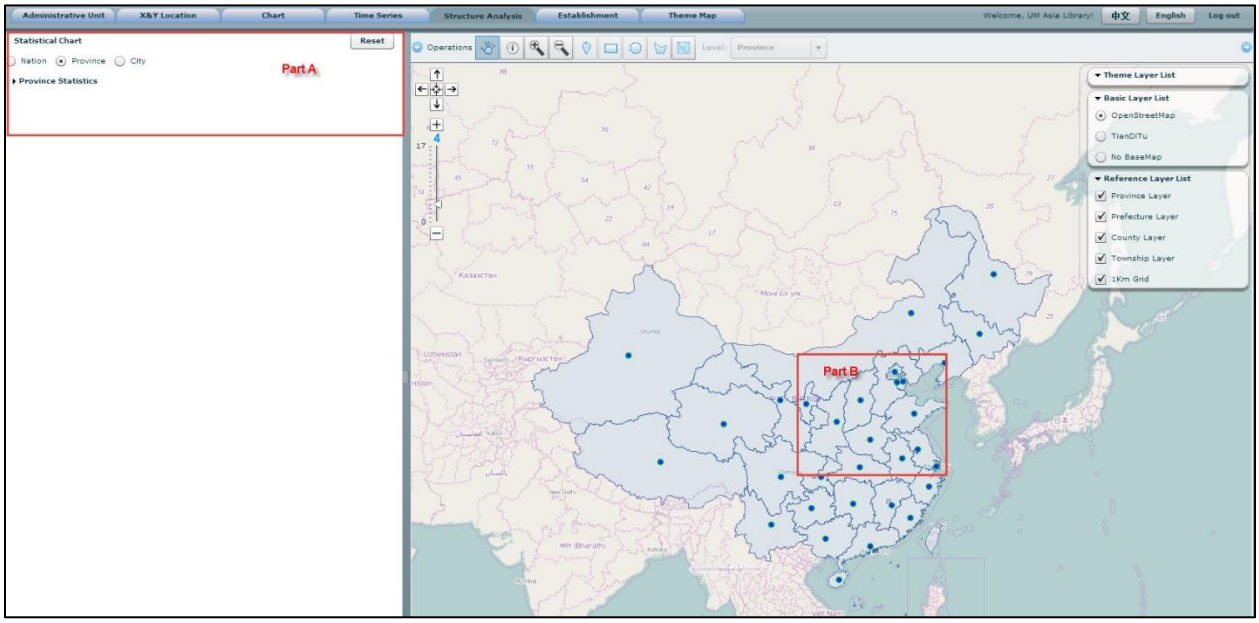


Figure 23. Economic Census, Province Statistics

4.2.2 Province Statistics

Province Statistics – Using Menu

These data are a basic descriptor of the Province and include economic indicators such as “Farming”, “Forestry”, “Manufacture”, “Education”, “Health Care”, “Transport”, “Computer Services” (Part A, Figure 48). As the data are aggregated at the national level, there is no “Observation List” or option to click a link on the map.

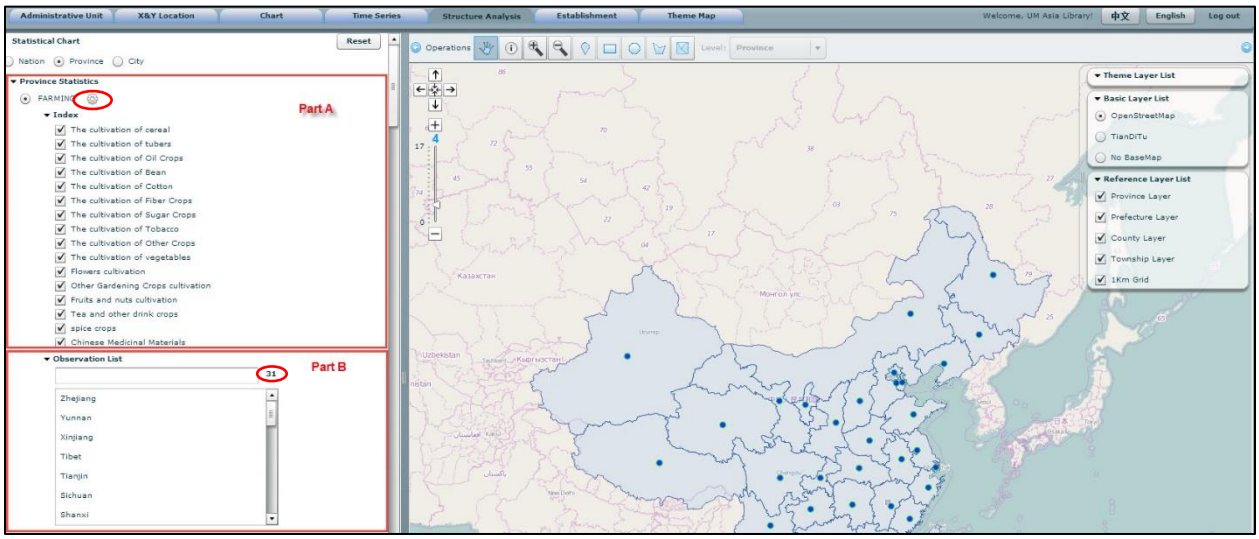


Figure 24. Economic Census, Province Statistics

To create a table and chart, the user selects the link for “Province Statistics,” which opens the options for data and geographic regions (Figure 48). In Part A, the user clicks the radio button for the topic that they wish to examine. By default, the first topic, Farming, is checked and each of the variables in the Index has a checked box but the user can de-select data that is not required. Please note that the variable names will still be in the legend of the chart but there will be no data for that deselection. In Part B, the province is selected by clicking on “Observation List” but only one of the provinces can be chosen at a time. In this tab, the map does not display the choice made in the menu but zooms into the area selected at level 8 on the map.

Figure 25. Economic Census, Province Statistics, Layer Scale Setting

Next to the box for the selection from the “Observation List” is a count of the number of provinces that can be selected, and next to the headings under “Province Statistics” is a gear icon, which allows the user to select the minimum and maximum scale for the map layers (Figure 49).

Province Statistics – Using Map Operations

After selecting the “Province” radio button and selecting the data to be displayed, the user moves to the map window and clicks on the blue hyperlinked button for the Provinces and selects one for display. The blue link will turn red when the cursor hovers over it. Once clicked, the chart and table for the selected province will be displayed. The hyperlink returns to blue after it has been clicked. The “Map Operations” options to choose a region are disabled in this tab.

When both the data and the province are selected, the chart launches in a separate window (Figure 50) if a new province is chosen subsequently, a new window will open with the chart on top of the existing chart. In Part A of the chart window, the user can adjust the time range to display in the chart and change the measure to display, either percentages, startups, or accumulation. The time period can be changed in several ways. By default, the display is all data from 1949 through 2004 but the user has the option to adjust the range by clicking on the button “Period,” and selecting from the options, from the “last two year” to “last ten years” or the exact dates for the start date and end date can be changed by specifying the exact years in the drop down boxes next to those options. In Part B, the user can export the data in Excel format or the chart and table can be exported in a PDF format. In Part C, the user can display the optional table. By default, the table window is closed and the arrow on the “Statistics” button is pointing to the left. To open it, click on the “Statistics” button and the arrow will point to the right. In this tab, there are no links to searches on the geographic region. If there are no data for the selected province, the chart will be blank and the table will have zeros for each of the variables in the legend (Figure 51).

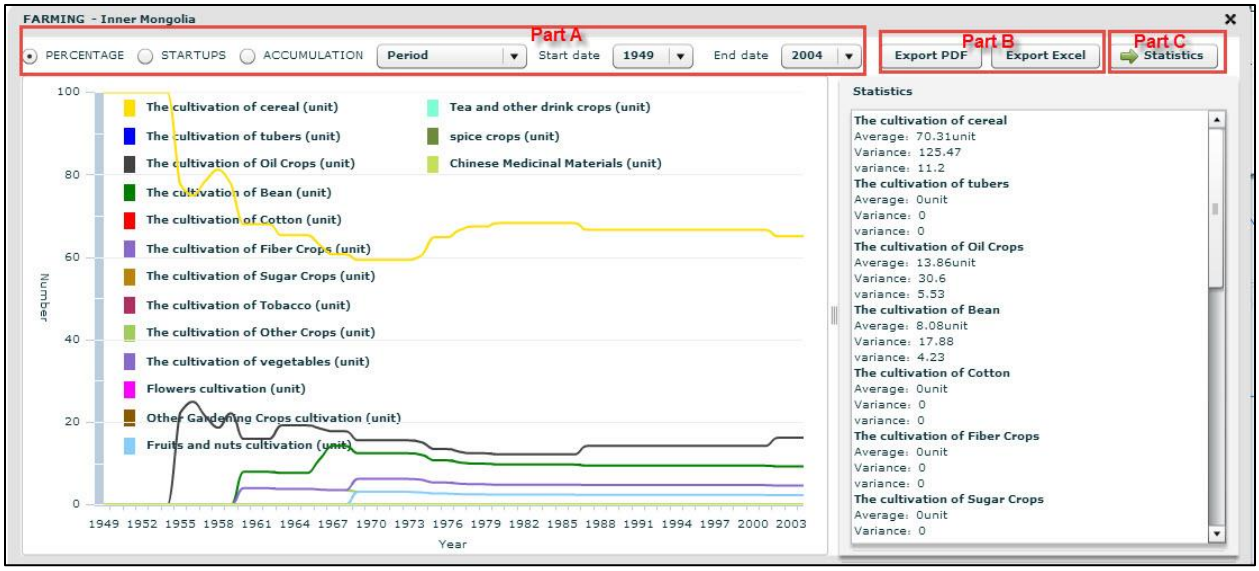


Figure 26. Economic Census, Province Statistics, Chart and Table Output

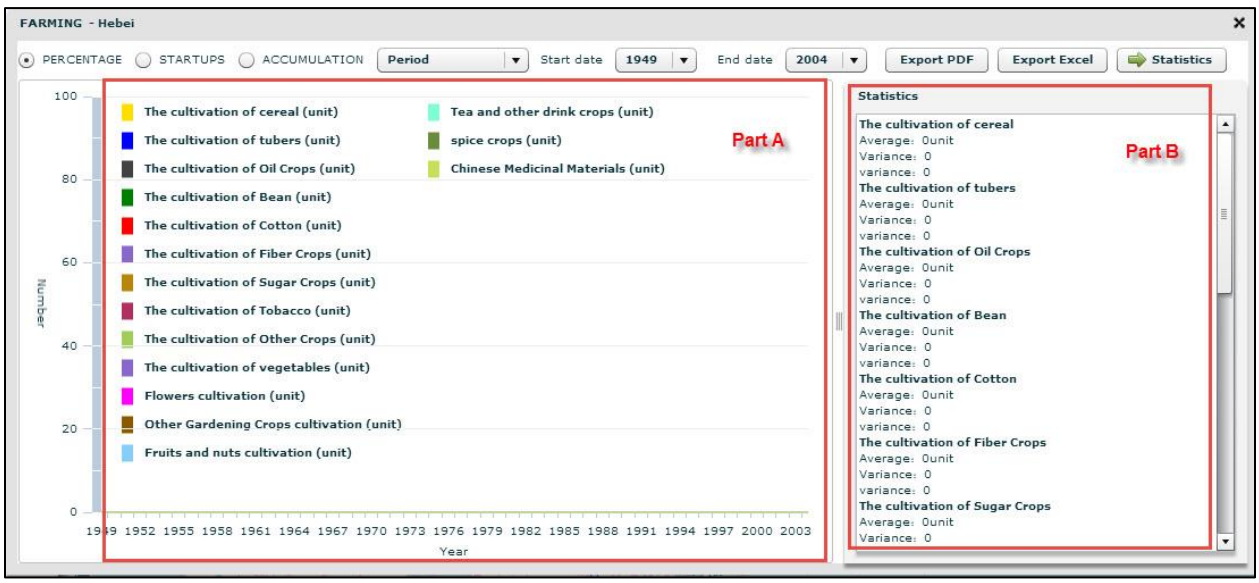


Figure 27. Economic Census, Province Statistics, Chart and Table Output, Blank

4.2.3 City Statistics

These data are a basic descriptor of the City and include economic indicators such as “Farming”, “Forestry”, “Manufacture”, “Education”, “Health Care”, “Transport”, “Computer Services” (Part A, Figure 52). As the data are aggregated at the national level, there is no “Observation List” or option to click a link on the map.

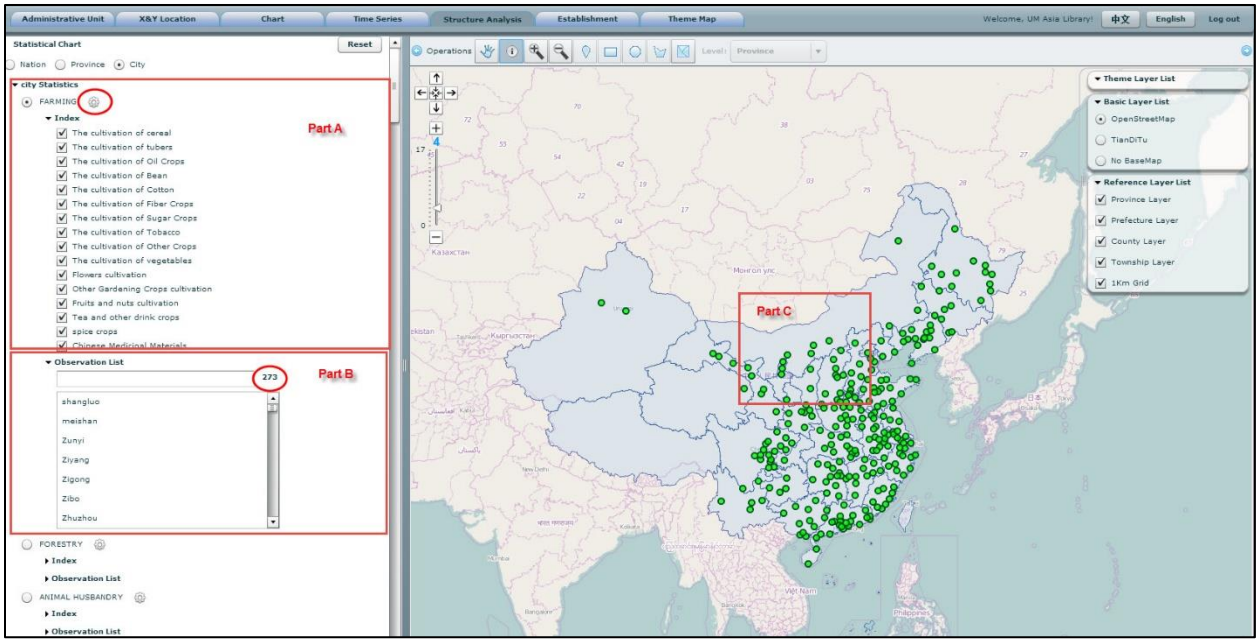


Figure 28. Economic Census, City Statistics

City Statistics – Using Menu

To create a table and chart, the user selects the link for "City Statistics," which opens the options for data and geographic regions (Figure 52, Structure Analysis, City Statistics). In Part A, the user clicks the radio button for the topic that they wish to examine. By default, the first topic, "Farming," is checked and each of the variables in the Index have a checked box but the user can de-select data that is not required. Please note that the variable names will still be in the legend of the chart but there will be no data for that deselection. In Part B, the province is selected by clicking on "Observation List" but only one of the cities can be chosen at a time. In this tab, the map does not display the choice made in the menu but zooms into the area selected at level 8 on the map.

Figure 29. Economic Census, City Statistics, Layer Scale Setting

Next to the box for the selection from the "Observation List" is a count of the number of cities that can be selected, and next to the headings under "City Statistics," there is a gear icon that allows the user to select the minimum and maximum scale for the map layers (Figure 53).

City Statistics – Using Map Operations

After selecting the "City" radio button and selecting the data to be displayed, the user moves to the map window and clicks on the green hyperlinked button for the cities and selects one for display. The green

link will turn red when the cursor hovers over it. Once clicked, the chart and table for the selected city will be displayed. The hyperlink returns to green after it has been clicked. The “Map Operations” options to choose a region are disabled in this tab.

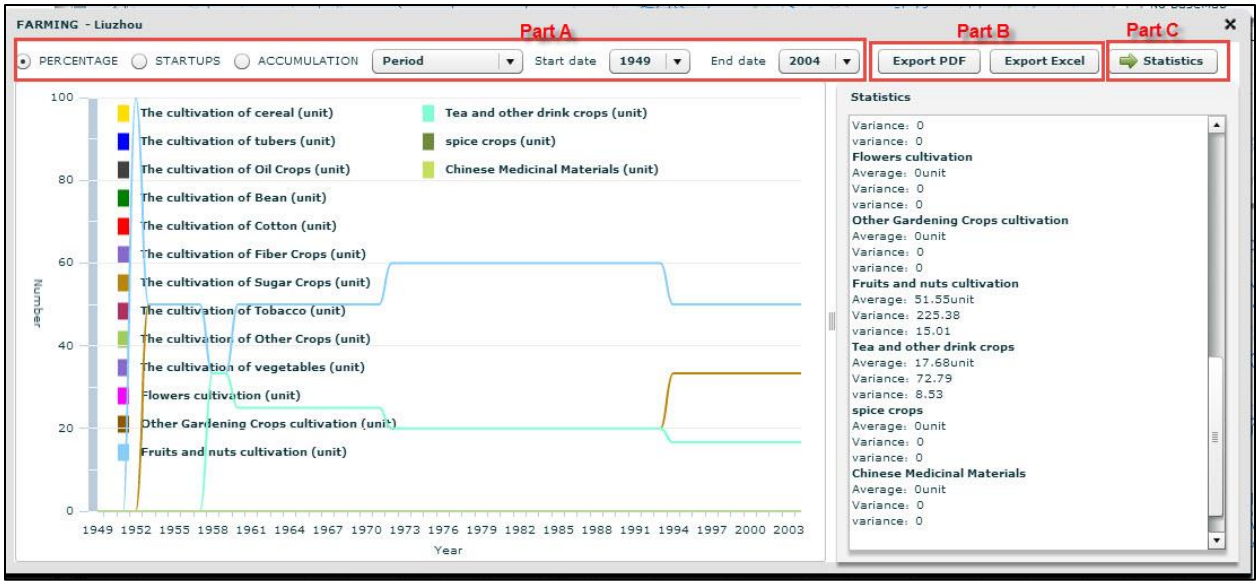


Figure 30. Economic Census, City Statistics, Chart and Table Output

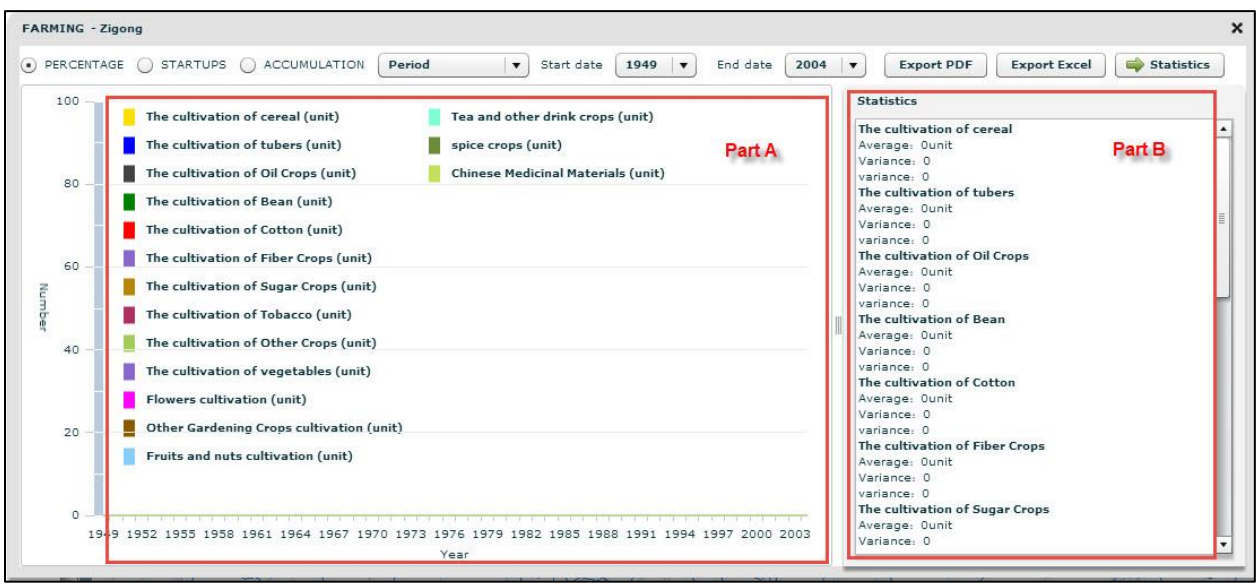


Figure 31. Economic Census, City Statistics, Chart and Table Output, Blank

When both the data and the city are selected, the chart launches in a separate window (Figure 54). If a new city is chosen subsequently, a new window will open with the chart on top of the existing chart. In Part A of the chart window, the user can adjust the time range to display in the chart and change the measure to display, either percentages, startups, or accumulation. The time period can be changed in

several ways. By default, the display is all data from 1949 through 2004 but the user has the option to adjust the range by clicking on the button “Period,” and selecting from the options, from the “last two year” to “last ten years” or the exact dates for the start date and end date can be changed by specifying the exact years in the drop down boxes next to those options. In Part B, the user can export the data in Excel format or the chart and table can be exported in a PDF format. In Part C, the user can display the optional table. By default, the table window is closed and the arrow on the “Statistics” button is pointing to the left. To open it, click on the “Statistics” button and the arrow will point to the right. In this tab, there are no links to searches on the geographic region. If there are no data for the selected province, the chart will be blank and the table will have zeros for each of the variables in the legend (Figure 55).

4.2.4 Economic Census – Output

In the Economic Census tab for “Nation,” “Province,” and “City,” the output is generated in the displayed chart and table windows under the “Export” button for PDF and Excel on the right-hand side at the top of the window. The appearance of the output is the same as the display of the table and chart.

5. Time Series

Time Series allows users to generate a variety of reports using data taken from economic, governmental, industry censuses, and land use surveys that are based on the selection of either provincial, city or county administrative levels.

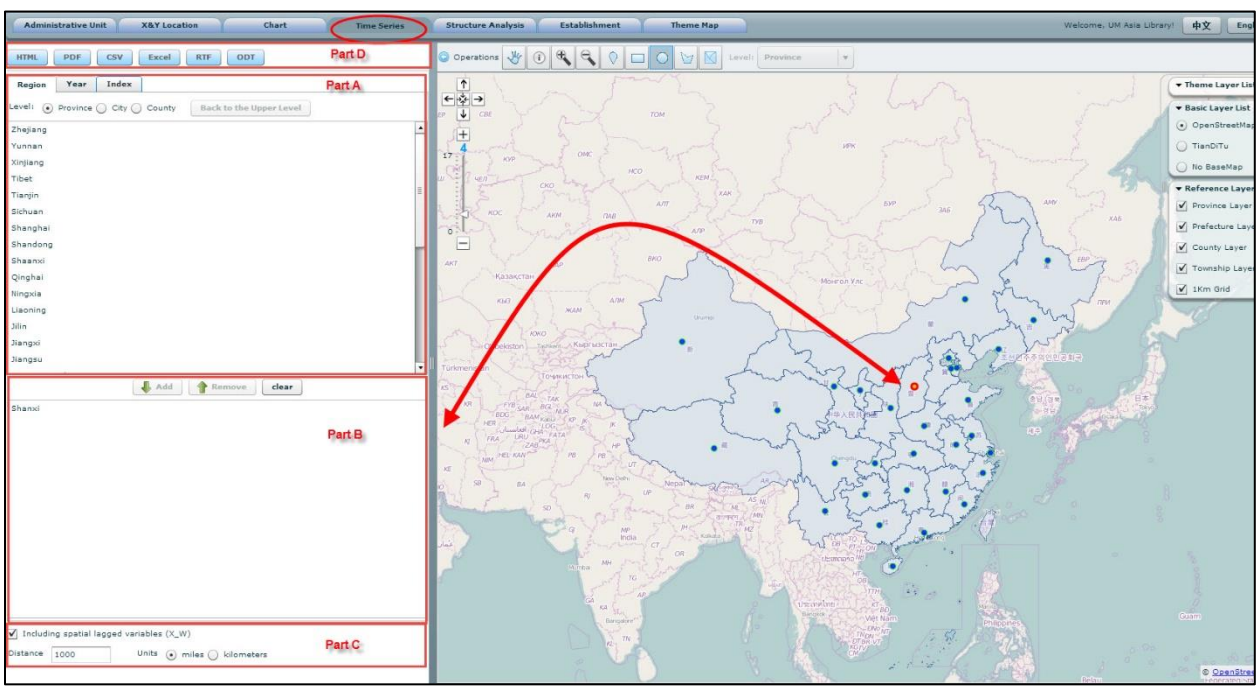


Figure 56. Time Series

5.1 Time Series – Using Menu

Using the menu option, the process starts by selecting the region on the “Region” tab (Part A, Figure 56). The user can specify the administrative level to be either “Province,” “City” or “County” using the radio buttons in Part A. The list of administrative levels is displayed in the box in Part A When a level below “Province” is clicked, the user can elect to move up levels by clicking on the “Back to the Upper Level” button. This feature allows for the selection of multiple regions in the same level. The selected region(s) are entered into the lower box in the menu (Part B). When moved into this box, the location of the selection(s) is highlighted on the map by turning the location’s dot(s) from blue to red. In Part C, is the distance from the selected province, city, or county in miles or kilometers. The default setting is 1,000, 100, and 100 miles, respectively and can be adjusted by the user. Also in this area, the user may de-select the setting to include spatially lagged variables. The options in Part C are editable in each of the tabs for Time Series.

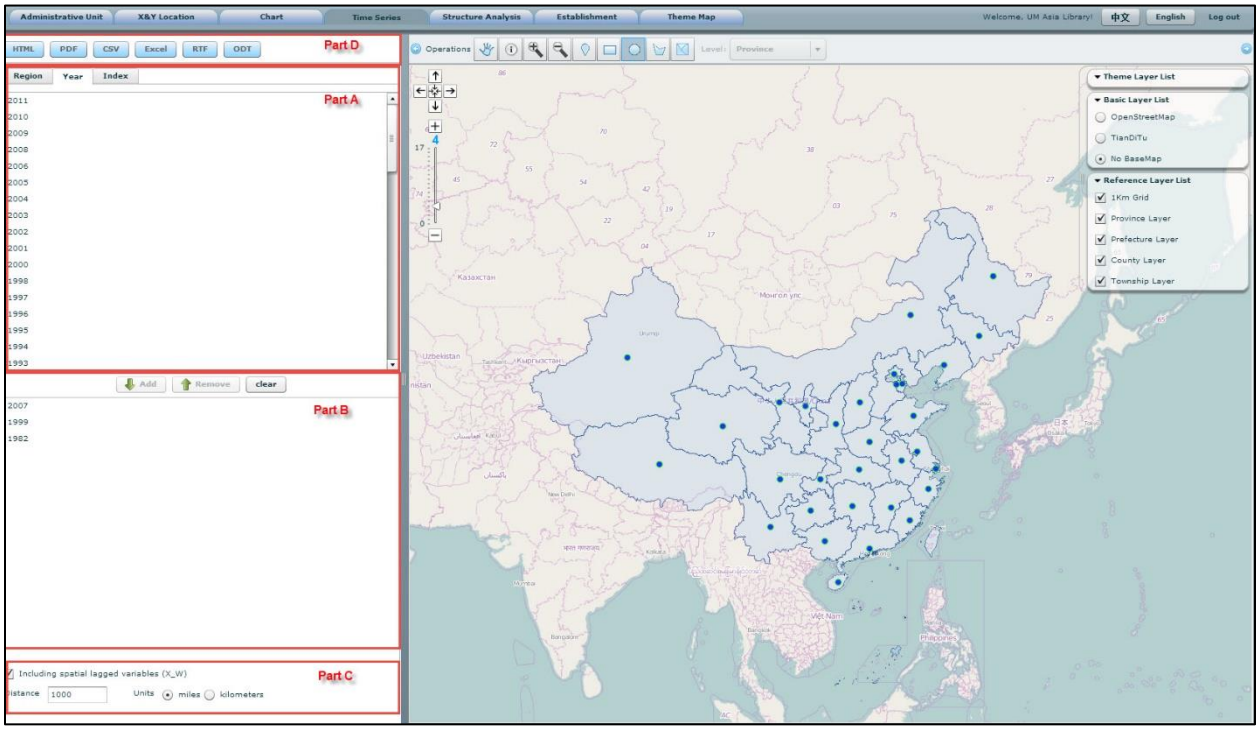


Figure 57. Time Series, Year

Once the region is specified, the year(s) should be chosen. Clicking on the “Year” tab reveals a list of the year from which the user may select. The range available is 1949 through 2011. Select the desired date(s) by click on it to move it into the lower box (Part B, Figure 57). There are three buttons to move dates between the upper and lower box or to clear the content out of the lower box (Part B, Figure 57.). The option to deselect spatial lagged variables and change the distance (Part C, Figure 40) are also editable in this tab.

The user selects the data to be reported from the Customized Report tab. Options for data in this section include economic, demographic, cultural, social, and natural resources data (Part A, Figure 58). A type of data is selected from the list and the individual indicators are displayed. Clicking on the variable moves it into the lower box and can be moved out of that box by selecting it and clicking on the

“Remove” button (Part B, Figure 58). All of the selected variables can be moved back to the selection box by clicking on the “clear” button.

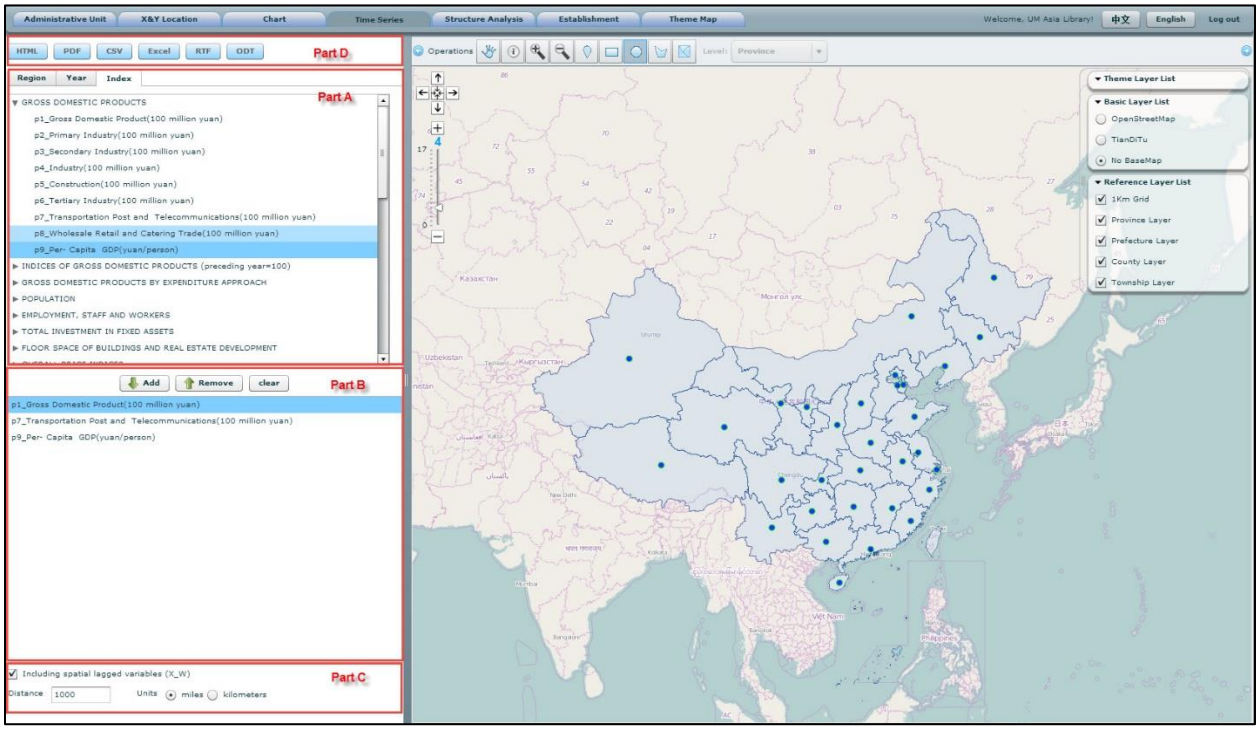


Figure 58. Time Series, Index

Finally, the format for the output is specified in Part D of Figures 56, 57, and 58. These options allow the report to be used in a website (HTML), dropped into a document (PDF), incorporated into a document that is being written (RTF and ODT) or perform calculations in programs like Excel or SPSS using the data in Excel or CSV.

5.2 Time Series – Using Map Operations

The user has the option to select the region for which information is sought by using the “Map Operations” (Part C, Figure 59). In this example, the provinces have a blue dot. When the provinces are selected, these dots will change to red. If city or county is selected, the dots will be either green for city or light green with a red center for the county when selected the dots will turn to red. Start in the menu in Part A and select the type of region desired by clicking on the appropriate radio button for either the province, city, or county. In “Map Operations” above the map, select the query option to select the region, either “Query by Point,” “Query by Envelope,” “Query by Circle,” or “Query by Polygon.” The choice can be cleared by clicking on the “Clear Query Shape” button. Choices for “Year” and “Index” need to be completed using the menu options. When selected the names of the region are moved into the box below the selection box in the menu (Part B, Figure 59). The region can be deselected by clicking on the name in the lower box of the menu and clicking on the “Remove” button or the entire selection can be deselected by clicking on the “clear” button (Part B, Figure 59). The user returns to the menu to select the year and data.

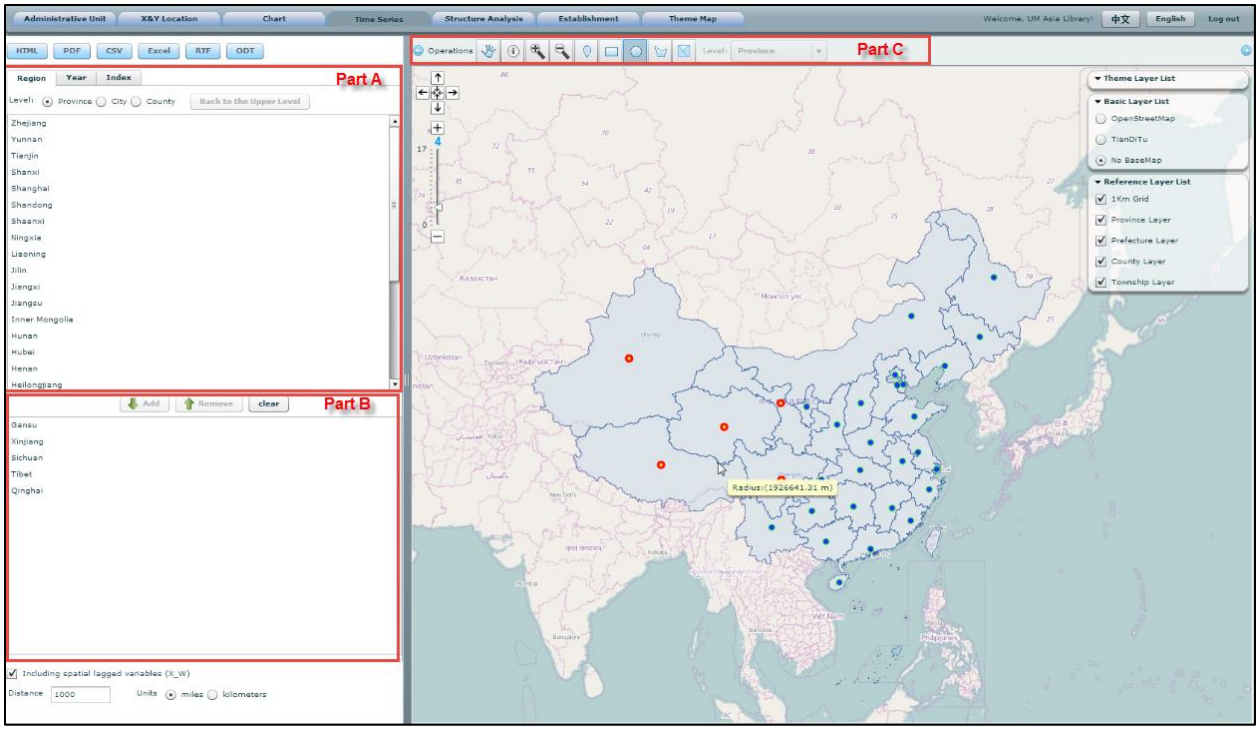


Figure 59. Time Series, Region, Using Map Operations to Select Region(s)

5.3 Time Series – Output

The Time-series Report (Employment Report (1999, 2001, 2006 and 2009), (Figure 60) confirms in the title the name of the report and the data used at the very top of the report and the geographic locations selected, in this case, Zhejiang, Ningxia, Yunnan, and Hunan. This report lists the regions by years and gives the total number of employed persons per 10,000 population. The icons for saving and printing the file are at the top of the right-hand side of the page, not shown.

Time-series Report Part A

Date: 13/02/2015

Selection: (4 selected) Zhejiang , Ningxia , Yunnan , Hunan

	name	year	Total Number of Employed Persons(10000 persons)	Total Number of Employed Persons(10000 persons)_W
1	Zhejiang	1999	2,660.9	2,481.4
2	Zhejiang	2001	2,772.0	2,508.5
3	Zhejiang	2006	3,172.4	2,947.9
4	Zhejiang	2009	3,825.2	2,989.2
5	Hunan	1999	3,496.1	2,460.0
6	Hunan	2001	3,438.8	2,495.9
7	Hunan	2006	3,842.2	2,906.5
8	Hunan	2009	3,907.7	2,973.5
9	Yunnan	1999	2,273.4	2,247.1
10	Yunnan	2001	2,322.5	2,254.7
11	Yunnan	2006	2,517.6	2,635.5
12	Yunnan	2009	2,730.2	2,680.3
13	Ningxia	1999	270.8	2,503.9
14	Ningxia	2001	278.0	2,511.6
15	Ningxia	2006	308.1	2,894.8
16	Ningxia	2009	328.5	2,912.2

Figure 60. Time Series, Index Tab, Time Series Report

6. Establishment

The Establishment tab allows the user to locate businesses throughout the country by location, type of industry, start year and end year, or name, and run reports on those establishments and export findings.

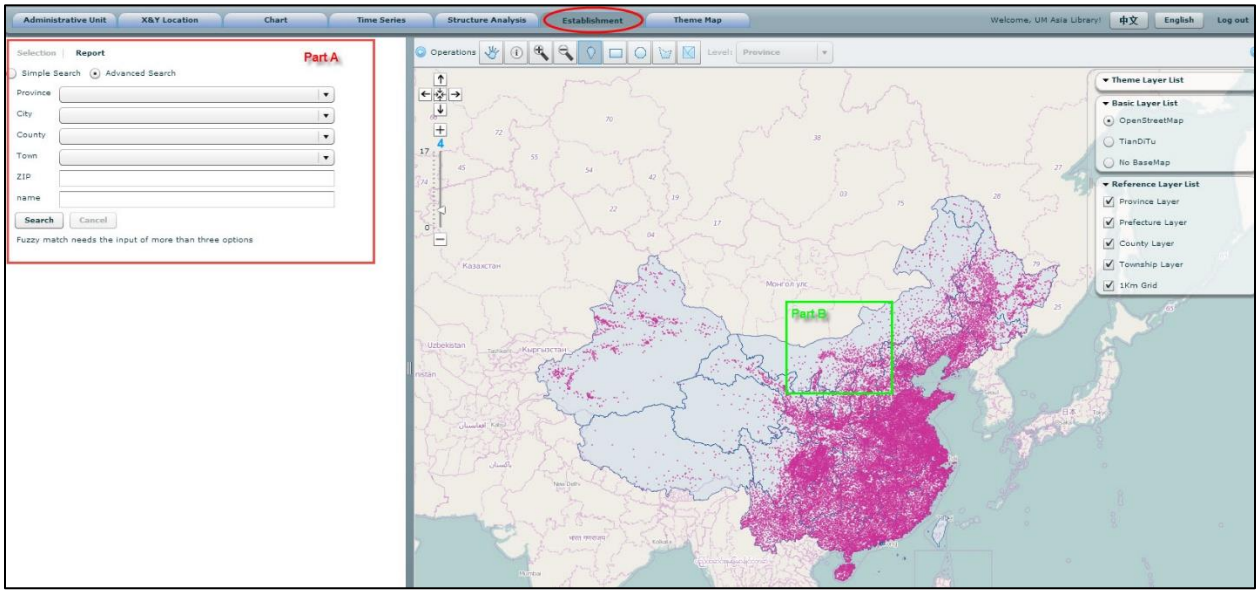


Figure 61. Establishment

6.1 Selection

6.1.1 Advanced Search – Using Menu

The Establishment feature of the tool is used by selecting the Industry, Start year, End year, Province, City, County, Town, ZIP, and "Name" of the establishment that is desired. The tool is set to "Advanced Search" by default but a "Simple Search" can be selected by clicking the radio button to the left of the search option. The tool is also set to "Selection" by default but the user can toggle between "Report" and "Selection" by clicking on the active option.
The tool needs to have at least one parameter to complete a search and only the province option is populated. Once the province is selected, the city will populate, and so on. Each parameter relies on the previous one for it to populate except for the "ZIP" and "Name" fields, which are completed by the user and are not enough information on their own to successfully search for an establishment. The more complete the search parameters, the more successful the search function will be (Figure 62).

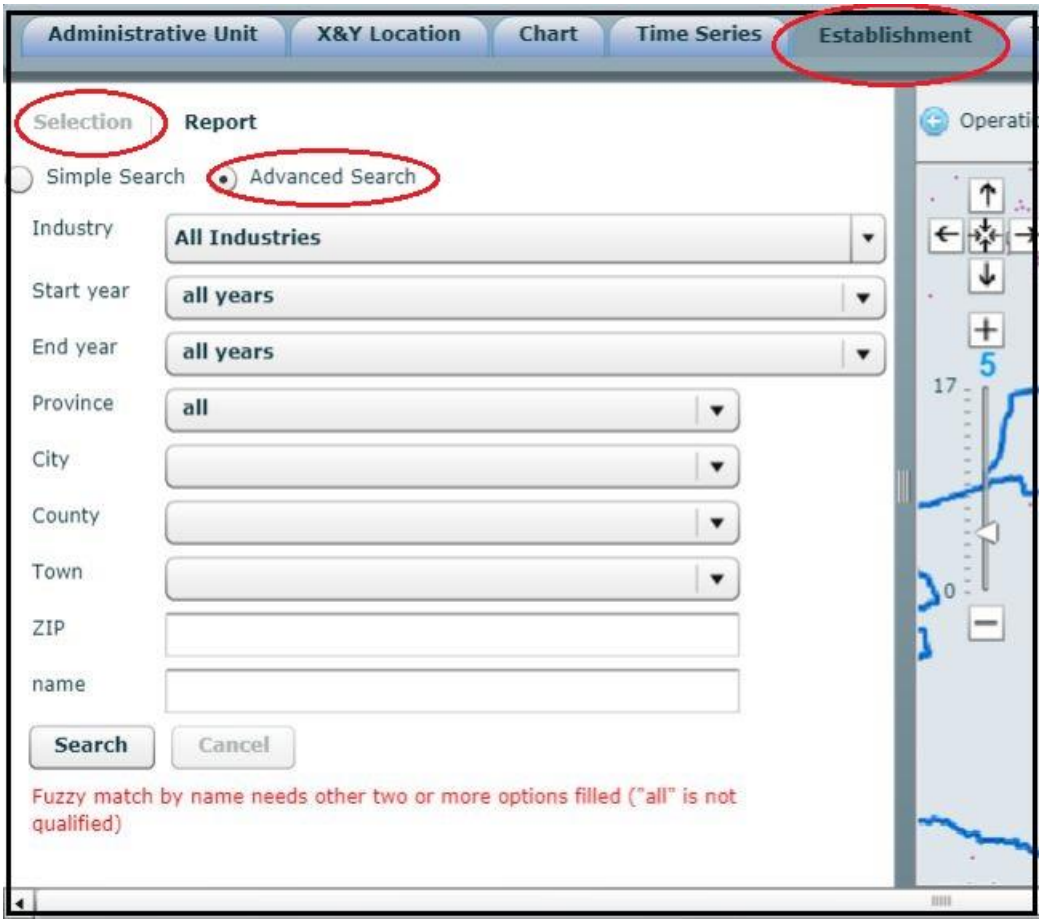


Figure 62. Establishment, Advanced Search

The search results page gives the user a number of options and much information. It tells the user the number of establishments that are returned in the geographic region and how many pages the results comprise (Figure 63). It also confirms the keywords for the search. The results are based on all industries in the geographic area selected but the returned list can be refined using clicking on the down arrow next to the "All Industries" button, which opens a drop-down box from which an option can be selected. The results are prepared and can be exported in Excel format by clicking on the "Table Export" button and specifying a location for the table to be downloaded. Also, a chart the beginning dates of the businesses can be created by clicking on the "Plot of starting year" button. This launches a new window with a line chart that displays the number of businesses established in each year. The user can also display the cumulative number of established per year. The user has the option to export the chart as a PDF document or in a spreadsheet.

Clicking on the name of the business will launch an information box on the business which has the name and type of the business, the name of the responsible party, the business' address, phone number, and ownership and the year established, yearly revenue, and the number of people employed. There are links to searches on the business through three internet browsers. There is a button, "Go to Location Selection," which sends the user to the "X & Y Location" tab and populates the coordinates for the business in the appropriate field (Figure 60). Also in the map window, there is a red dot circling the "ZIP

point" for the area. There is a link "Back to Search" that takes the user back to the previous page with the search terms still in place (Figure 63).

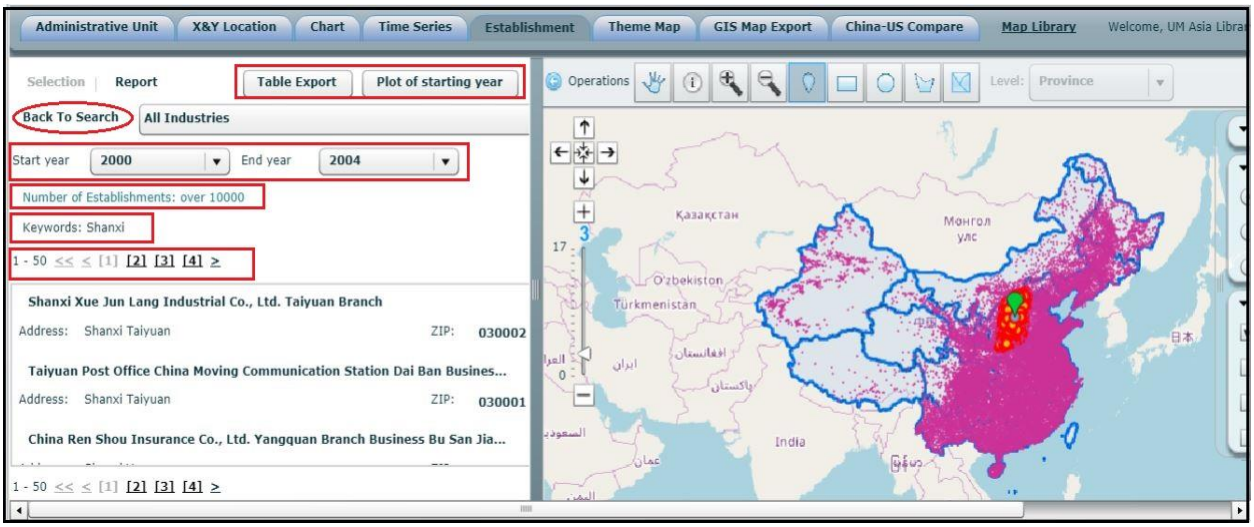


Figure 63. Establishment, Advanced Search, with Results

The chart that is launched when the "Plot of starting year" button is pressed has the two options for display. The default setting is "New establishments," which is a line chart where the dots on the line are the dates that each of the businesses in the search results are plotted. The other option is "Cumulative establishments" where the aggregate number of new businesses is displayed on the line chart. The years range from "1949" through "2004." Each of these options can be adjusted as needed. The chart can be exported as a PDF document or in spreadsheet format, Excel (Figure 64).

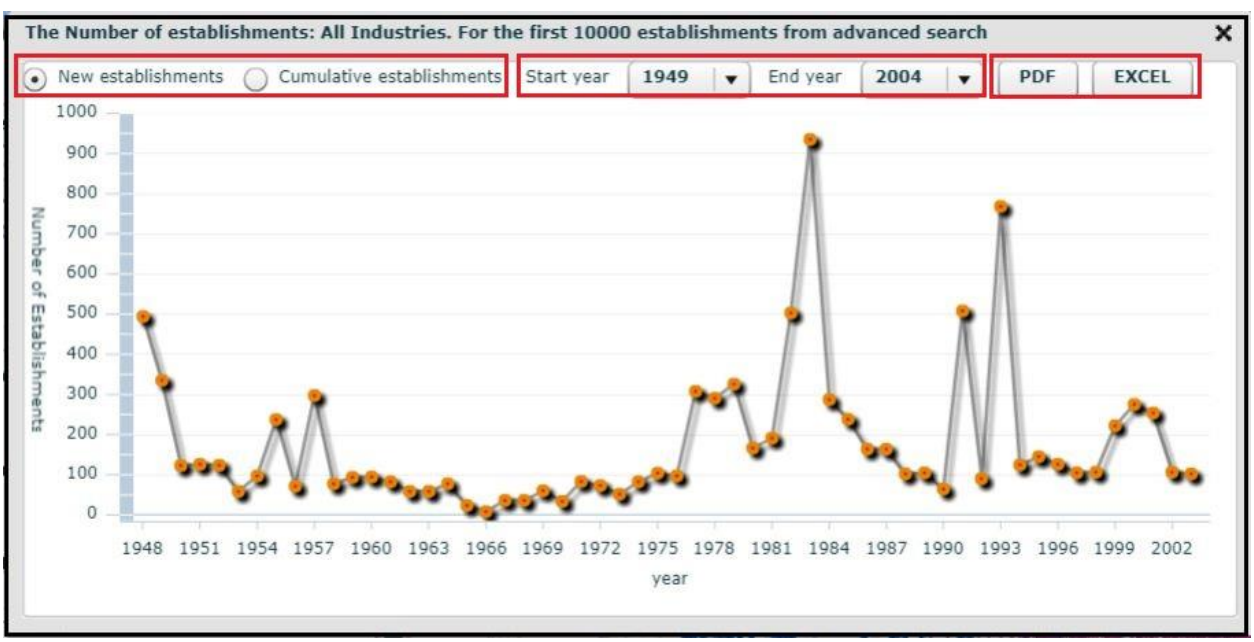


Figure 64. Establishment, Search Results, Plot of Starting Year

The other button option on the search results is “Table Export,” which allows the user to download the search results in a spreadsheet format, Excel. Clicking on the button launches a new window with the “Save As” window and asks the user to specify where s/he wishes to save the downloaded file and how to name that file. By default, this feature points to the user’s desktop but the user is free to navigate to a preferred location and the default file name is “generated.xls.”

Figure 6532. Establishment, Search Results, Information Box on Establishment

Clicking on the name of a business launches a “Detailed Information” box with the business’s name, responsible party, type of business, ZIP, address, phone number, ownership of the business, year of establishment, revenue, and the number of employees. At the bottom of the window are links for searches about the business in Google, Baidu, and Wanfang Data.

At the very bottom of the box is the “Go to Location Selection” button (Figure 65), which launches the “X & Y Location” tab and populates the business’ ZIP point and coordinates in the location box. That location is displayed in the map view as a series of concentric yellow circles in the area where the business is located. The map view zooms to into a level where the community where the business is located can be seen. The more populated the area being searched the closer the map’s zoom level. In the example (Figure 66), the business is located in a city and the map feature zoomed into level 10. The Establishment tab retains results of the current search.

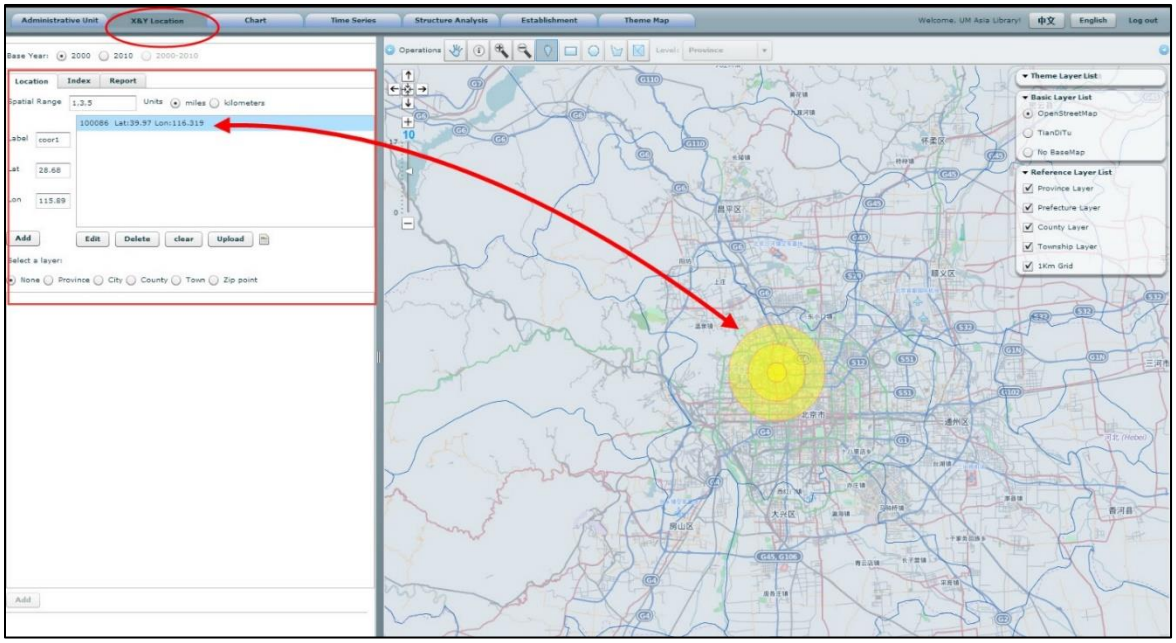


Figure 66. Establishment, Advanced Search, Go to Location Selector

6.1.2 Advanced Search – Using Map Operations

The user can elect to use the “Map Operations” to select a geographic region for this tool by choosing either the "Query by Point, “Query by Envelope,” Query by Circle,” or “Query by Polygon” tools. The maximum number of ZIP points that can be selected using this tool is 20. ZIP points may be selected at the lower level of zoom but in areas with high concentration of ZIP points, it may be difficult to select a few points unless a close zoom is used. Zoom levels 6 or lower display the ZIP points as bright pink and turn to red dots with yellow centers when selected. The ZIP points are green with red center when the zoom level of 7 or higher is used and change to a red dot with a yellow center when selected.

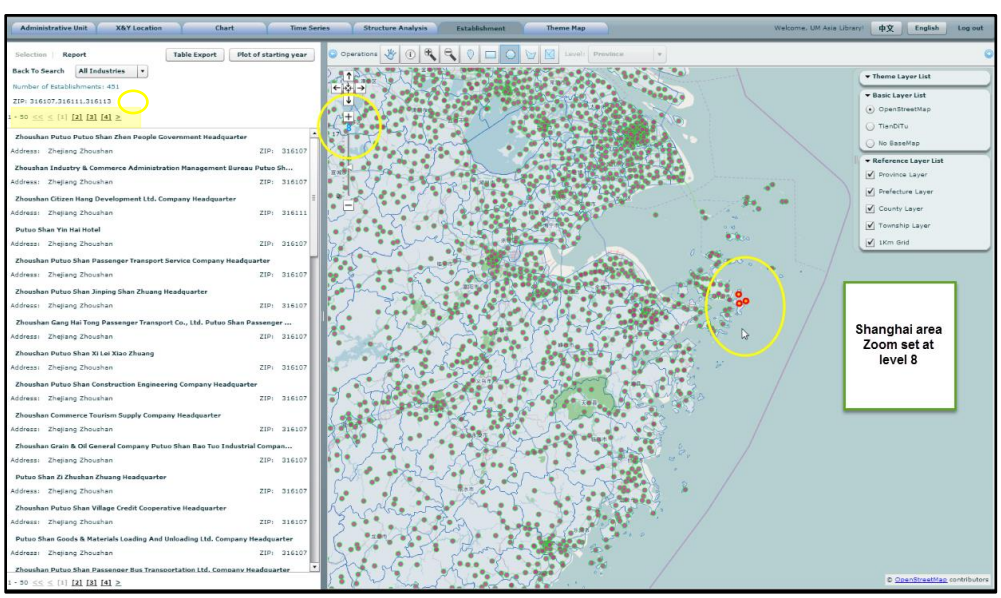


Figure 67. Establishment, Advanced Search, Using Map Operations

To accomplish an advanced search in the Establishment tab using “Map Operations,” click on the desired query tool to activate the tool. In Figure 67, the “Query by Circle” tool was used and focused on the Shanghai area at the zoom level of 8. The search results show that three ZIP points (316107, 316111, and 316112) and 451 establishments have been returned. As before, the user can click on the name of business to learn more about it, export the search results in Excel, and click on the “Plot starting year” to launch a line chart of the results and the search results can be refined by clicking on the button “All Industries” and selecting a single industry.

6.1.3 Simple Search – Using Menu

The simple search limits the search parameter to the ZIP but returns the same type of information in the search results. The options to export the table in Excel is still present and the chart of the starting year of the establishments is still available (Part A, Figure 68) and the ZIP points are viewable and clickable in the map window (Part B, Figure 68).

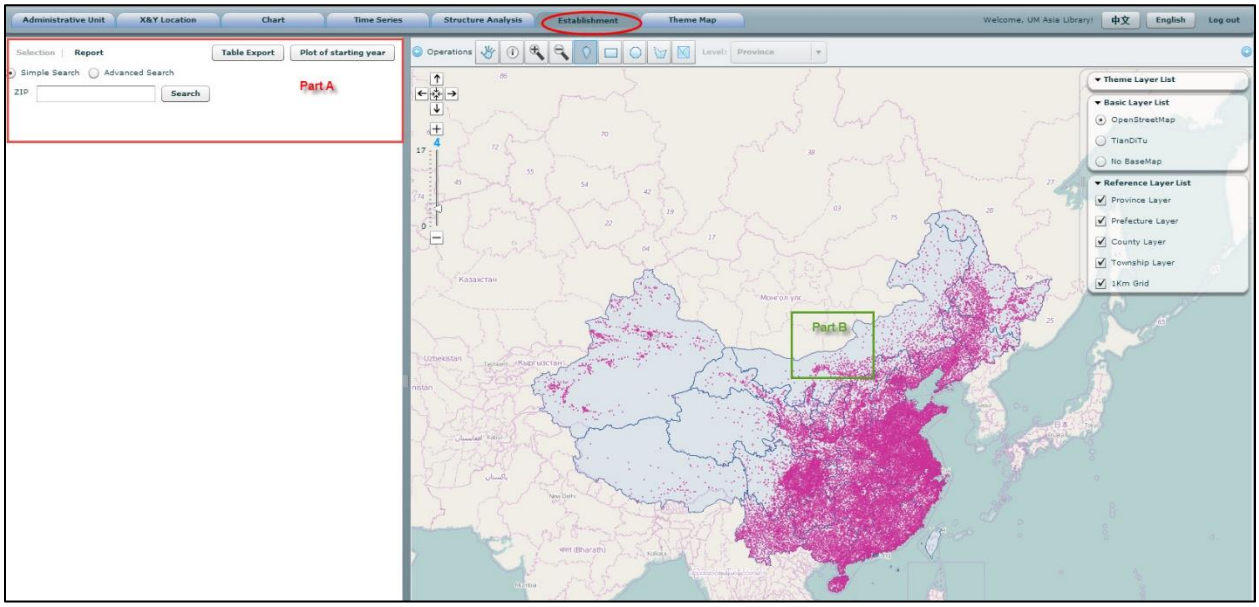


Figure 68. Establishment, Simple Search, Using Menu

The search results return in a list like the one generated in the advanced search with “All Industries” as the default grouping of establishments. The number of establishments is given (282) and the search term is confirmed (ZIP: 315807). The returned list of businesses can be refined using clicking on the down arrow next to the “All Industries” button, which opens a drop-down box under the downward pointing button next to “All Industries.” The table export and Plot of starting year option are available. In the simple search, the map window centers on the selected ZIP point, which has changed from green-rimmed-red hyperlinked dot to an entirely red hyperlinked dot and zooms in to close level of the map view (Figure 69). In this case, the map zoomed to level 10 but in areas where the ZIP points are not so concentrated, the zoom level may be higher.

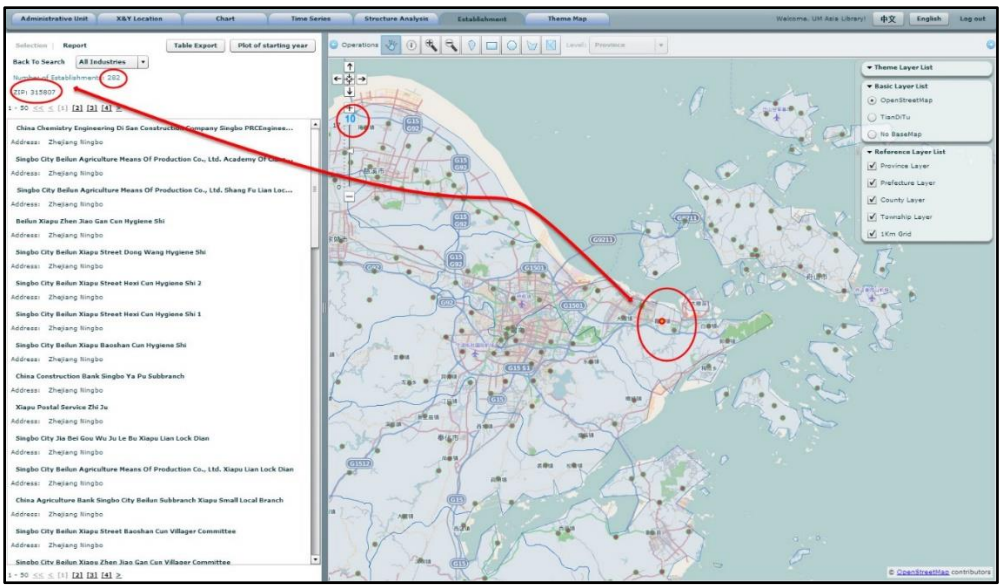


Figure 69. Establishment, Simple Search, Using Menu, Search Results

Clicking on the name of the business will launch an information box on the business that has the name and type of the business, the name of the responsible party, the business' address, phone number, and ownership and the year established yearly revenue, and the number of people employed. There are links to searches on the business through three Internet browsers. There is a button, "Go to Location Selection," which sends the user to the "X & Y Location" tab and populates the coordinates for the business in the appropriate field (Figure 71). Also in the map window, there is a red dot circling the ZIP point for the area. There is a link "Back to Search" that takes the user back to the previous page with the search terms entered (Figure 63).

The chart that is launched when the "Plot of starting year" button is pressed has the two options for display. The default setting is "New establishments," which is a line chart where the dots on the line are the dates that each of the businesses in the search results are plotted. The other option is "Cumulative establishments" where the aggregate number of new businesses is displayed on the line chart. The years range from 1949 through 2004. Each of these options can be adjusted as needed. The chart can be exported as a PDF document or in spreadsheet format, Excel (Figure 70).

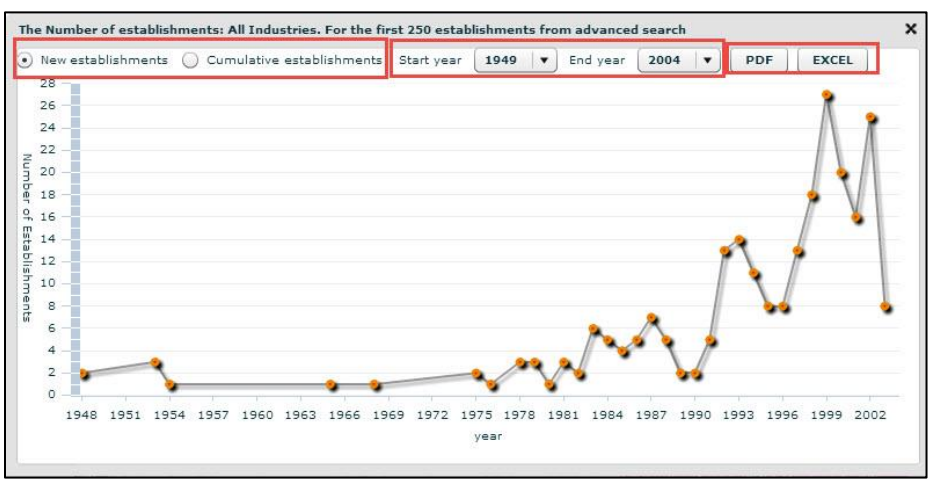


Figure 70. Establishment, Search Results, Plot of Starting Year

The other button option on the search results is “Table Export,” which allows the user to download the search results in a spreadsheet format, Excel. Clicking on the button launches a new window with the “Save As” window and asks the user to specify where the user wishes to save the downloaded file and how to name that file. By default, this feature points to the user’s desktop but the user is free to navigate to a preferred location.

Figure 71. Establishment, Search Results, Information Box on Establishment

Clicking on the name of a business launches a “Detailed Information” box with the business’s name, responsible party, type of business, ZIP, address, phone number, ownership, year of establishment, revenue, number of employees. At the bottom of the window are links for searches about the business in Google, Baidu, and Wanfang Data.

At the very bottom of the box is the “Go to Location Selection” button (Figure 71), which launches the “X & Y Location” tab and populates the business’ ZIP point and coordinates in the location box. That location is displayed in the map view as a series of concentric yellow circles in the area where the business is located. The map view zooms to into a level where the community where the business is located can be seen. The more populated the area being searched the closer the zoom level. In the example (Figure 72), the business is located in a city and the map features zoomed into level 10. The Establishment tab retains results of the current search.

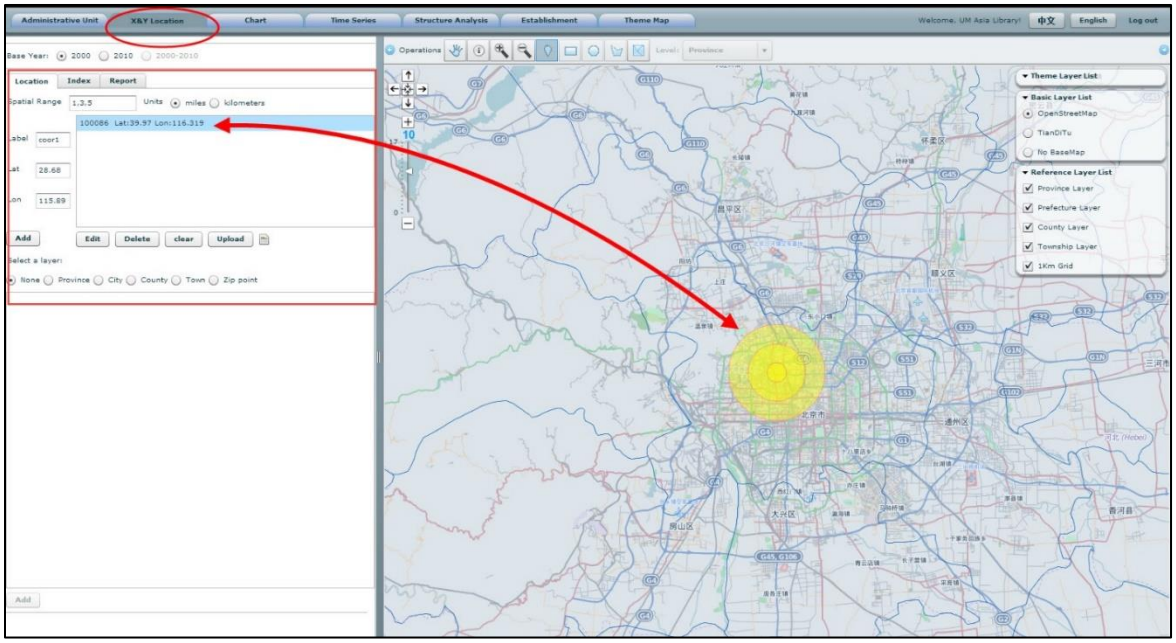


Figure 72. Establishment, Advanced Search, Go to Location Selector

6.1.4 Simple Search – Using Map Operations

To accomplish a simple search in the Establishment tab using "Map Operations," click on the desired query tool to activate the tool. In Figure 73, the "Query by Point" tool was used and focused on the Shanghai area at the zoom level of 10. ZIP points may be selected at a lower level of zoom but in this case, the concentration of ZIP points made it difficult to select just one point unless a close zoom was employed. The ZIP points are green with red center when the zoom level of 7 or higher is used and change to a red dot with a white center when selected. Zoom levels 6 or lower display the ZIP points as bright pink that turn to red dots with white centers when selected. The search results show one ZIP points and 282 establishments have been returned. As before, the user can click on the name of business a business to learn more about it, export the search results in Excel, and click on the "Plot starting year" button to launch a line chart of the results and the search results can be refined by clicking on the "All Industries" button and selecting a single industry.

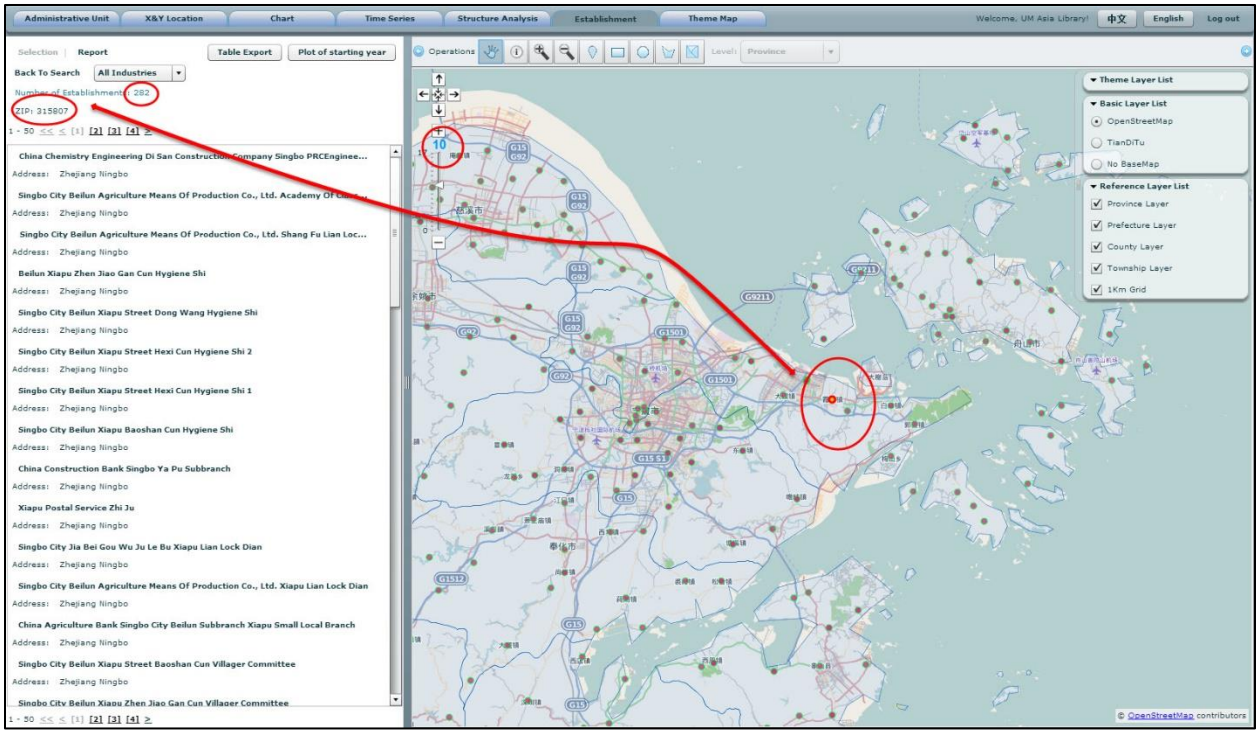


Figure 73. Establishment, Simple Search, Using Map Operations

6.2 Report

6.2.1 Report – Using Menu

The Report section of the Establishment tab allows users to generate a report on the economic, industry and/or establishments in a selected geographic region. Using either "Map Operations" (Figure 74, Part B) or the menu option (Figure 74, Part A), the user can identify the region by ZIP point and the menu, the index or report can be selected.

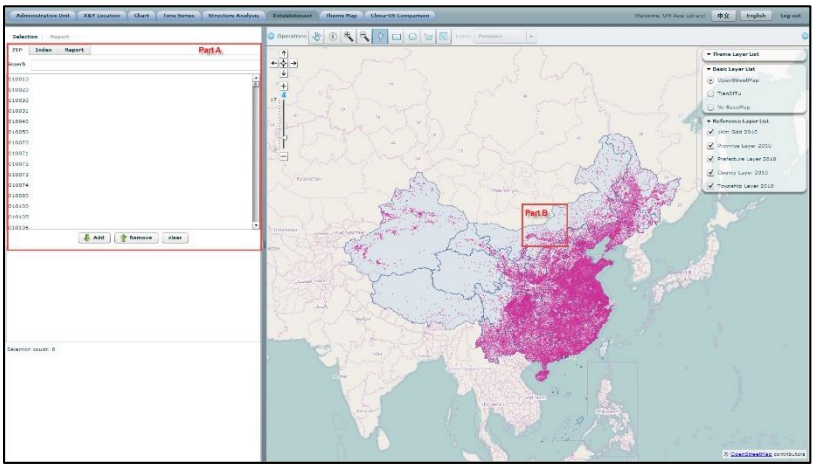


Figure 74. Establishment, Report

6.2.2 ZIP – Using Menu

The ZIP points are listed under the ZIP tab (Part A, Figure 74) in the menu and the user may use the search box to find the desired ZIP point or scroll through the list which is organized in descending order. The selections are moved into the Selection box below the list of ZIP points either by double-clicking on the selected ZIP point or highlighting the ZIP point and clicking the "Add" button in Part A. The selected ZIP point is highlighted on the map (Part B, Figure 74) by changing the point to a red dot with white center. This feature does not display information when the selected ZIP point is clicked on. Click on the "clear" button to remove the selections.

6.2.3 ZIP – Using Map Operations

The ZIP points are listed under the ZIP tab (Part B, Figure 74) in the "Map Operations," the user elects to use either "Query by Point, "Query by Envelope, "Query by Circle," or "Query by Polygon" to choose the desired ZIP point(s). The selections are moved into the "Selection" box of the menu below the list of ZIP points that have been selected. ZIP points are displayed (Part B, Figure 74) in hot pink as the zoom level here is set at 4. Remember that ZIP points will display as hot pink until the zoom level exceeds 6. When a ZIP point is selected it turns red with a white center regardless of the zoom setting. The ZIP points are green with red center when the zoom level of 7 or higher is used. To deselect the choice of ZIP points, go to "Map Operations" and click the "Clear Query Shapes" button.

6.2.4 Customized Report

After the ZIP point has been selected, the user may select the tab for "Customized Report," which is a list of data options, "Economic Census for 2004 or 2008," "Basic Unit Census for 2001," or "Industry Census for 1995" (Part C, Figure 75). Also available is the type of report that can be chosen (Part B, Figure 75), either "Summary Report," "Compare Report," or "Original Report." If the user selects "Original Report," a dialog box will open where the user will need to specify how to rank the Index results and sort the data in either ascending or descending order (Figure 76). These options allow the report to be used in a website (HTML), dropped into a document (PDF), incorporated into a document that is being written (RTF and ODT) or perform calculations in programs like Excel or SPSS using the data in Excel or CSV (Part A, Figure 75). Next to these buttons is a counter of the number of indices that have been selected (Part A, Figure 75). There are four databases associated with this feature: "Economic Census 2004 and 2008," "Basic Unit Census 2001," and "Industry Census 1995." Each of these options has multiple data options beneath that can be selected and selecting the highest level will include all of the data beneath. Clicking on the triangle next to the name of the data option, such as "Economic Census 2004," opens further options. When there are no longer triangles next to data options, the lowest level options has been reached.

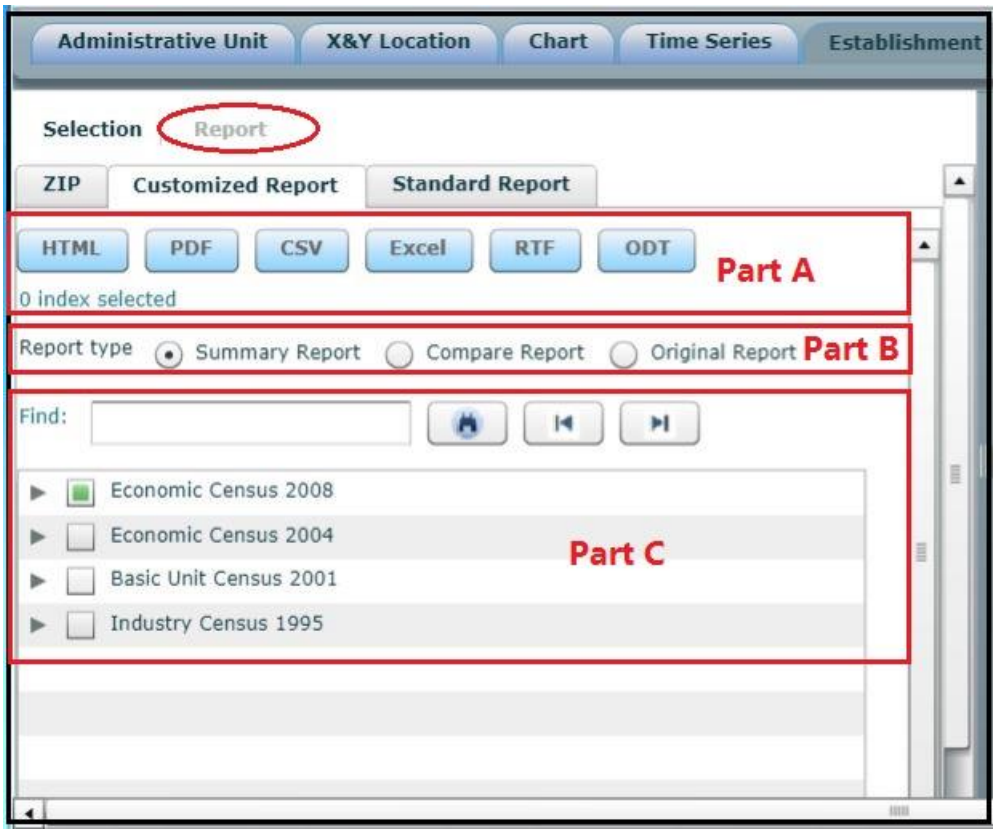


Figure 75. Establishment, Report, Customized Report

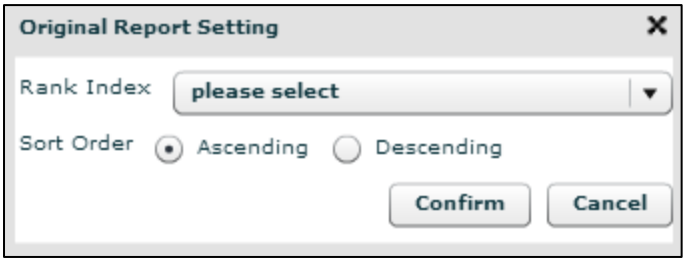


Figure 76. Establishment, Customized Report, Original Report Setting

6.2.5 Standard Report

Under the "Standard Report" tab, the user can select from a number of pre-defined reports (Part A, Figure 77) after the user has selected the ZIP point(s), the user also can elect to produce a map with the report by selecting that option under Report Options (Part C, Figure 77) and the format in which the data can be saved, exported, displayed, or printed (Part B, Figure 77). There are three pre-defined reports available, "Economic Summary Report," "Economic Comparison Report," and "Economic Report" (Part A, Figure 77). These options allow the report to be embedded into a website (HTML), dropped into a document (PDF), incorporated into a document that is being written (RTF and ODT) or perform calculations in programs like Excel or SPSS using the data in Excel, and the user can specify that a map be included in the report (Part C, Figure 77) and the program confirms the number of geographic areas that

will be included in the report and lists the ZIP points (Part D, Figure 77). To edit this section, the user needs to return to the “ZIP” tab and make the necessary changes.

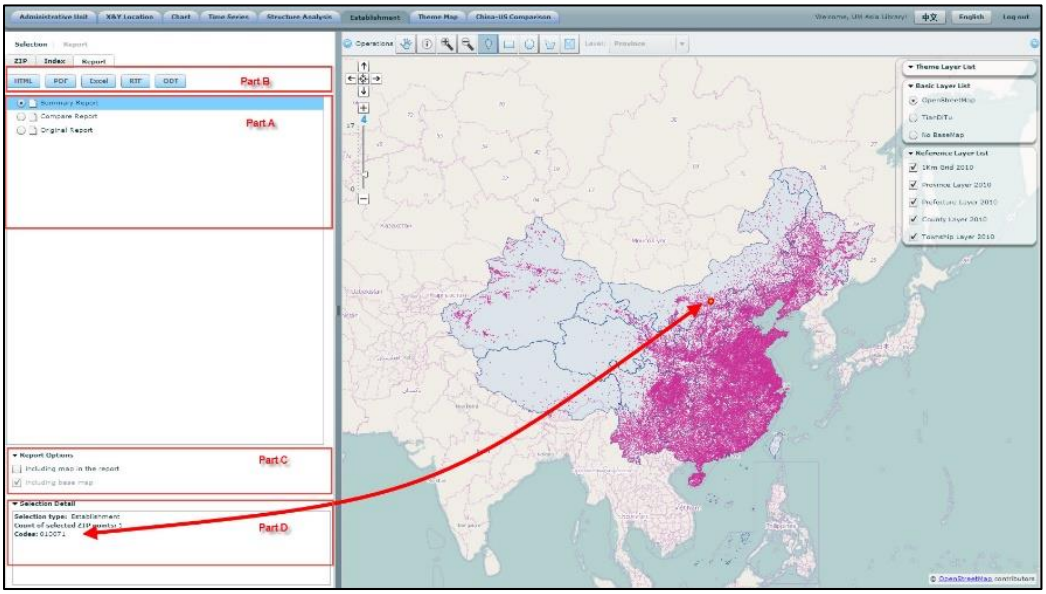


Figure 337. Establishment, Report, Standard Report

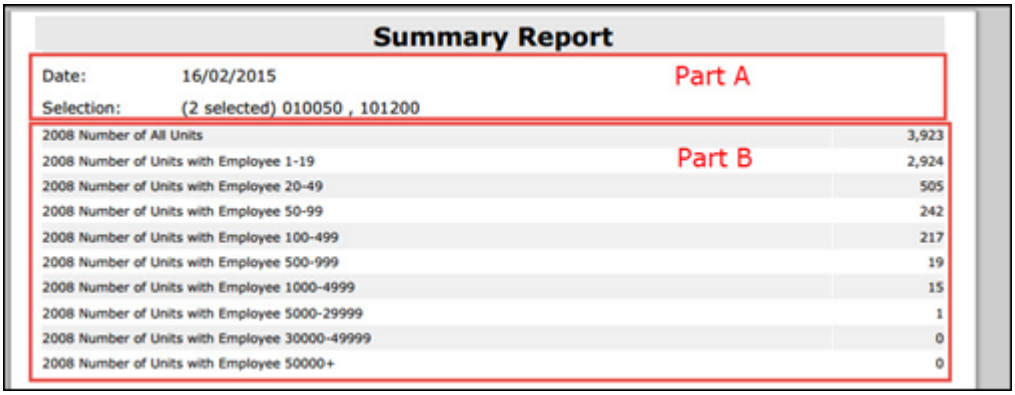
6.2.6 Establishment – Output

Selection

The option for output under the “Selection” option for both the “Simple Search” and “Advanced Search” is the “Table Export” and “Plot of starting year,” which will download the results of the search in a spreadsheet format for the table export feature and either a PDF or spreadsheet format for the plot of starting year feature.

Report

The option for output under the Customized Report and Standard Report options are HTML, PDF, CSV, Excel, RTF, or ODT and the type of reports are “Summary,” “Compare,” or “Original Reports.”



Summary Report

Date: 16/02/2015 — Part A

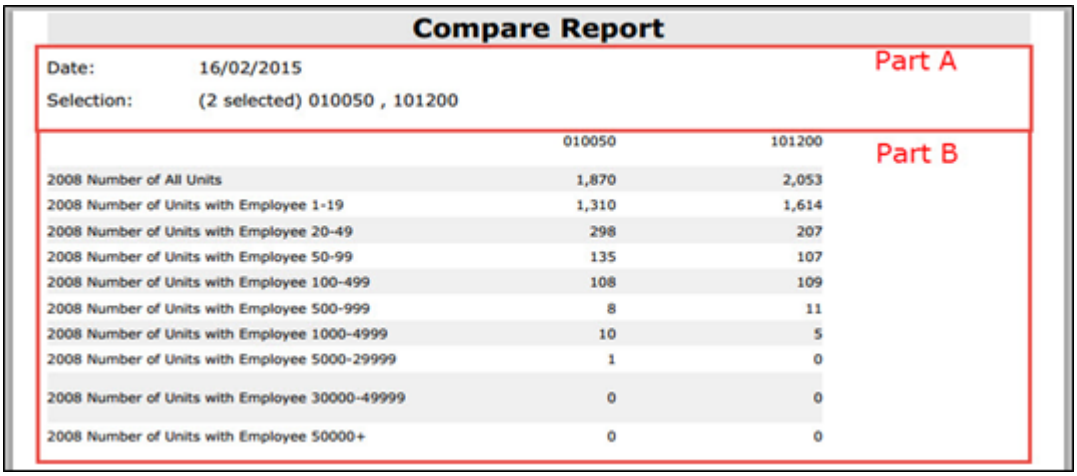
Selection: (2 selected) 010050 , 101200

2008 Number of All Units	3,923
2008 Number of Units with Employee 1-19	2,924
2008 Number of Units with Employee 20-49	505
2008 Number of Units with Employee 50-99	242
2008 Number of Units with Employee 100-499	217
2008 Number of Units with Employee 500-999	19
2008 Number of Units with Employee 1000-4999	15
2008 Number of Units with Employee 5000-29999	1
2008 Number of Units with Employee 30000-49999	0
2008 Number of Units with Employee 50000+	0

Part B

Figure 78. Establishment, Report, Customized Report, Summary Report

In the “Summary Report” from the “Customized Report” tab, the output starts with the date that the report was run followed by the ZIP points selected (Part A, Figure 78) followed by the data (Part B, Figure 78), in this case, “Employment Census 2008,” “Units classified by Employee” count and are displayed with the units on the row and the ZIP points on the column. The counts are the sum of the two zip point employment data. The icons for saving and printing the file are at the bottom of the right-hand side of the page, not shown.



Compare Report

Part A

Date: 16/02/2015

Selection: (2 selected) 010050 , 101200

Part B

	010050	101200
2008 Number of All Units	1,870	2,053
2008 Number of Units with Employee 1-19	1,310	1,614
2008 Number of Units with Employee 20-49	298	207
2008 Number of Units with Employee 50-99	135	107
2008 Number of Units with Employee 100-499	108	109
2008 Number of Units with Employee 500-999	8	11
2008 Number of Units with Employee 1000-4999	10	5
2008 Number of Units with Employee 5000-29999	1	0
2008 Number of Units with Employee 30000-49999	0	0
2008 Number of Units with Employee 50000+	0	0

Figure 349. Establishment, Report, Customized Report, Compare Report

In the “Compare Report” from the “Customized Report” tab, the output starts with the date that the report was run followed by the ZIP points selected (Part A, Figure 79) followed by the data (Part B, Figure 79), in this case, “Employment Census 2008,” “Units classified by Employee” count and are displayed with the units on the row and the ZIP points on the columns.

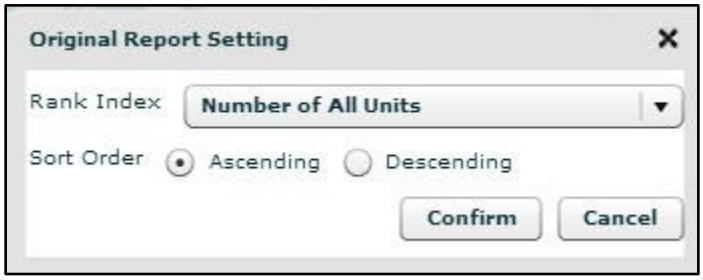


Figure 80. Establishment, Report, Customized Report, Original Report Setting

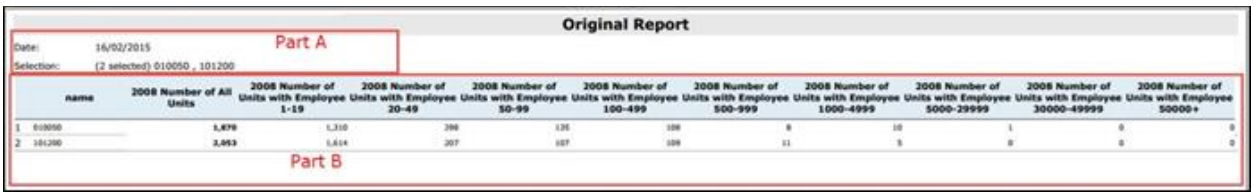


Figure 81. Establishment, Report, Customized Report, Compare Report

In the “Original Report” from the “Customized Report” tab, a dialog box opens and the user has to first select the rank order for the report from the variable names after selecting indexes and creating a

report. In this case, the rank order is “Number of All Units” in ascending order (Figure 80). The output starts with the date that the report was run followed by the ZIP points selected (Part A, Figure 81. followed by the data (Part B, Figure 81), in this case, “Employment Census 2008,” “Units classified by Employee” count and are displayed with the ZIP points on the row and the units on the columns.

Economic Summary Report

Date: 16/02/2015

Selection: (2 selected) 010050 , 101200

Part A

Total Businesses by Employment

	Count	%		Count	%
Total Businesses	3,326	1			
Number of Employees					
1 - 19	2,149	64.6 %	**1,000 - 4,999**	19	0.6 %
20 - 49	590	17.7 %	**5,000 - 29,999**	1	0.0 %
50 - 99	279	8.4 %	**30,000 - 49,999**	0	0.0 %
100 - 499	258	7.8 %	**50,000 or more**	7	0.2 %
500 - 999	23	0.7 %			

Total Businesses by Revenue (1,000 Yuan)

	Count	%		Count	%
0 - 300	1,959	58.9 %	**50,000 - 100,000**	38	1.1 %
300 - 500	187	5.6 %	**100,000 - 300,000**	30	0.9 %
500 - 1,000	233	7.0 %	**300,000 - 500,000**	8	0.2 %
1,000 - 3,000	421	12.7 %	**500,000 - 1,000,000**	11	0.3 %
3,000 - 5,000	127	3.8 %	**1,000,000 - 1,500,000**	1	0.0 %
5,000 - 10,000	126	3.8 %	**1,500,000 - 2,000,000**	0	0.0 %
10,000 - 30,000	150	4.5 %	**2,000,000 and over**	0	0.0 %
30,000 - 50,000	35	1.1 %			

Total Businesses by Ownership Status

Figure 82. Establishment, Standard Report, Summary Report

In the “Summary Report” from the “Report” tab, the output starts with the date that the report was run followed by the ZIP points selected (Part A, Figure 82), followed by the data (Part B, Figure 82), in this case, Economic Data with the headings, “Total Businesses by Employment,” “Total Businesses by Revenue (1,000 Yuan), and “Total Businesses by Ownership Status,” which goes on to a second page, not shown. The total for both ZIP points for each category is given along with the corresponding

percentages. The icons for saving and printing the file are at the bottom of the right-hand side of the page, not shown.

Economic Comparison Report

Date: 16/02/2015 Part A

Selection: (2 selected) 010050 , 101200

Total Businesses by Employment

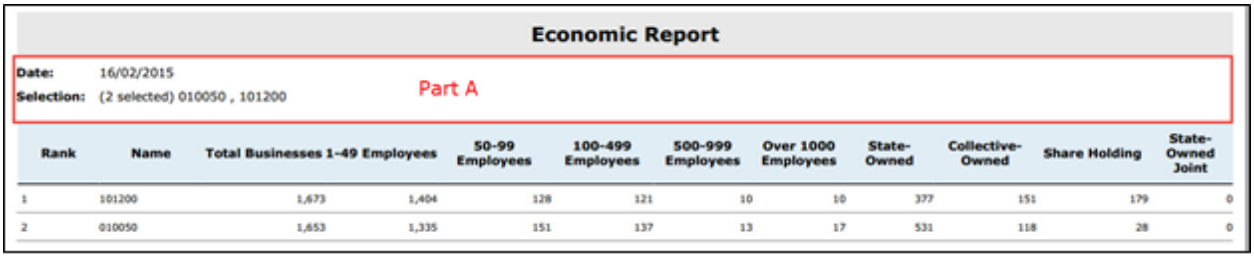
	010050		101200	
	Count	**Percent**	**Count**	**Percent**
Total Businesses	1,653	1.0	1,673	1.0
1-19 Employees	1,034	0.6	1,115	0.7
20-49 Employees	301	0.2	289	0.2
50-99 Employees	151	0.1	128	0.1
100-499 Employees	137	0.1	121	0.1
500-999 Employees	13	0.0	10	0.0
1,000 to 4,999 Employees	14	0.0	5	0.0
5,000 to 29,999 Employees	1	0.0	0	0.0
30,000 to 49,999 Employees	0	0.0	0	0.0
50,000 + Employees	2	0.0	5	0.0

Total Businesses by Revenue (1,000 Yuan)

	010050		101200	
	Count	Percent	Count	Percent
Revenue 0-300	931	56.3 %	1,028	61.4 %
Revenue 300-500	83	5.0 %	104	6.2 %
Revenue 500-1,000	121	7.3 %	112	6.7 %
Revenue 1,000-3,000	229	13.9 %	192	11.5 %
Revenue 3,000-5,000	65	3.9 %	62	3.7 %

Figure 83. Establishment, Standard Report, Compare Report

In the “Compare Report” from the Report tab, the output starts with the date that the report was run followed by the ZIP points selected (Part A, Figure 83) followed by the data (Part B, Figure 83), in this case, “Economic Data” with the headings, “Total Businesses by Employment,” “Total Businesses by Revenue (1,000 Yuan), and “Total Businesses by Ownership Status” on the second page, not shown. The counts for the ZIP points for each category are given along with the corresponding percentages. The icons for saving and printing the file are at the bottom of the right-hand side of the page, not shown.



Economic Report

Date: 16/02/2015
Selection: (2 selected) 010050 , 101200

Part A

Rank	Name	Total Businesses 1-49 Employees		50-99 Employees	100-499 Employees	500-999 Employees	Over 1000 Employees	State-Owned	Collective-Owned	Share Holding	State-Owned Joint
1	101200	1,673	1,404	128	121	10	10	377	151	179	0
2	010050	1,653	1,335	151	137	13	17	531	118	28	0

Figure 84. Establishment, Standard Report, Original Report

In the "Original Report" from the "Standard Report" tab, the output starts with the date that the report was run followed by the ZIP points selected (Part A, Figure 84) followed by the data, in this case, "Economic Data" with the headings. The ZIP points are on the row and a few of the variables for this section are in the column. The icons for saving and printing the file are at the bottom of the right-hand side of the page, not shown.

7. Theme Map

This tool allows the user to create a map that displays selected data by province, city, county or town in select color or grayscale. The data available are Census for 2000 and 2010, Economic Census for 2004 and 2008, Basic Unit Census for 2001, Industry Census for 1995, Land Cover, and Nighttime lights. The map can be exported in PDF or JPEG formats and set in landscape or portrait formats with the legend, compass, and base map selected. The user can name the map, decide how many classifications to use and what method of classification to apply. The user also selects the color scheme for the map and the level of transparency for that color. Users can also import their own data set to generate a theme map.

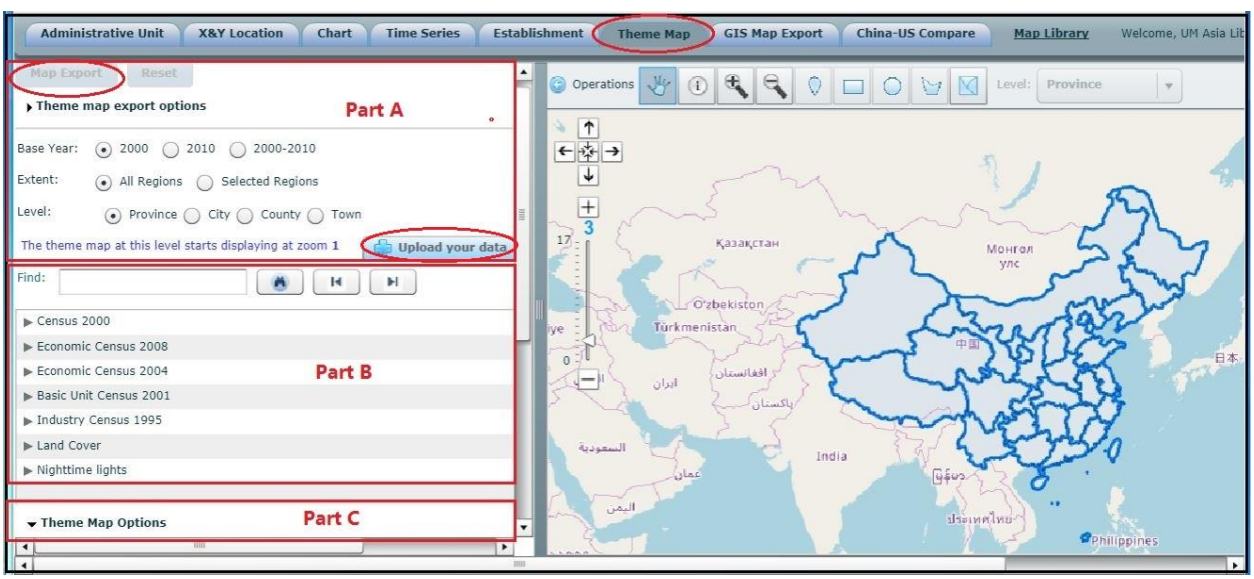


Figure 355. Theme Map

Starting in "Theme map export option," under Part A of Figure 85, the user selects the base year for the data, the extent (whether all regions are to be displayed or if only some regions will be used) and the

level at which the data will be displayed is selected. By default, the base year is set to 2000, the extent is set to all regions, and the level is set to the province. At the town level, only “Census 2000”, “Land Cover”, and “Nighttime lights” data are available. All data are available at the higher levels, province, city, and county. The options for “Map Export” and “Reset” in the top left of Part A are greyed out until an index selection is made. “Upload your data” button in the lower right of Part A can be used to import your own data set to generate a theme map.

In Part B of Figure 85, the user can identify the specific data to be displayed in Part A and the manner in which it will be displayed a theme map on the right map. The user can also enter a key work into “Find” in the top of Part B to search an index.

In Part C of Figure 85 and Figure 86, the user names the map. By default, the name will be the level selected and the name of the variable displayed. Also by default, the number of classifications is set to 6 but the user can change that to a number between 1 and 10 using the drop-down box. The “Classification Method” is set to Quantile by default but the user can change that using the drop-down box to Equal Interval or Standard Deviation in Part D of figure 86. The Color Range is from yellow to brown by default but the user can select from the drop-down box between ten color options including grayscale. In Part D of Figure 86, the system shows the colors assigned to the classification values.

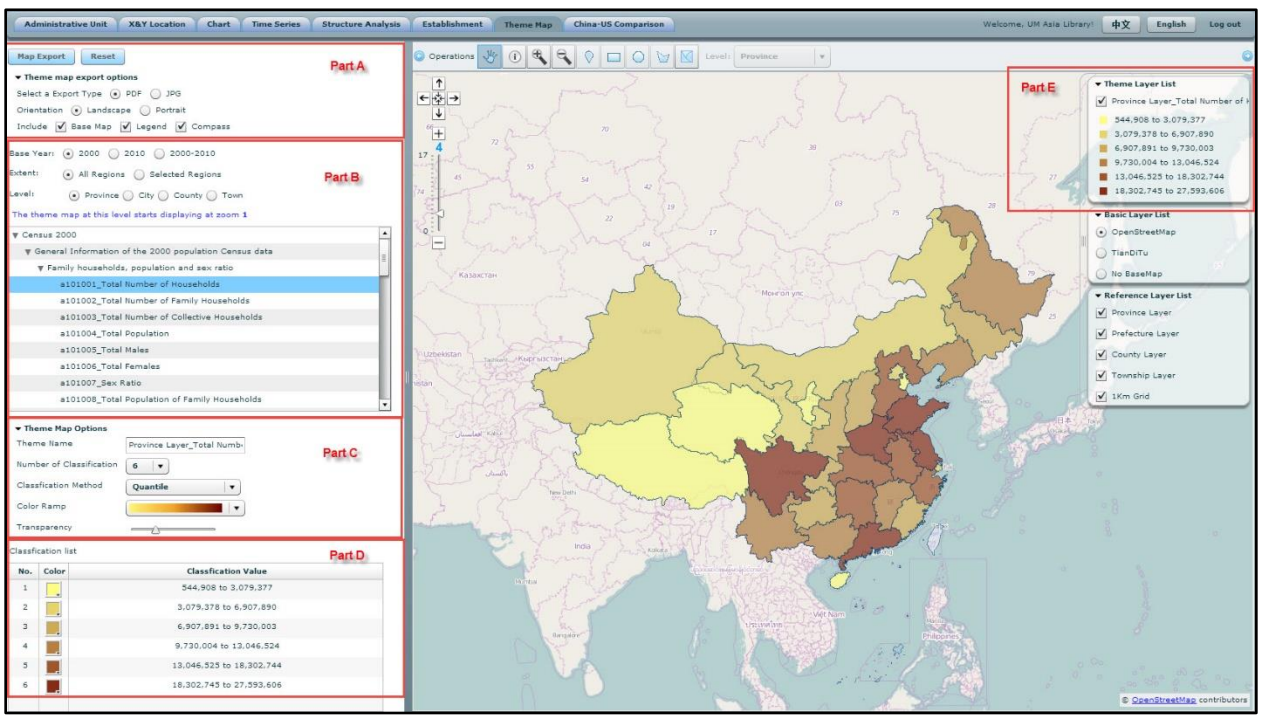


Figure 366. Theme Map, with Selections

7.1 Theme Map – Using Menu

When selecting parameters for creating a theme map, the user can retain the default setting for extent and level, and then select a single variable in one of the datasets available. In Figure 86, all default

settings in Part A and B were retained and the data selected was the variable, “Total Number of Households,” in “Census 2000.” However, the data may be displayed at any of the levels.

In Part C, the tool writes in the name of the map using the format, “level variable name” and it may be changed as can the manner in which the data are displayed and the display color and transparency level of the display. The default settings are retained and the color coding and values for the map are displayed in the “Classification List,” Part D as well as in the map view under “Theme Layer List,” Part E in the map view.

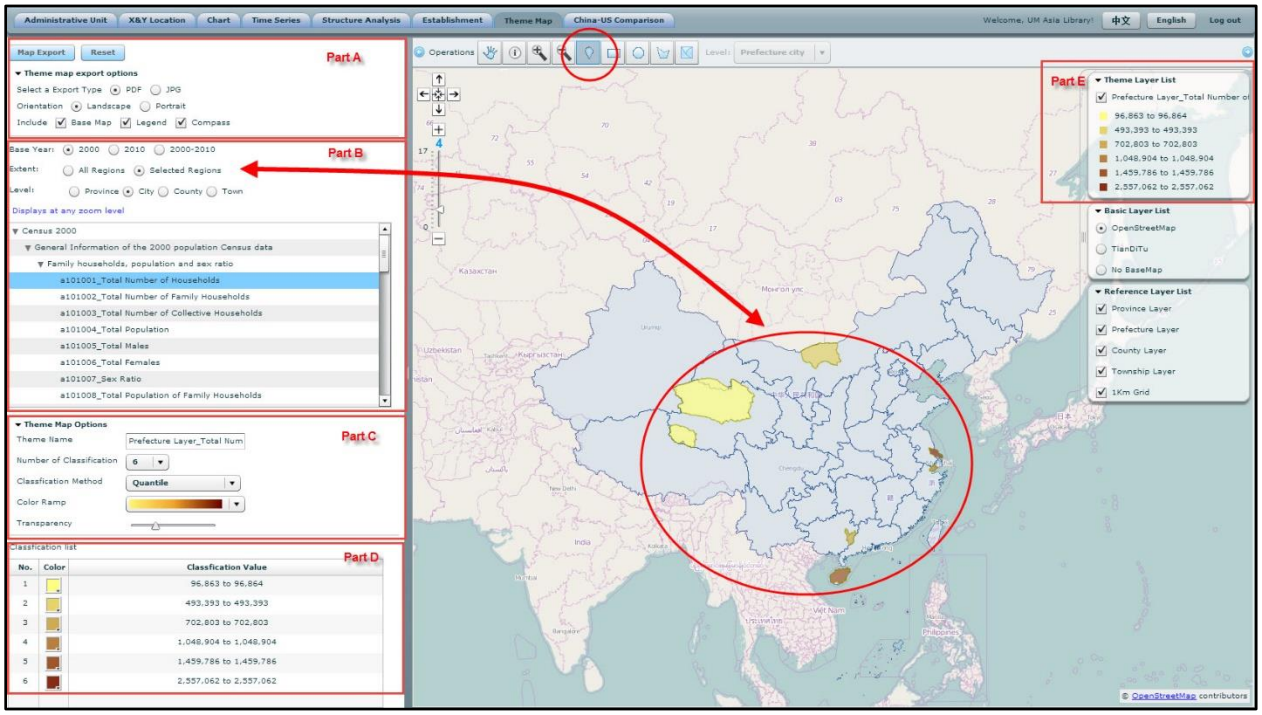


Figure 87. Theme Map, Selected Regions

7.2 Theme Map – Using Map Operations

When the “Select Region” button is clicked under the “Extent” option, the user chooses the level that is desired and then moves to “Map Operations” to select the geographic region(s). In the case of Figure 87, Part B, the level is set at “City,” and then the map option, “Query by Point,” is used to click on specific cities for display but the other options, “Query by Envelope,” “Query by Circle,” or “Query by Polygon” could also be used. Defaults settings are retained in Parts A and C and the classification values are displayed in Part D and E. The user returns to the data selection area in Part B of the menu to select the dataset and variable to be displayed on the map. When using the “Selected Region” option and choosing only a few geographic areas, the user can hover over the selected region and a dialogue box will open with the Chinese and English name of the selected area and the value of the variable displayed on the map (Figure 87).

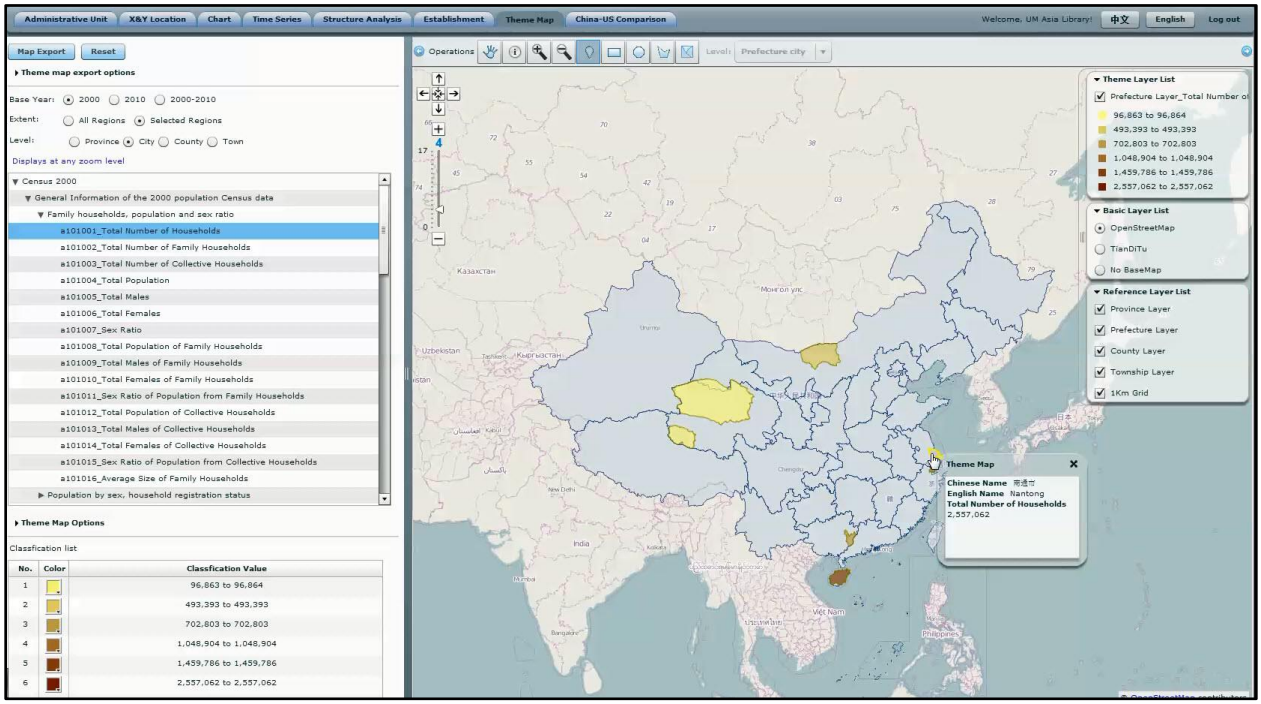


Figure 378. Theme Map, Selected Regions, Individual Region Detail Displayed

The "Map Export" button when clicked will generate a map according to the parameters as set in Part A, in Figure 85 and 86. It launches a new browser window with the specified map (Figure 89) from which the user can save to a location that they specify by putting the mouse on the displayed map and right-clicking the mouse, selecting "Save As," and identifying the desired location or the map can be printed by selecting that option. If PDF is selected for the output, there will be a bar of icons for printing, sharing, and zooming in and out in the bottom right-hand corner of the document and can be used to save or print the file. Note that the name of the file is at the top of the document which has been edited from the default setting (Part A, Figure 89), the compass and north direction is in the upper left hand corner (Part B, Figure 89), and the legend is in the lower right-hand corner (Part C, Figure 89). Also, please notice that the map is surrounded by many areas not affected by the analysis done here. The user has the option to zoom closer to the map as desired in the "Map Operations" section of the map window.

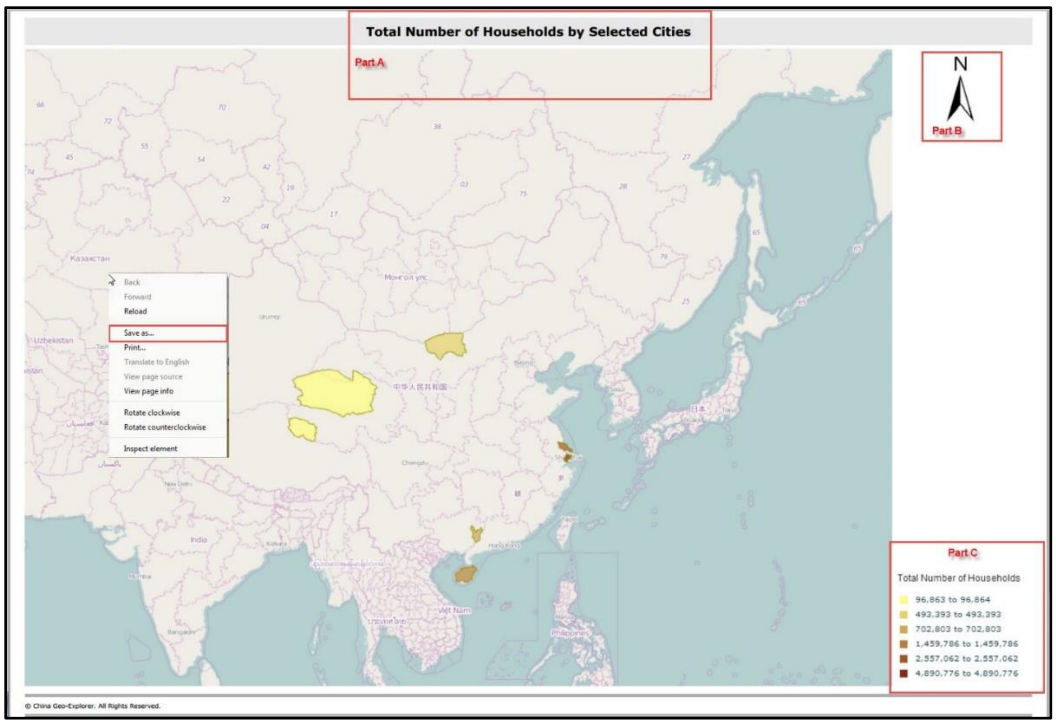


Figure 389. Theme Map, PDF Map Output

8. GIS Map Export

This tool allows the user to generate GIS map files, which includes .shp, .xls, .shx, projection files, and others — necessary to create maps in ArcGIS software for further analysis.

Click the GIS Map Export tab at the top menu bar, then select a function layer in Part A of Figure 90. The function layer includes Administrative Unit, X & Y location, Time Series and Zip Map. The default function layer is Administrative Unit (Part A, Figure 90). Click the GIS Map Export button next to Administrative Unit in Part A. (Note that please refer the previous function sections such as Administrative Unit, X & Y location, Time Series for the use of the different function layers).

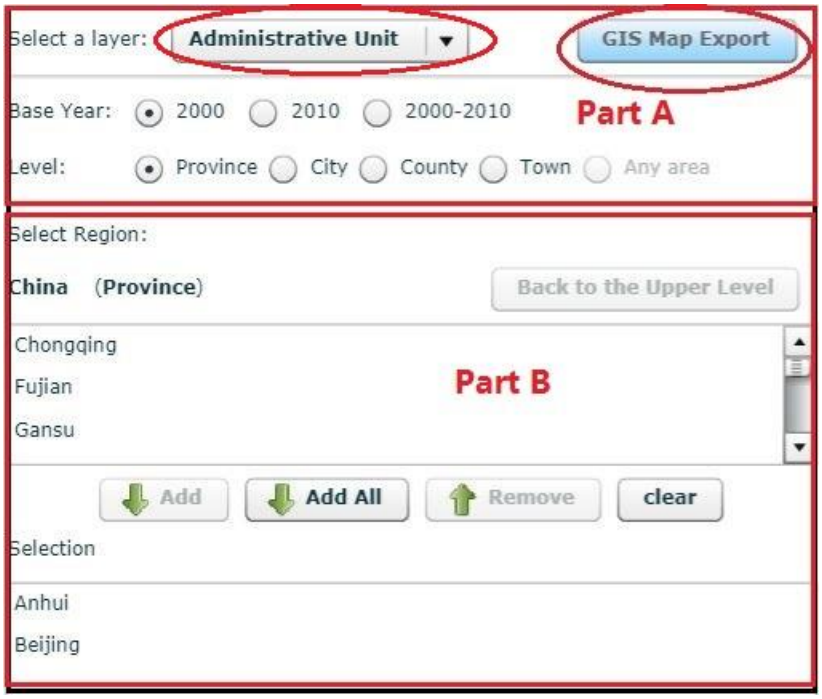


Figure 90. The GIS Map Export Button in the Menu bar.

A new dialogue box for index selection will be shown as follows (Figure 91):

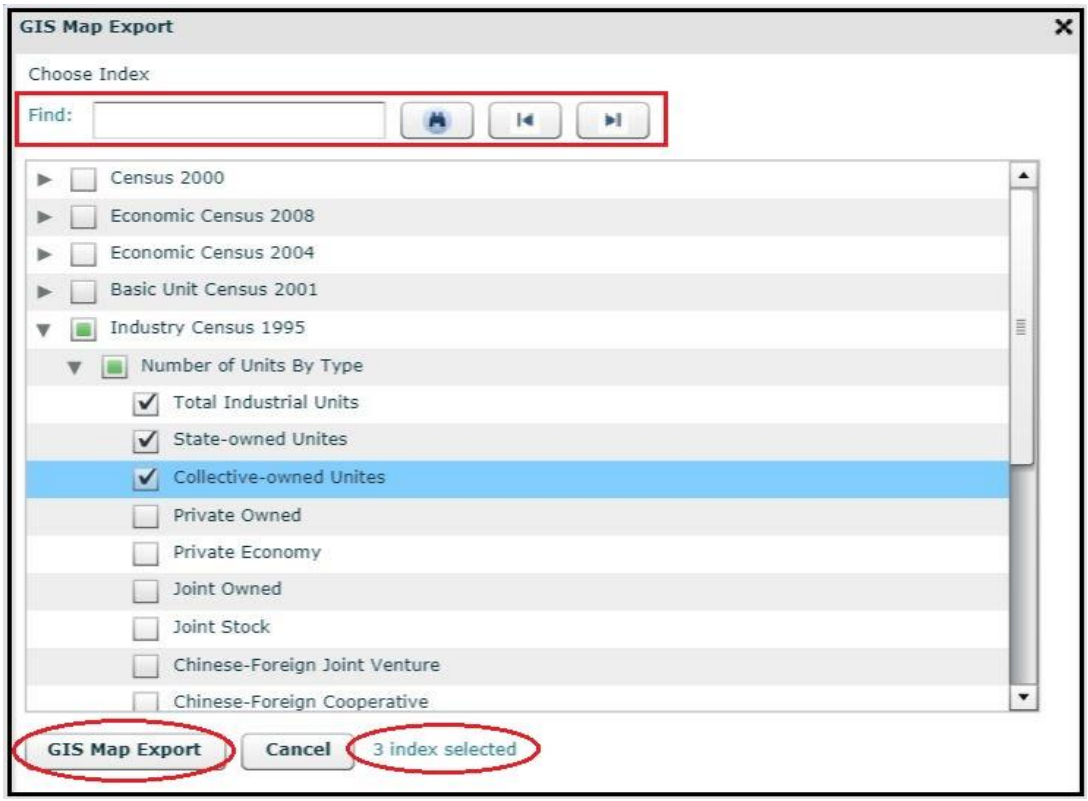


Figure 91. The Dialogue Box in GIS Map Index Selection.

Select the indexes from the data list variables, and then click the GIS Map Export button at the bottom (Figure 91). A Zip file, which includes the GIS map, will be saved to the local Downloads folder. The files can be extracted from the Zip file to a new folder. The content in the GIS file (Figure 92) can be imported into ArcGIS for further use.

Figure 92. The Content in the GIS Map File.