

Methodology Statement

Esri Thailand: 2020 Demographic Data

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Introduction

Esri Thailand demographic data provides key population and household attributes reported by both government agencies including Department of Provincial Administration, National Statistical Office, and Community Development Department. Esri Thailand uses this information to create the Esri Thailand demographic dataset. In this document, methods and definitions of the data will be explained in detail.

Geographic Levels

This dataset covers the administrative boundary of province, district, and sub-district for the whole country of Thailand.

- 77 provinces
- 928 districts
- 7,436 subdistricts

Data Collection and Source

The total population of Thailand in 2020 was 66,186,727 people which is reported by Department of Provincial Administration. The source of each data topic is provided in the following table:

Variable	Area	Data Source
Population by Age	Bangkok	Department of Provincial Administration
	All Other Provinces	Department of Provincial Administration
Population by Education	Bangkok	National Statistical Office

Variable	Area	Data Source
	All Other Provinces	The Community Development Department
Population by Occupation	Bangkok	National Statistical Office
	All Other Provinces	The Community Development Department
Income	Bangkok	National Statistical Office
	All Other Provinces	The Community Development Department
Spending	Bangkok	National Statistical Office
	All Other Provinces	The Community Development Department

- Department of Provincial Administration (DOPA) provides population data by age. This is the most reliable source of Thai data and it is updated and reported annually. The data is reported in sub-district level and the latest version of data was published in December 2020.
- National Statistical Office (NSO) of Thailand is another source of Thai data. However, most of the NSO data are provided at the provincial level, not the sub-district level.
- The Community Development Department (CDD) is responsible for supporting the community in the area of education and people engagement. It aims to increase community development and stability. Every year except year 2020, the CDD collects quality of living data from a sample of people who have lived in their household for more than 6 months. The data is collected in each sub-district in every province of Thailand.

1.1 Age

Population by Age is provided by Department of Provincial Administration (DOPA) and is current as of December 2020. Data include:

- Population by age, age less than 1 year old to age greater than 101 years old.
- Population by age groups by 5 year range, for example 0 – 4, 5 – 9 to age greater than 100 years old.

However, total population by age or age ranges do not include the following population:

- Central house registered male and female population
- Male and female population in other nationalities (Non-Thai)
- Male and female migrant population.

1.2 Education

Population by education was categorized into two groups as follows:

- Uneducated population or never went to school.
- Educated population categories include:
 - Kindergarten / Child Center
 - Lower than Primary Level
 - Primary Level
 - Middle School
 - High School
 - Diploma or Equivalent
 - Bachelor's Degree or Equivalent
 - Postgraduate Degree

Esri Thailand is using two data sources for Population by Education:

1. In the Bangkok area, the data was provided by National Statistical Office (NSO).
2. In other provinces, the data was provided by The Community Development Department (CDD), Ministry of Interior. The data is collected by population sampling for the discriminant indicators of the quality of life survey. The population samplings are only from household members who have lived over 6 months in the household. The source of data is from year 2019. However, CDD didn't provide 2020 data due to Covid-19 pandemic. As a result, we use the percentage of population by education data year 2019 to calculate its value based on total population by age to derive the value for 2020.

In order to calibrate the number to equal the DOPA total population, we are using the percentage of population by education in each level to calculate its value based on total population by age.

1.3 Occupation

Population by occupation was categorized into groups as follows:

- Employed population which are grouped by:
 - Agriculture - Rice Fields
 - Agriculture - Farming
 - Agriculture - Gardening
 - Agriculture - Fishery
 - Agriculture - Livestock
 - In Civil Service
 - State Enterprise Employees
 - Company Employees
 - General Contractors
 - In Trade
 - In Personal Business

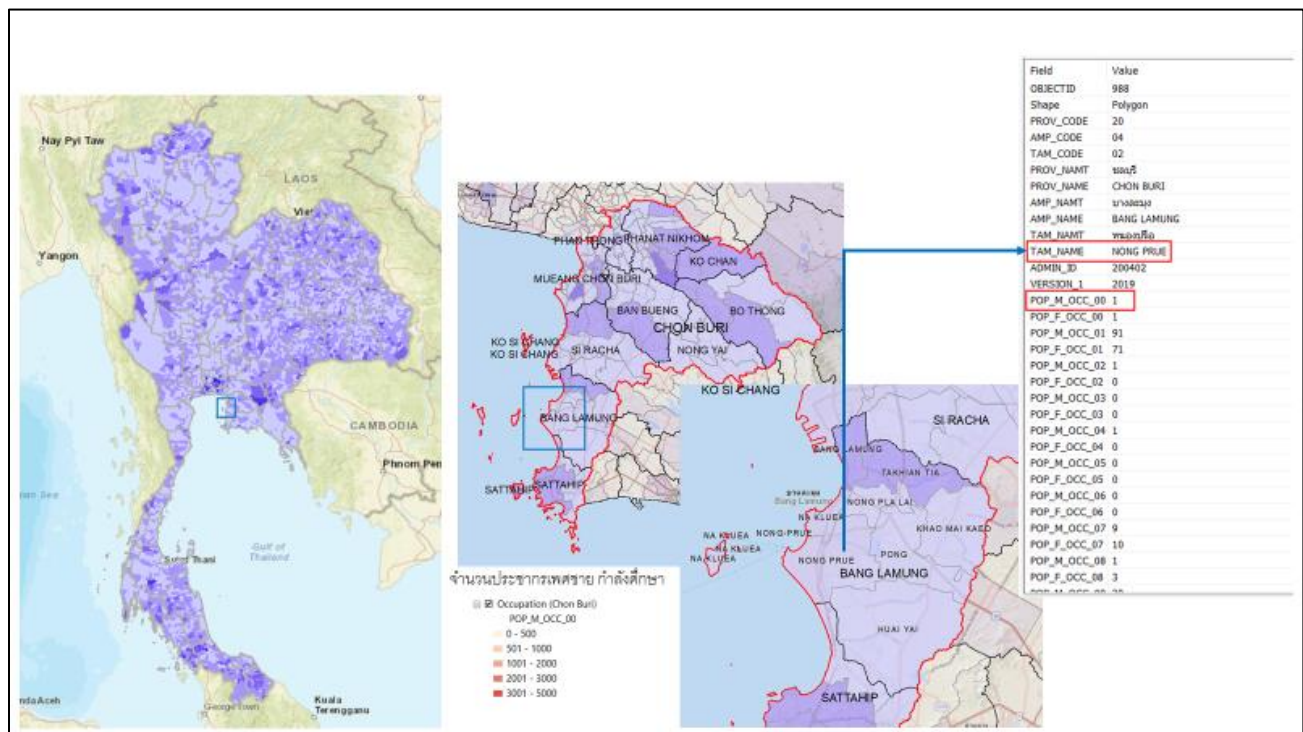
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- Other Occupations
 - Unemployed population which are grouped by:
 - No occupation (population age 0 – 3 years old) and Population who are unemployed.
 - Population age 3 – 15 years old and population age greater than 15 years old who are studying.

Esri Thailand is using two data sources for Population by occupation:

1. In the Bangkok area, the data was provided by National Statistical Office (NSO).
2. In other provinces, the data was provided by The Community Development Department (CDD), Ministry of Interior. The data is collected by population sampling for the discriminant indicators of the quality of life survey. The population samplings are only from household members who have lived over 6 months in the household. The source of data is from year 2019. However, CDD didn't provide 2020 data due to Covid-19 pandemic. As a result, we use the percentage of population by occupation data year 2019 to calculate its value based on total population by age to derive the value for 2020.

In order to calibrate the number to equal the DOPA total population, we are using the percentage of population by occupation in each level to calculate its value based on total population by age. Note that the data includes only population age 16 – 59 years old.

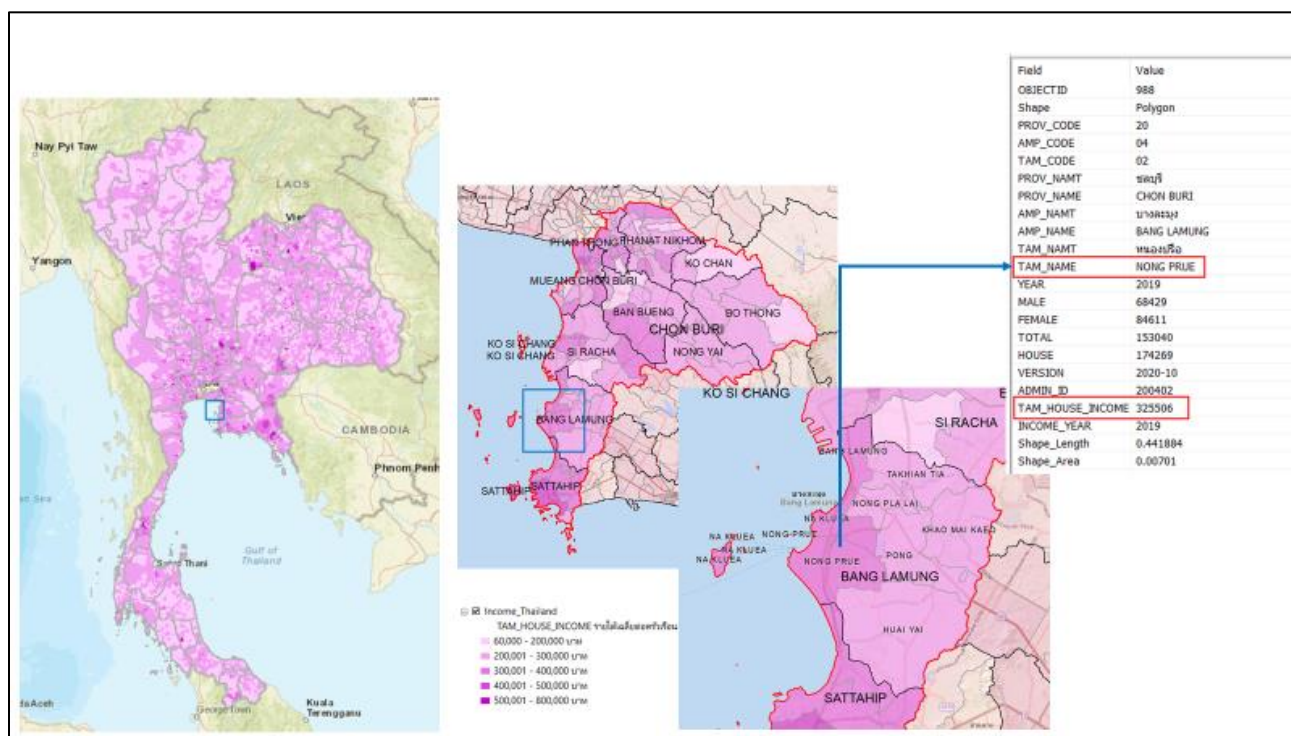


Picture 1 Sample data of Population by Occupation in Chonburi province

1.4 Average Income

Average household income (Baht/year) was classified by sub-district level from two data sources.

1. In the Bangkok area, the data has been provided by National Statistical Office (NSO). We use the percentage of average income by occupation data year 2020 to calculate its value based on total population by occupation year 2020 to derive the value for 2020.
2. In other provinces, the data was provided by The Community Development Department (CDD), Ministry of Interior. The data is collected by population sampling for the discriminant indicators of the quality of life survey. The population samplings are only from household members who have lived over 6 months in the household. The source of data is from year 2019. However, CDD didn't provide 2020 data due to Covid-19 pandemic. As a result, we use the percentage of average income data year 2019 to calculate its value based on total population by age to derive the value for 2020.



Picture 2: Sample data of Average Income

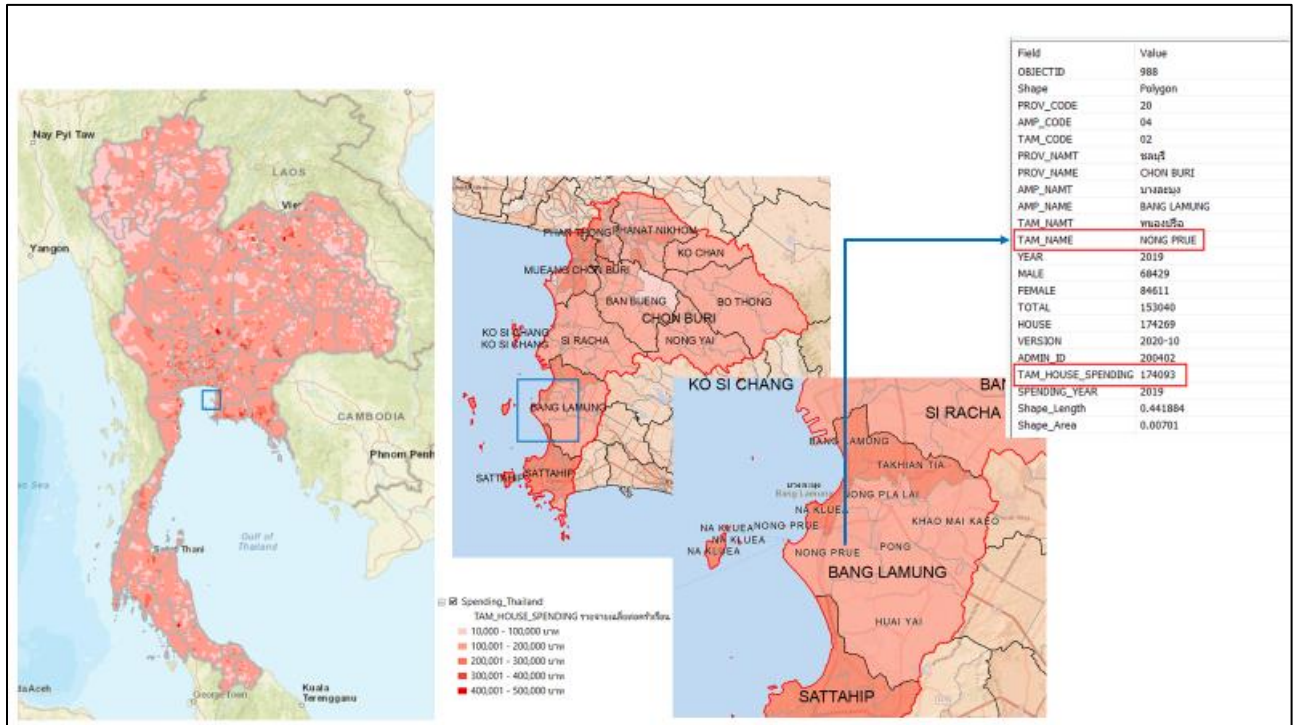
1.5 Average Spending

Average spending household (Baht/Year) was classified by sub-district level from 2 data sources.

1. In the Bangkok area, the data has been provided by National Statistical Office (NSO). We use the percentage of average spending by occupation data year 2020 to calculate its value based on total population by occupation year 2020 to derive the value for 2020.
2. In other provinces, the data was provided by The Community Development Department (CDD), Ministry of Interior. The data is collected by population sampling for the discriminant indicators of the quality of life survey. The population samplings are only from household members who

have lived over 6 months in the household. The source of data is from year 2019. However, CDD didn't provide 2020 data due to Covid-19 pandemic. As a result, we use the percentage of average spending data year 2019 to calculate its value based on total population by age to derive the value for 2020.

Total Spending is calculated by multiplying the 2020 average spending by the 2020 households.



Picture 3: Sample data of Average Spending

Methodology

Due to the variety of the data sources, we have steps to make the data variables related. The summary of methodology for each dataset is in the table below.

Variables	Area	Data Source	Base	Data updated in year	Frequency	Methodology	Remark
Household	The whole Country	Department of Provincial Administration (DOPA)	Actual Number in subdistrict (Registered population)	2020	Annually	Actual Number	Thai and non-Thai residence.
Population by Age	Bangkok	Department of Provincial Administration (DOPA)	Actual Number in subdistrict (Registered population)	2020	Annually	Actual Number	Thai residence only.
	Other Provinces	Department of Provincial Administration (DOPA)	Actual Number in subdistrict (Registered population)	2020	Annually	Actual Number	Thai residence only.
Population by Education	Bangkok	National Statistical Office (NSO)	Percentage base divided by education level in province	2020	Annually	Using the percentage of Population by Education in each level to calculate its value based on Total Population by Age.	Thai residence only.
	Other Provinces	The Community Development Department (CDD)	Percentage base divided by education level in subdistrict	2019	Annually	Percentage of CDD population by Education data year 2019 calculate its value based on total population by age to derive value for 2020.	Thai residence only. CDD didn't provide 2020 data due to Covid-19 pandemic. As a result, we use the percentage of CDD population by Education data year 2019 calculate its value based on total population by age to derive value for 2020.

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Variables	Area	Data Source	Base	Data updated in year	Frequency	Methodology	Remark
Population by Occupation	Bangkok	National Statistical Office (NSO)	Percentage base divided by occupation level in province	2020	Annually	Using the percentage of Population by education in each level to calculate its value based on Total Population by Age.	Thai residence only.
	Other Provinces	The Community Development Department (CDD)	Percentage base divided by occupation level in subdistrict	2019	Annually	Using percentage of CDD population by Occupation data year 2019 calculate its value based on total population by age to derive value for 2020.	Thai residence only. CDD didn't provide 2020 data due to Covid-19 pandemic. As a result, we use the percentage of CDD population by Occupation data year 2019 calculate its value based on total population by age to derive value for 2020.
Income	Bangkok	National Statistical Office (NSO)	Actual number of average income household per year in subdistrict	2020	Annually	Using percentage of average income by occupation data year 2020 calculate its value based on total population by occupation year 2020 to derive value for 2020.	Thai residence only. We use the percentage of average income by occupation data year 2020 calculate its value based on total population by occupation year 2020 to derive value for 2020.
	Other Provinces	The Community Development Department (CDD)	Actual number of average income household per year in subdistrict	2019	Annually	Using percentage of CDD average income data year 2019 calculate its value based on total population by age to derive value for 2020.	Thai residence only. CDD didn't provide 2020 data due to Covid-19 pandemic. As a result, we use the percentage of CDD average income data year 2019 calculate its value based on total population by age to derive value for 2020.

Variables	Area	Data Source	Base	Data updated in year	Frequency	Methodology	Remark
Spending	Bangkok	National Statistical Office (NSO)	Actual number of average spending household per year in subdistrict	2020	Annually	Using percentage of average spending by occupation data year 2020 calculate its value based on total population by occupation year 2020 to derive value for 2020	<ul style="list-style-type: none"> • Thai residence. • CDD doesn't provide data in Bangkok area so we use NSO data. NSO data might not be as accurate as it comes from sampling size of only 50,000 households for the whole country. • In year 2018 onwards, NSO changed to collecting data by province level instead of sub-district level. As a result, we use 2017 sub-district level average spending data and calculate total spending using 2019 total households. • In year 2020, we use the percentage of average spending by occupation data year 2020 calculate its value based on total population by occupation year 2020 to derive value for 2020.
	Other Provinces	The Community Development Department (CDD)	Actual number of average spending household per year in subdistrict	2019	Annually	Using percentage of CDD average spending data year 2019 calculate its value based on total population by age to derive value for	<p>Thai residence only.</p> <p>CDD didn't provide 2020 data due to Covid-19 pandemic. As a result, we use the percentage of CDD average spending data year 2019 calculate its value based on total population by age to derive value for 2020.</p>