M.A. Thesis Proposal

Impact of Aging Workforce on Japanese Cities

Dhruval Bhatt

Advisor: Dr. Luis Bettencourt

Introduction

Japan has the fastest aging population in the world. According to Forbes, "no less than 38% of Japanese will be aged 65 and over by 2065, making it the world's leading 'super-aged society'" [1]. Due to the economic, social and political implications of population ageing (kōreikashakai, 高齢化社会), Japan is making concentrated efforts to understand the effects and plan for it as the country continues to age. Furthermore, the map below is a United Nation's projection of the percentage of population aged 65 and over from around the world. From this map, it is evident that many other economically developed countries in Europe, North America and Australasia also have a rapidly increasing population over the age of 65. Thus, understanding the impact of aging is not only crucial for Japan but many other countries that will also need to investigate their healthcare cost and structure, labor force, workplace policies, elderly care and preparing their cities for this changing demographic.
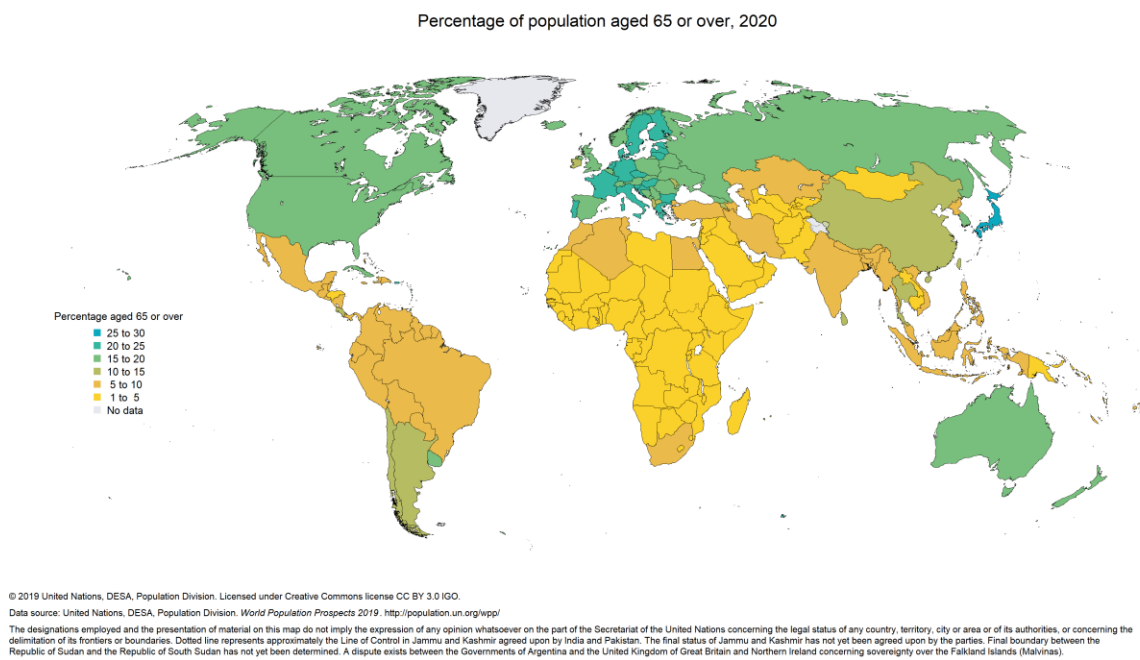
Percentage of population aged 65 or over, 2020

Figure 1 Percentage of Population Aged 65 and over, 2020 [2]

In this research study, I will focus on using Japan's Social and Demographic Statistics (SSDS) to answer: what is the effect of aging workforce on Japan's cities? There are 3 components to be able to understand the impact of aging workforce on cities: spatial distribution of aging population, overview of Japanese workforce sectors and employment and characteristics of Japan's urban areas.

Data and Method

The primary source of data for this research would be Japan's Statistics Bureau's System of Social and Demographic Statistics (SSDS). This data spans 12 different topics – Population and Household, Natural Environment, Labour, Economic Base, Administrative Base, Education, Culture and Sports, Health and Medical Care, Welfare and Social Security, Safety, Family Budget, Daily Time Usage and Dwelling. For each of these topics, a variety of survey questions are asked and the aggregate response for each of the 47 prefectures is given for 3 time periods with approximately 5 years in between. The years vary between topics as well as questions such as labor force participation data is from years 2005, 2010 and 2015 while population per prefecture is from years 2010, 2015 and 2017. Nonetheless, this is a rich dataset to understand the spatial and temporal variation on key parameters of Japanese population, culture and economy. This is indeed a unique dataset. According to the 2019 notes that is included with the data, "the Statistics Bureau's SSDS aims to ascertain real lives by region, [while UN suggested data] aims to compare aspects between countries" [3]. Seeing how the picture of people's real lives changes across the country could be very revealing. Therefore, thoughts on how to utilize the lesser

collected data such as daily time or culture will be one of the focuses of data exploration. The

data will be explored and analyzed using spatial analysis and network analysis techniques.

Work Plan and Timetable

The project will be divided into 3 major phases:

- Phase 1: Explore [November 15th to December 14th]
    - o Understand and explore the SSDS data
    - o Determine which additional data sources should be used to answer the question
    - o Complete a comprehensive literature review
    - o Outline the method and deliverables for analysis
- Phase 2: Analyze [December 15th to March 14th]
    - o Apply spatial and network analysis to the data
    - o Conclude findings of the research
    - o Visualize the results
- Phase 3: Consolidate [March 15th to May 1st]
    - o Draft the final thesis paper
    - o Prepare presentation slides
    - o Conclude and communicate the results of the study

The table below shows key dates and tasks that are known as of now. The dates in red are the official deadlines.

Table 1 Thesis Schedule

Date	Task Due	Task Notes
11/11/19	Proposal draft sent to Dr. Bettencourt	
11/14/19	Finalize proposal and get preceptor, Josh's approval	
11/15/19	Signed MA Proposals Due to Student Affairs Administrator (E.G. Enbar).	Need faculty and preceptor signatures Attached to the signed form will be a revised version of your MA Thesis Proposal.
12/01/19	Literature Review	
12/14/19	Complete Data Exploration	
03/15/20	All Analysis Complete	
04/01/20	First MA thesis drafts sent to faculty reader and preceptor	The first draft must be a complete, 35-page draft inclusive of all required sections, not including the appendix, references, or endnotes (if any).
04/17/20	Complete updating draft with review comments	
05/01/20	Final MA thesis drafts must be received by the faculty reader and preceptor	

Resources Identified

Here are some journal sources and books identified that might help complete a comprehensive

literature review.

Buhnik, Sophie. "From Shrinking Cities to Toshi No Shukushō: Identifying Patterns of Urban Shrinkage in

the Osaka Metropolitan Area." *Berkeley Planning Journal*, vol. 23, no. 1, 2011,

doi:10.5070/bp323111434.

Clark, Robert, et al. "Economic and Policy Implications of Population Aging." *Population Aging,*

Intergenerational Transfers and the Macroeconomy, doi:10.4337/9781847208583.00007.

Cole, Robert E., et al. "The Japanese Company." *Journal of Japanese Studies*, vol. 8, no. 2, 1982, p. 418.,

doi:10.2307/132352.

Gaigné, Carl, and Jacques-François Thisse. "Aging Nations And The Future Of Cities." *Journal of Regional*

Science, vol. 49, no. 4, 2009, pp. 663–688., doi:10.1111/j.1467-9787.2009.00629.x.

Jacobs, A. J. "Embedded Localities: Employment Decline, Inner City Population Growth, and Declining

Place Stratification among Japans Mid-Size and Large Cities." *City and Community*, vol. 5, no. 3, 2006,

pp. 269–292., doi:10.1111/j.1540-6040.2006.00181.x.

Jones, Randall S. "The Economic Implications of Japans Aging Population." *Asian Survey*, vol. 28, no. 9,

1988, pp. 958–969., doi:10.1525/as.1988.28.9.01p01976.

Kornhauser, David H. "Urbanization and Population Pressure in Japan." *Pacific Affairs*, vol. 31, no. 3,

1958, p. 275., doi:10.2307/2752922.

Lee, Ronald, and Andrew Mason. "Some Macroeconomic Aspects of Global Population

Aging." *Demography*, vol. 47, no. S, 2010, doi:10.1353/dem.2010.0002.

Muramatsu, N., and H. Akiyama. "Japan: Super-Aging Society Preparing for the Future." *The Gerontologist*, vol. 51, no. 4, 2011, pp. 425–432., doi:10.1093/geront/gnr067.

Preston, Samuel H., et al. "Demographic Conditions Responsible for Population Aging." *Demography*, vol. 26, no. 4, 1989, p. 691., doi:10.2307/2061266.

Xie, Bo, et al. "Mapping Spatial Variation of Population Aging in Chinas Mega Cities." *Journal of Maps*, vol. 12, no. 1, 2015, pp. 181–192., doi:10.1080/17445647.2014.1000984.

Yamagata, Yoshiki, and Hiroshi Maruyama. *Urban Resilience A Transformative Approach*. Springer International Publishing, 2018.

References

[1] Contributor, Japan. "Why Japan's Aging Population Is an Investment Opportunity." *Forbes*, Forbes Magazine, 19 Mar. 2019, https://www.forbes.com/sites/japan/2018/11/12/why-japans-aging-population-is-an-investment-opportunity/#43cc87e288dd.

[2] "World Population Prospects - Population Division." United Nations, United Nations, https://population.un.org/wpp/Maps/.

[3] "System of Social and Demographic Statistics Social Indicators by Prefecture 2019 Social Indicators by Prefecture 2019: File: Browse Statistics." *Portal Site of Official Statistics of Japan*, https://www.e-stat.go.jp/en/stat-search/files?page=1&layout=datalist&toukei=00200502&tstat=000001124715&cycle=0&year=20190&month=0&tclass1=000001124716.