Investing in New York State

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Abstract

In an effort to identify which New York State industry to direct a $10-million-dollar investment, long-term occupational and population projections are analyzed which prove that such a large investment in the healthcare industry, a top industry in the state, is warranted.

Table of Contents

[Investing in New York State 3](#_Toc469340892)

[NYS Population Growth Projections 3](#_Toc469340893)

[NYS Occupation Growth Projections 3](#_Toc469340894)

[Summary 4](#_Toc469340895)

[Limitations of this study 4](#_Toc469340896)

[Assessment and Validation of Another Project 5](#_Toc469340897)

[References 6](#_Toc469340898)

[Data Sources 6](#_Toc469340899)

[Appendix 7](#_Toc469340900)

[Tables 8](#_Toc469340901)

[Figures 10](#_Toc469340902)

[Python Requirements and Walkthrough 13](#_Toc469340903)

[Required Data 13](#_Toc469340904)

[Additional Setup 13](#_Toc469340905)

[Coding Approach 14](#_Toc469340906)

Investing in New York State

In a recent publication, the New York State Department of Labor describes how an aging population with increasing health care requirements, combined with a labor shortage in the health care industry, could present a challenge in meeting future health care needs. (DOL)

To better understand the pace of this phenomenon, and to ultimately decide where to direct a $10 million investment, I’ve gathered census data on the population of New York State. Additionally, I’ve pulled data on the projections of job openings, grouped by industry, in New York State. The results from the extraction and analysis of these data sets are presented in the Tables section of this paper.

## NYS Population Growth Projections

For demographic data, I’ve turned to population projections as provided by the Cornell Program on Applied Demographics. This data is provided as an Excel formatted document and is grouped by county. In order to understand how the population demographics are projected to change over the next decade, the data was grouped together by age group and totaled for the years 2015 and 2025. The difference between these years was then calculated to provide the projected change in population for each age group.

The result of this analysis demonstrates that the population of individuals over 60 years old is expected to grow at a rate higher than all other age groups over the next 10 years. This conclusion is presented graphically in Figure 1.

## NYS Occupation Growth Projections

For data on job growth, I’ve reference the New York State Department of Labor. The DOL provides long-term jobs projections for each occupation category in the state. For purposes of identifying the top growing industries in New York State with regard to job growth, I’ve grouped this data together by major SOC (Standard Occupational Classification).

While the Food Preparation and Serving Related occupations represent the largest single category with 12.7% of total job growth in New York, as represented in Figure 2, this doesn’t account for the fact that there are two major occupational classifications for healthcare related occupations. When taking into account both of these healthcare related SOCs, healthcare related occupations account for a total of 16.5% of job growth in New York State; the highest percentage of all job growth expected over the next ten years.

As shown in Figure 3, total healthcare related job growth over the next 10 years is expected to reach 1,117,380, which is a greater pace than any other occupation category.

## Summary

There is evidence that as the population ages, it spends more on healthcare due to greater health care needs. (Sheiner) This phenomenon is demonstrated in Figure 4. As shown by all the data presented in this research, the aging population combined with a large growth in healthcare related jobs demonstrates the need to invest in the New York State healthcare industry.

## Limitations of this study

SOC analysis has been performed only by major classification code. To better direct funds to a more specific occupational classification, individual occupational categories could be analyzed. Additionally, population age demographics could be looked at by county rather than at the state level. This would allow for a more detailed understanding of areas of the state which may require more spending on a particular healthcare function.

Lastly, this study does not dive into whether there will be sufficient persons available in the workforce to fulfil open positions in the healthcare industry.

Assessment and Validation of Another Project

Curtis Robbins

Agricultural Investment in New York State

Having already identified agriculture as an important industry to the New York State economy, Curtis’ work focused on identifying specific areas to invest and deploy smart irrigation technology throughout in state in effort to stimulate the agriculture industry in areas that need it most. This analysis relayed on data which provided insight into each of the following areas:

* Wholesale distribution capability
* Poverty Rates
* Drought Conditions
* Farmed acreage potential

Given the R code as well as the datasets used in the calculations, reproduction of the result was quite simple even considering my relative novice in working with the R-studio tool. For each county in the state, the four above categories were scored and data was compiled to narrow down which counties which best fit the criteria.

To ultimately decide which county will receive the investment, Curtis calculated which county has the largest opportunity to increase their cropped acreage. In other words, the county which has the largest potential to expand their overall production giving the opportunity via investment. That county was Wayne county.

References

DOL, NYS. "Employment in New York State." 1 May 2016. *New York State Department of Labor.* <https://labor.ny.gov/stats/PDFs/enys0516.pdf>.

Sheiner, Louise. "Intergenerational Aspects of Health Care." September 2009. *The Federal Reserve Board.* <https://www.federalreserve.gov/PUBS/feds/2009/200938/200938pap.pdf>.

# Data Sources

List of Standard Occupational Classification (SOC) codes:

<http://www.bls.gov/oes/current/oes_stru.htm>

New York State Department of Labor Long-Term Occupational Projections:

[*https://data.ny.gov/Economic-Development/Long-Term-Occupational-Projections/pqm4-9qqb*](https://data.ny.gov/Economic-Development/Long-Term-Occupational-Projections/pqm4-9qqb)

Cornell Program on Applied Demographics population projections:

<https://pad.human.cornell.edu/counties/projections.cfm>

Appendix

Tables

Table 1

10 Year Projected Job Growth in New York State, by SOC

|  |  |
| --- | --- |
| **Standard Occupation Classification** | **10 Year Projected Job Growth** |
| Food Preparation and Serving Related | 859030 |
| Healthcare Support | 590550 |
| Personal Care and Service | 577870 |
| Office and Administrative Support | 570140 |
| Healthcare Practitioners and Technical | 526830 |
| Business and Financial Operations | 442760 |
| Sales and Related | 400240 |
| Education, Training, and Library | 392980 |
| Construction and Extraction | 365860 |
| Management | 341680 |
| Building and Grounds Cleaning and Maintenance | 310060 |
| Transportation and Material Moving | 280100 |
| Computer and Mathematical | 264670 |
| Installation, Maintenance, and Repair | 177700 |
| Protective Service | 153310 |
| Community and Social Service | 148380 |
| Arts, Design, Entertainment, Sports, and Media | 143180 |
| Legal | 63730 |
| Production | 59470 |
| Architecture and Engineering | 57690 |
| Life, Physical, and Social Science | 57190 |
| Farming, Fishing, and Forestry | 6620 |

Table 2

10 Year Projected Change in Population, by Age Group

|  |  |  |  |
| --- | --- | --- | --- |
| **Age Group** | **2015** | **2025 Projected** | **10 Year Change in Population** |
| 0-4 | 1244997 | 1233350 | -11647 |
| 5-9 | 1163565 | 1240637 | 77072 |
| 10-14 | 1171175 | 1233520 | 62345 |
| 15-19 | 1227662 | 1201101 | -26561 |
| 20-24 | 1386666 | 1257137 | -129529 |
| 25-29 | 1426267 | 1297668 | -128599 |
| 30-34 | 1388843 | 1408613 | 19770 |
| 35-39 | 1271365 | 1403904 | 132539 |
| 40-44 | 1235211 | 1334902 | 99691 |
| 45-49 | 1318097 | 1214124 | -103973 |
| 50-54 | 1402199 | 1163455 | -238744 |
| 55-59 | 1330254 | 1187449 | -142805 |
| 60-64 | 1133441 | 1199718 | 66277 |
| 65-69 | 943579 | 1076688 | 133109 |
| 70-74 | 668250 | 867396 | 199146 |
| 75-79 | 482638 | 669726 | 187088 |
| 80-84 | 351209 | 408398 | 57189 |
| 85+ | 401486 | 389062 | -12424 |

Figures

Figure 1. 10 Year Total Projected Change in New York State Population, by Age Group



Figure 2. 10 Year Percentage of Projected Total Job Growth, by Major SOC

Figure 3. 10 Year Projected Job Growth, by Major SOC

# Python Requirements and Walkthrough

The python code used for this analysis is available at the following location:

https://github.com/billinbuffalo/test/blob/master/FinalProject.py

## Required Data

There are three data sources needed to perform this analysis.

1. [*https://data.ny.gov/Economic-Development/Long-Term-Occupational-Projections/pqm4-9qqb*](https://data.ny.gov/Economic-Development/Long-Term-Occupational-Projections/pqm4-9qqb)   
   Exported as CSV for Excel; saved as: Long\_Term\_Occupational\_Projections.csv
2. [*https://pad.human.cornell.edu/counties/projections.cfm*](https://pad.human.cornell.edu/counties/projections.cfm)Download Project Data as an Excel workbook.  
   Export the “counts” tab as ProjectionsCounts.csv
3. [*http://www.bls.gov/oes/current/oes\_stru.htm*](http://www.bls.gov/oes/current/oes_stru.htm)Copy and paste the SOC codes from the website to an Excel spreadsheet.

Use the “text to columns” feature of Excel to split the data into three fixed columns.

IMPORTANT: The first column should only be the first two digits of the code. The third column should start with the description. Discard the middle column.

Add a header for each column; “Code” for A and “Occupation” for B.

Save as: occupationcodes.csv

## Additional Setup

As the code is written, the Excel spreadsheet used for output needs to exist prior to the programs execution. A spreadsheet named “jobprojectionsoutput.xlsx” should be created with two worksheets, sheet1 and sheet2.

## Coding Approach

There are two main data source for this program; the Cornell Program on Applied Demographics population projections for the next 10 years and the long-term occupation projections from the New York State Department of Labor.

For population projections, the growth between 2015 and 2025 is analyzed to determine how the balance of population will change between age groups over the next ten years.

For long-term occupation projections, data on growth is grouped by major occupation category in effort to determine which industry will experience the largest job growth over the next decade.