Xymax Real Estate Institute
TOPIC REPORT

To Solve the Labor Shortage Problem (Vol. 2)

How Much of a Shortage Will There Be for Non-Desk Workers?

December 1, 2023

1. Introduction

In May 2023, Xymax Real Estate Institute released a Topic Report titled *To Solve the Labor Shortage Problem (Vol. 1) –The Actual State and Issues of Non-desk Workers—*.*[1] In the report, we presented the definition, the actual state and issues of non-desk workers, who are at the center of the labor shortage problem. Specifically, we indicated non-desk workers' actual state as accounting for more than half of all workers and having high proportions of older workers and part-time workers. We also confirmed the issues of relatively low wages and the difficulty in attracting workers.

In this second report, we will provide a quantitative estimate of how much of a shortage there will be for non-desk workers in the future. Specifically, using long-term time series data, we will examine how the number of non-desk workers by worker type has trended in the past and how it will change in the future, as well as forecast the labor supply-demand gap by occupation.

The awareness and background factors for this examination are that while many people currently recognize that labor shortage is a major social issue, it is difficult to imagine how much of a shortage there will be for non-desk workers because the jobs that support society, especially non-desk work, tend to be hidden from view (difficult to recognize) in everyday life. A worsening labor shortage may lead to a lack of productivity improvement in business activities, a resulting slowdown in the growth of the Japanese economy, and a loss of convenience, safety and comfort in our daily lives that we have come to take for granted.

Through this report, we hope to share a sense of urgency about our society's growing labor shortage and provide a catalyst for readers to become concerned and deepen their understanding of the labor shortage problem.

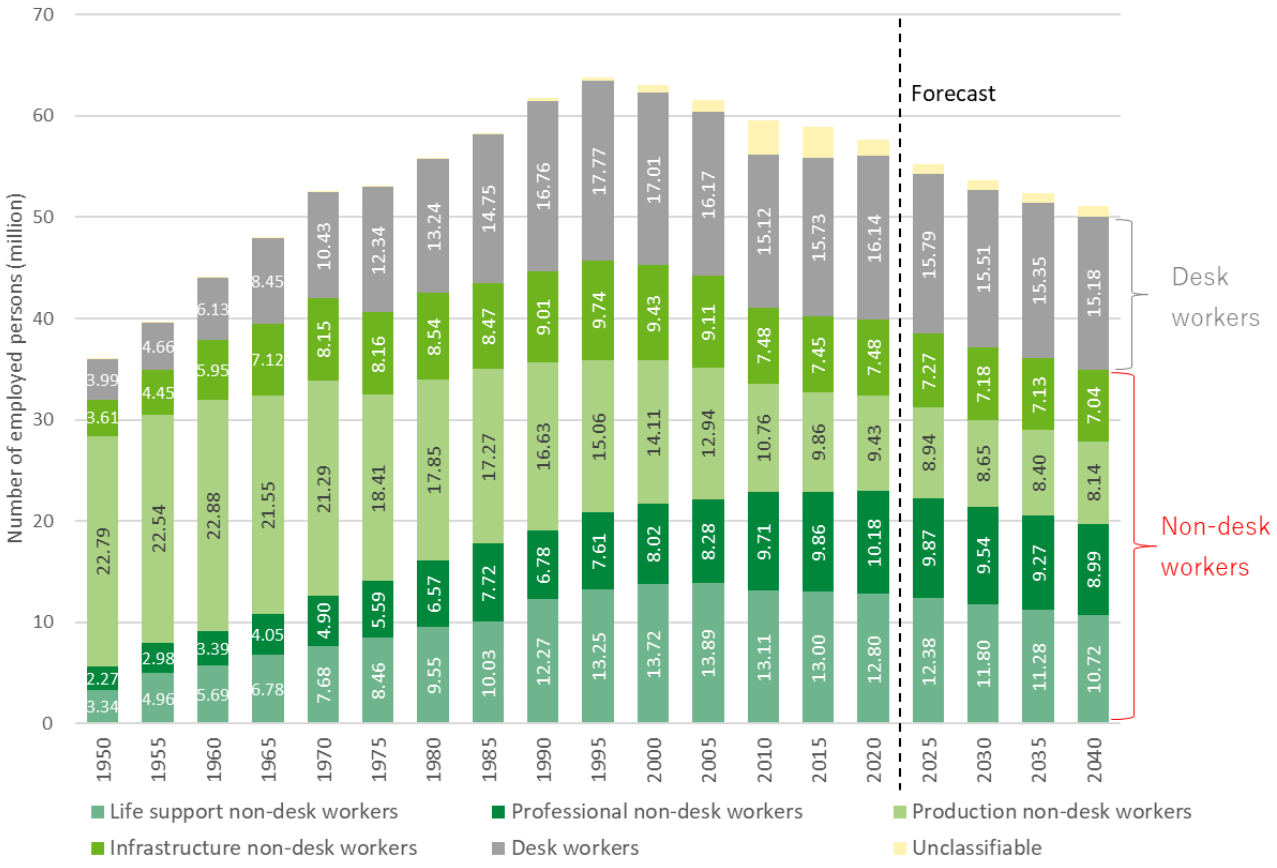
*1 *To Solve the Labor Shortage Problem (Vol. 1)—The Actual State and Issues of Non-Desk Workers—*, released on May 31, 2023
https://soken.xymax.co.jp/2023/05/31/2305-labor_shortage_1/

2. Number of Workers—Past and Future
(Number of Workers by Worker Type from 1950 to 2040)

In our first report, we categorized workers into desk workers, desk and non-desk workers and non-desk workers and identified the current number of workers (based on the 2020 Population Census). In this second report, we categorize non-desk workers into four groups: "**professional** (mainly professional and engineering)," "**life support** (sales, service, security, cleaning)," "**production** (agriculture and manufacturing process)" and "**infrastructure** (transport and machine operation, construction and mining, carrying, packaging, etc.)" and examine the past and projected numbers of workers to identify where there are severe labor shortages for each type of non-desk work.

Figure 1 shows the number of workers for each worker type in the past (from 1950 to 2020) and in the future (from 2025 to 2040).

Figure 1: Number of Workers by Worker Type from 1950 to 2040



Estimated by Xymax Real Estate Institute based on the Population Census data by the Ministry of Internal Affairs and Communications and the data of the National Institute of Population and Social Security Research. Data for 1980 and earlier are estimated from the percentages as of 1985. Data for 2025 and beyond are forecast based on future population forecasts and the occupational composition by age as of 2020.
Worker types are classified by Xymax Real Estate Institute based on the Standard Occupational Classification for Japan (Rev. 4th): "Life support" includes care service, sales, security, cleaning workers, etc.; "professional" includes health care workers, teachers, etc.; "production" includes agriculture, manufacturing process workers, etc.; and "infrastructure" includes transport, construction workers, etc.

Between the period of high economic growth and the bubble economy (from 1950 to 1995), the number of desk workers more than quadrupled, from 3.99 million to 17.77 million, while the number of non-desk workers increased only about 1.4 times, or about one-third of the growth rate of desk workers, from 32 million to 45.66 million. Possible factors include the structural shift to the tertiary sector during this period and the migration of people to large urban areas with office districts.

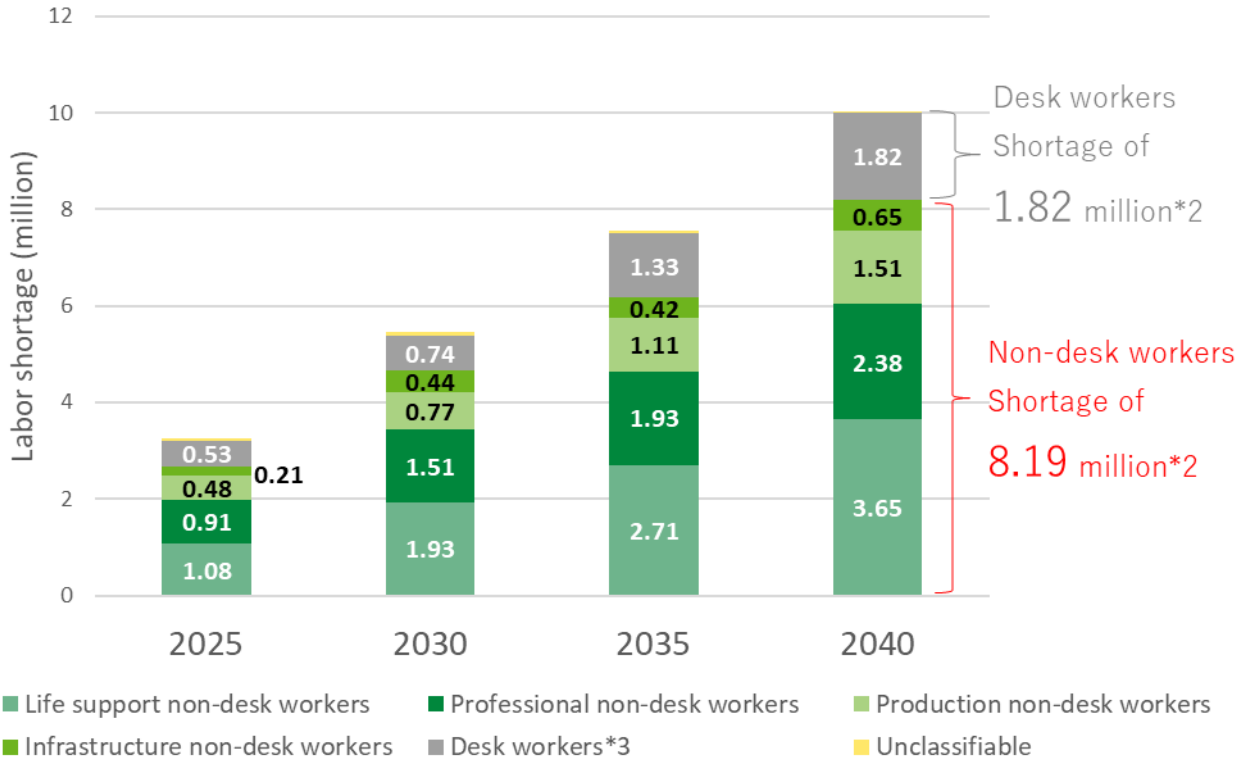
Between the burst of the bubble economy and today (from 1995 to 2020), the number of workers (excluding those unclassifiable by occupation) has decreased by 6.14 million, partly due to a declining population and an aging society with low birth rates. Of this decrease, 1.63 million were desk workers, and 5.76 million were non-desk workers, indicating that a greater decrease was seen among non-desk workers who support society at the front line.

Furthermore, assuming that the current pace of population decline and the occupation trends for each age group continue, the number of desk workers is estimated to decline gradually to 15.18 million by 2040 (-6% from 2020), while the number of non-desk workers is estimated to decrease at a more accelerated pace by 5 million (-13% from 2020) to 34.89 million. When this decline is broken down into the four types of non-desk workers described above, the largest decline is expected for life support non-workers (-2.09 million, or -16%, from 2020), followed by production non-workers (-1.29 million, or -14%, from 2020), professional non-desk workers (-1.19 million, or -12%, from 2020) and infrastructure non-desk workers (-0.44 million, or -6%, from 2020).

3. Forecast of Worker Supply and Demand
(Labor supply-demand gap from 2020 to 2040)

To quantify the severity of future labor shortages, we estimated the labor supply-demand gap (the number of workers needed by the economy minus the supply of workers estimated from the future projected population) through 2040 under the assumption that the degree of economic growth, the industrial structure and the trend of population decline do not change from today's levels (**Figure 2**; see the end of the report for details of the estimates). As a result, the estimated labor supply-demand gap as of 2040 is approximately 10 million people in total.

Figure 2: Labor Supply-Demand Gap by Worker Type from 2020 to 2040



*2 The labor supply-demand gap, shown as labor shortage, is the difference between the projected labor supply and demand for each middle occupational classification, assuming that the degree of economic growth, the industrial structure, and the trend of population decline do not change from today's levels (see end of report for details). Therefore, the impact of dramatic technological advances through AI and robotics on labor supply and demand is not considered.

*3 Worker types are classified by Xymax Real Estate Institute based on the Standard Occupational Classification for Japan (Rev. 4th): "Life support" includes care service, sales, security, cleaning workers, etc.; "professional" includes health care workers, teachers, etc.; "production" includes agriculture, manufacturing process workers, etc.; and "infrastructure" includes transport, construction workers, etc.

Looking at the breakdown, while the supply-demand gap for desk workers is estimated to be 1.82 million in 2040, it is estimated to be 8.19 million for non-desk workers. Non-desk work is expected to account for most of the widening labor supply-demand gap for Japanese society as a whole. Specifically, the gap was the largest (3.56 million) for life support non-desk workers, including care service, sales, security and cleaning workers, followed by professional non-desk workers, including health care workers and teachers (2.38 million), indicating that labor shortages are expected to worsen in jobs that support our daily lives at the front line.

The supply-demand gap above does not include the impact of technological advances on labor supply and demand, as it was difficult to quantify. However, desk work is more likely to be replaced by generative AI, which is rapidly being developed and implemented in society. For desk workers, there may come a time when the labor shortage is less severe than the above projections, or they may even become overstaffed.

These suggest that the future labor shortage problem will be centered around the supply constraints of non-desk workers. If the speed of change in supply is not fast enough while the demand for jobs changes with the times, society may become unstable, and various business models may change, significantly affecting our daily lives.

4. Summary

In this report, we have attempted to estimate the degree of future labor shortages for the four types of workers. What we can infer from the results is that labor shortages for most non-desk workers will become even more severe in the medium to long term, albeit to varying degrees, depending on the job.

Currently, the “2024 problem” is a hot topic in the distribution, construction and medical industries. However, the shortage of non-desk workers also extends to assets such as office buildings that we use every day, as well as retail properties and hotels. If nothing changes, their sustainability as commercial real estate will eventually decline.

What is important is to go beyond saying that the labor shortage is serious, think about how to address it, and put it into practice. In future reports, we will focus on non-desk workers working in major assets and provide readers with hints on how to think about the labor shortage through examples of efforts to address the problem.

≪Overview of the labor supply-demand gap estimation for Figure 2≫

This estimation model is based on the estimation method of the Japan Institute for Labour Policy and Training (JILPT)'s *Labor Supply and Demand Estimates—Future Estimates Based on the Labor Supply and Demand Model (FY2018)* (JLIPT, 2019) and was conducted using the following procedures:

① Estimation of labor demand: We estimated a model that indicates the relationship between nominal GDP, working hours and wages using the actual values to date, assigned the projected values of future nominal GDP, etc. (by the Japan Center for Economic Research and others) in the model and estimated the future number of workers by industry from a demand perspective.

② Estimation of labor supply: We built a model estimating the labor force participation rate by gender and age group based on actual values to date and estimated the labor force (labor supply by gender and age group) using the National Institute of Population and Social Security Research's Population Projections for Japan.

③ Estimation of the gap: We produced labor demand and labor supply by occupation based on the occupational composition by industry of the 2020 Population Census, subtracted labor supply from labor demand for each occupation and estimated the shortage of labor supply. This estimation is based on the assumption that each industry's existing conditions (economic growth, technological advances, regulations, industry structure) will continue and, therefore, does not reflect discontinuous changes such as AI and geopolitical risks.

For further inquiries please contact below:

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