GRIPS
政策研究大学院大学
NATIONAL GRADUATE INSTITUTE
FOR POLICY STUDIES

Comments on "Financial Support for the Transportation Sector by the US Federal Government During the Novel Coronavirus Pandemic" by Mr. Okimoto

GRIPS

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Gateway to Global Leadership

Comments on the lecture

- A timely topic that should interest a lot of people amidst this novel coronavirus pandemic

- Focus on urban public transportation

- Useful content with detailed research into the results of relief funding for public transportation in the United States

- In addition to the results of the relief funding, the background is important.

- It is important to view the situation in light of the differences in cultures

Questions to the Lecturer

- ## What led to the background of the relief funding; how was it initiated and implemented?
  - Information that can only obtain by being in the U.S.
  - Specific information about what you know, if anything

- ## What is the impact of the presidential election?

- ## How do you think it should be done in Japan?
  - I agree with the suggestion that we should start a discussion.
  - What exactly should we negotiate about?

Requests from the Lecturer

Situation in Tokyo, Japan

【Japan Transport and Tourism Research Institute(JTTRI)】

Symposium on Responding to Medium- to Long-term Issues
of Railways in the Tokyo Area and Corona Damage
- Improving Attractiveness Along Railway Lines
Based on Population and Demand Trends -

Monday, July 5, 2021

Ministry of Land, Infrastructure, Transport and Tourism (MLIT),
think tanks, cell-phone companies, etc. also researched and reported.

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【National Graduate Institute for Policy Studies】

Changes in Commuting Behavior of Railway Passengers during the Covid-19 Pandemic

The Impact of the Development of Teleworking on Urban Railway Demand

Hibino, Akutsu and Okunobo : The Impact of the Development of Telework on Urban Railway Demand (2), *Annual Review*, No.23, Railway Research-Culture Promotion Foundation, 2021.

Akutsu and Hibino : A Study on Changes In Commuting Behavior for Developing Urban Railway Strategy in a Teleworking Society, *Proceeding of Infrastructure Planning*, Vol.63, 2021.

Analysis Data

Ticket Gate Passage Data

Commuter Pass Information

自由が丘 ⇔ 大手町
10月1日から
2021.3.31まで
〇〇〇〇円
渋谷駅発行
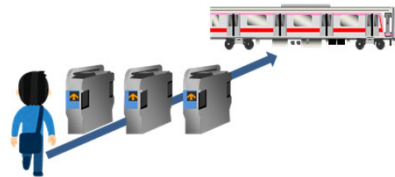
Analysis Targets

Railway passengers who live along the Tokyu Line

Railway passengers who live along the Tokyu Line and work
in the 10 areas of Tokyo metropolitan area

（10 areas in Tokyo: Tokyo-Marunouchi, Nagatacho-Akasaka, Kasumigaseki, Roppongi, Shibuya-Harajuku, Shinjuku, Ueno, Shinagawa, Meguro-Gotanda, Toyosu）

Analysis Periods

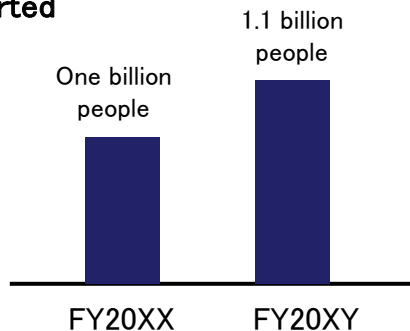October 2018 – March 2021, weekdays, mid-morning (5:00 a.m. – 12:00 p.m.)
　　(During Covid-19:　October 2019 – March 2021,
　　Pre-Covid-19:　　October 2018 – March 2020)

Analysis Points

Focusing on the same individual and trucking behavioral changes

○Total number of persons transported

1.1 billion people

One billion people

FY20XX   FY20XY

Advantages : Know the number of people transported (≒fare revenues)
Understand the overall trend

Disadvantages: It is not clear whether the number of users has increased or the frequency of use has increased.

○Actions of the same individual

① Determining Analysis Target

Advantages : Know if they stopped using the system completely or if they changed their "frequency of use".

Disadvantage: Cannot understand the movement of anyone other than the target of the analysis.
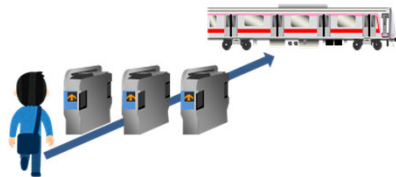Decrease in the number of people subject to analysis due to moving out, etc.

② Trucking for Behavioral Changes

2019/10 ～ 2020/5 ～ 2021/2
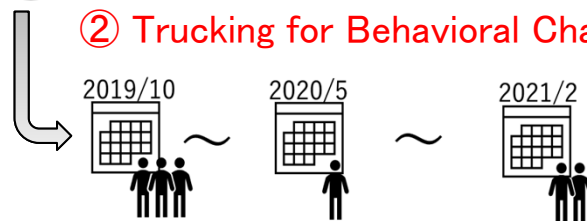
"During Covid-19" - "Pre-Covid-19"
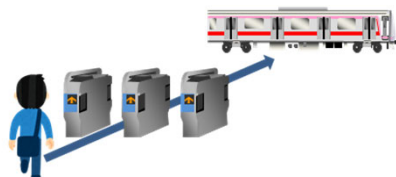⇒Changes due to the effect of Covid-19

Identifying Place of Residence and Place of Work

Ticket gate passage data
（boarding）
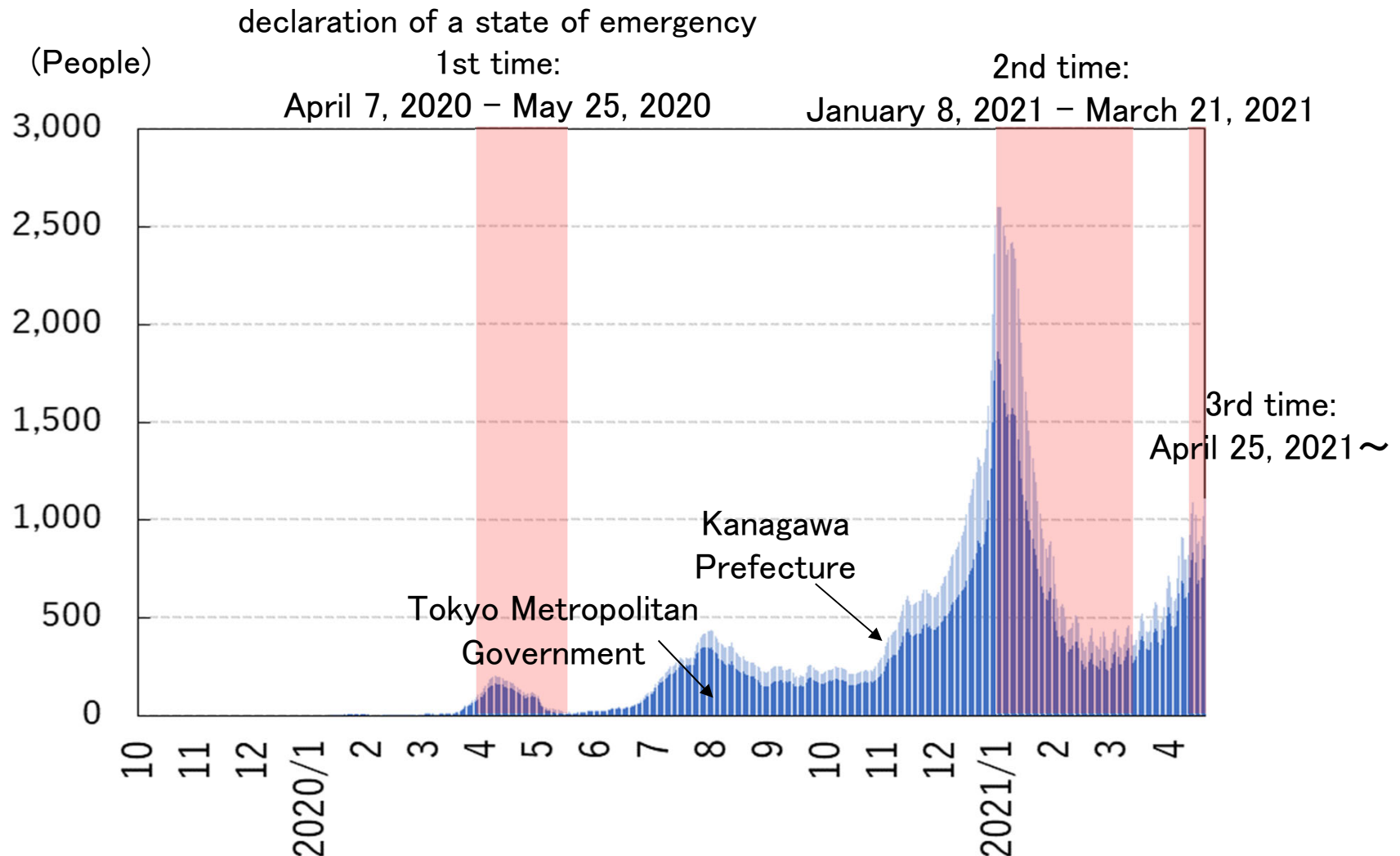
→ Place of Residence

Ticket gate passage data
（boarding）

Commuter Pass
Information

自由が丘 ⇔ 大手町
10月1日から
2021.3.31まで
〇〇〇〇円
渋谷駅発行

→ Place of Work

Number of Daily Infections（Tokyo and Kanagawa）

7-day moving average

declaration of a state of emergency

(People)

1st time:
April 7, 2020 – May 25, 2020

2nd time:
January 8, 2021 – March 21, 2021

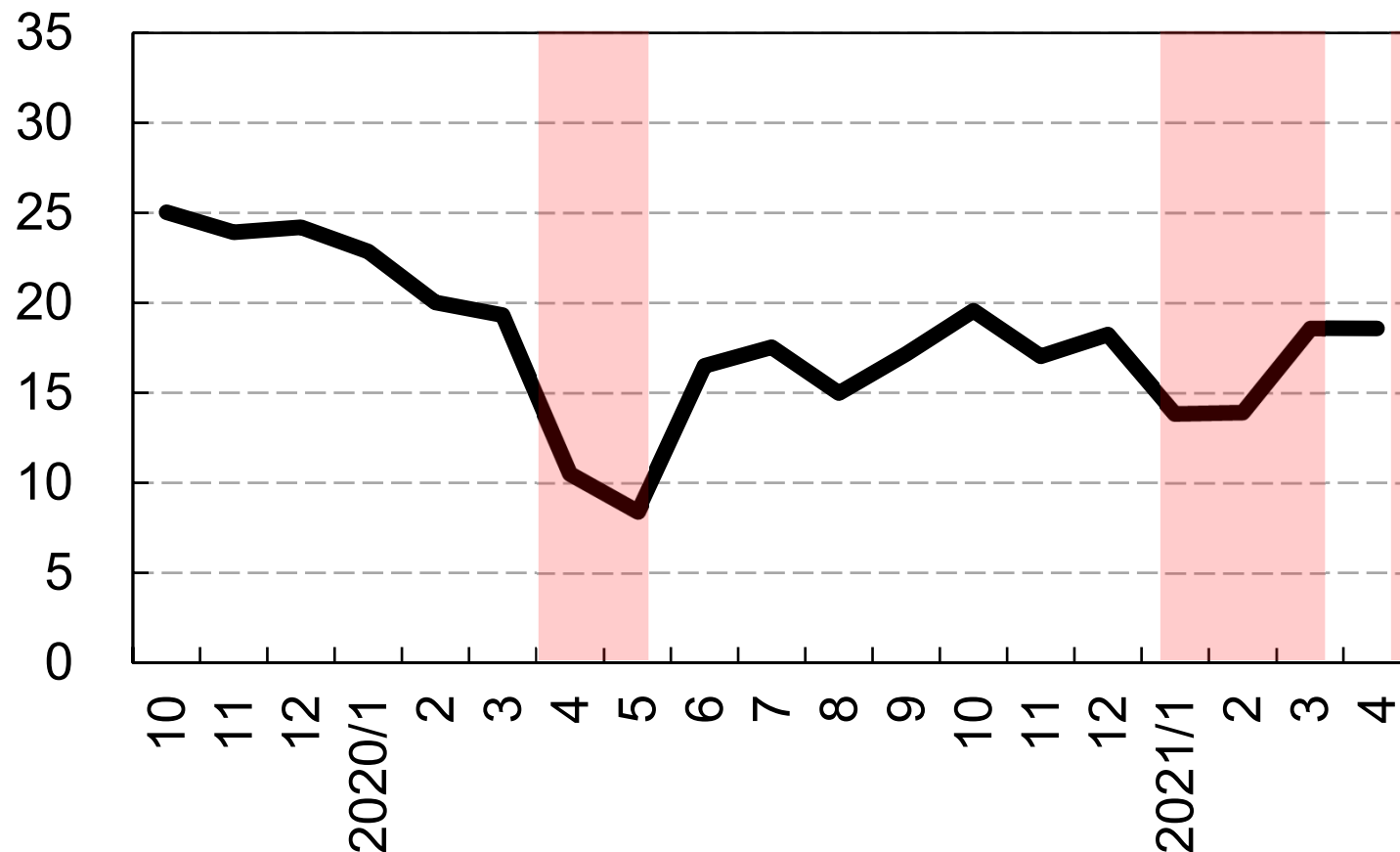3rd time:
April 25, 2021～

Kanagawa Prefecture

Tokyo Metropolitan Government

The period of declaration of a state of emergency is the period of issuance by the Tokyo Metropolitan Government.
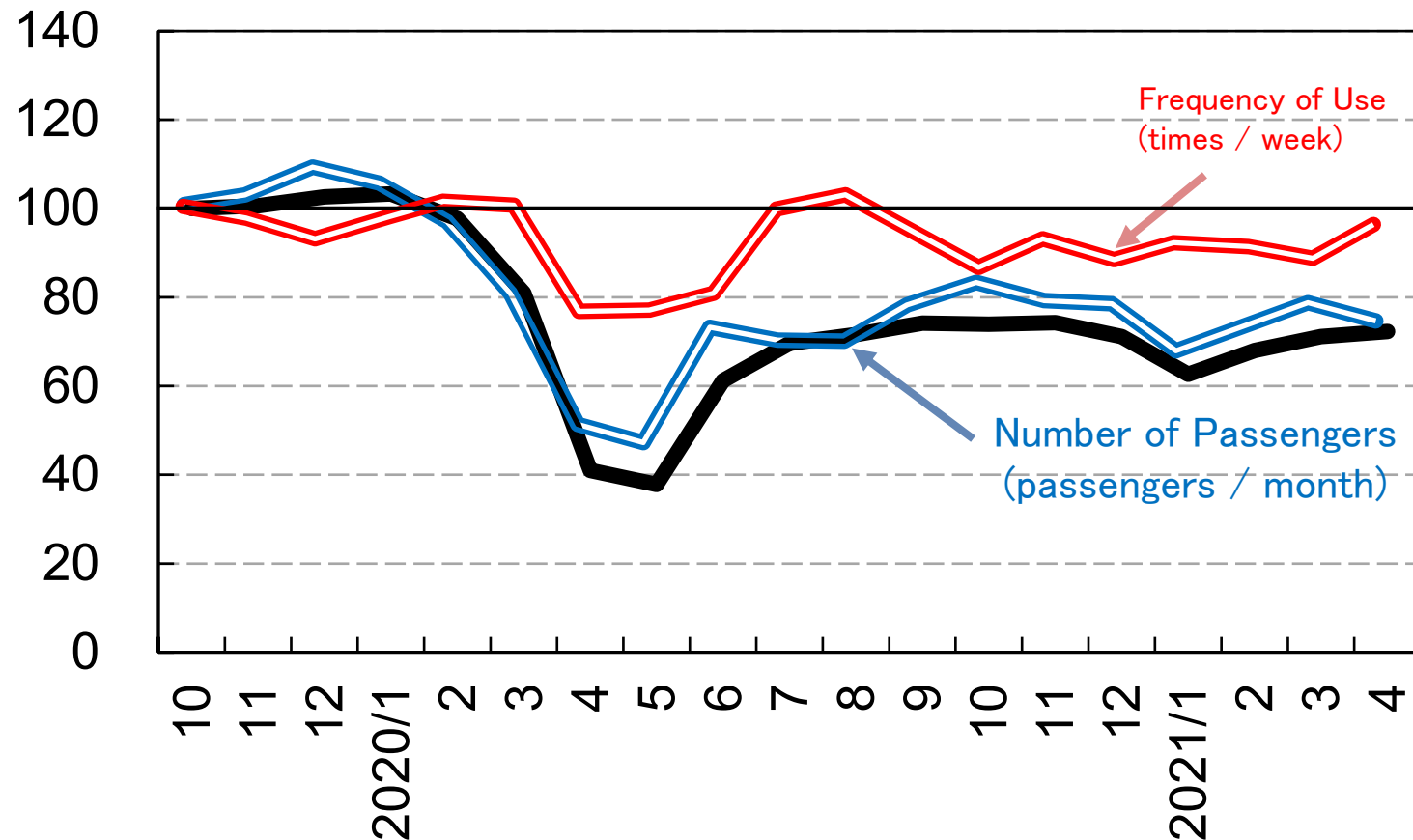
Changes in Total Number of Trips

Million（passengers・times／month）

Ticket gate passage data (boarding), all Tokyu lines, weekdays only, 5:00 a.m. to 12:00 p.m.

Covid-19 period vs. the same month last year + correction for the number of weekdays + the value of October 2019 as 100

Frequency of Use (times / week)

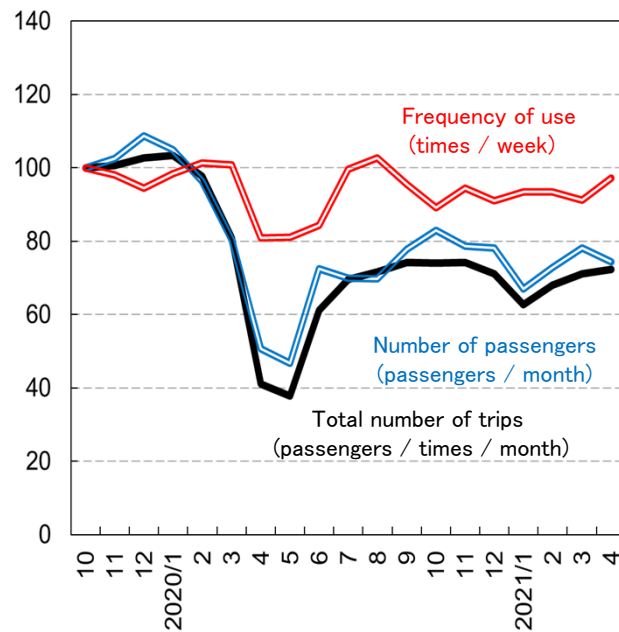Number of Passengers (passengers / month)

Frequency of use is the average frequency of use per person.
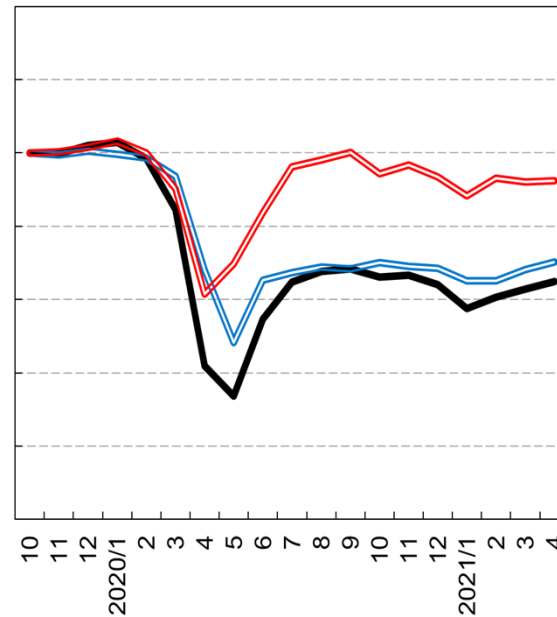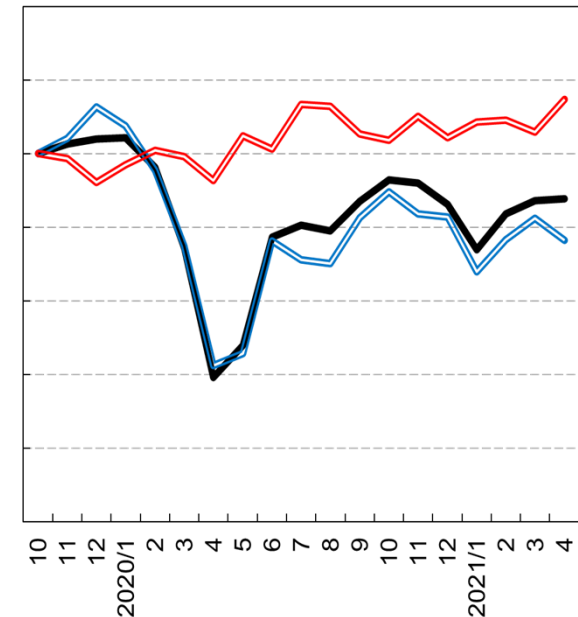
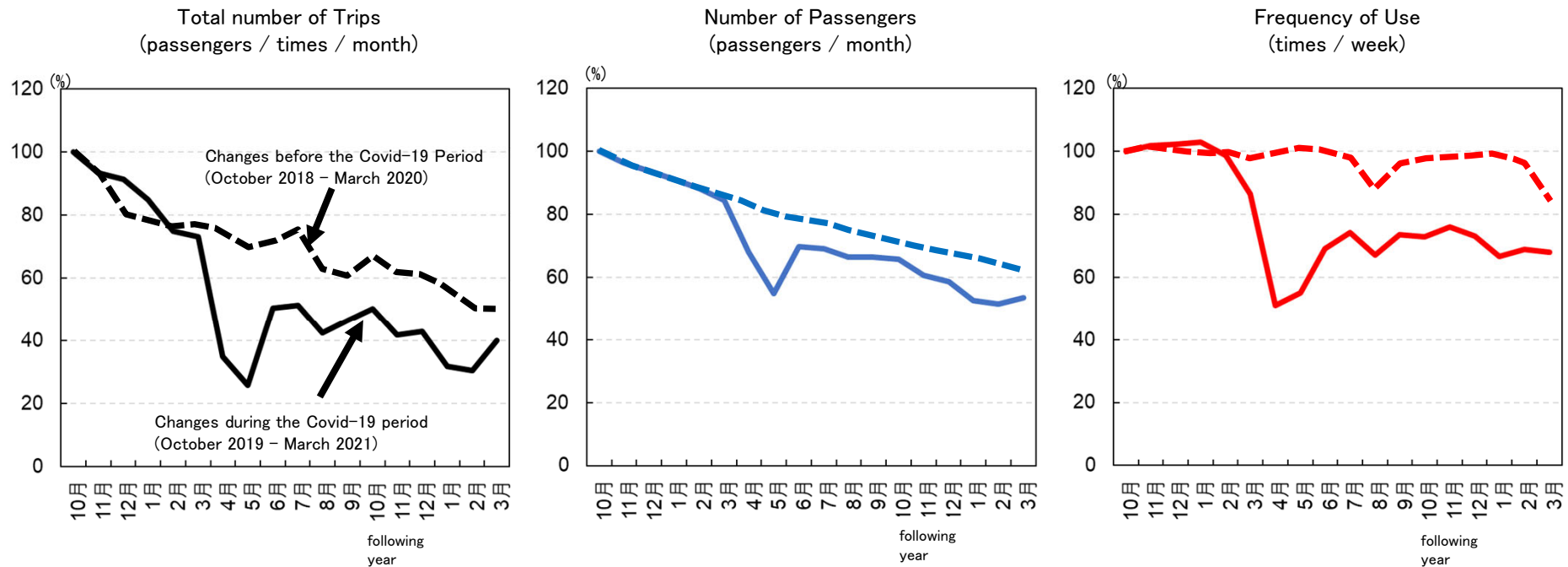Commuter pass users
+
Non-commuter pass users

Commuter pass users

Non-commuter pass users

We can see the change in the total number, but not the change in the movements of each individual.(Have 30% of commuter pass users stopped using the train altogether? Is there really no change in frequency of use?)
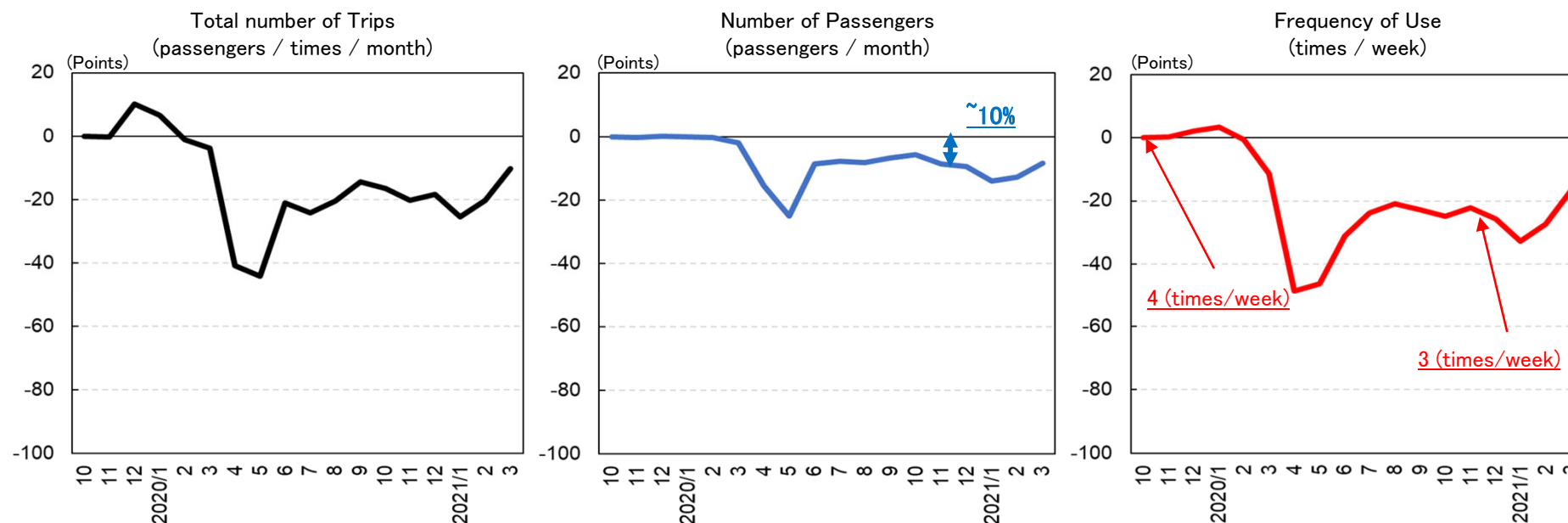
HIBINO Naohiko, The 142th Transport Policy Colloquium -Washington Report　, 2021

Trends in Railway Use Focusing on Individual Behavior

- 10% of "passengers" stopped using trains altogether.
  ⇒ Increase in the number of people who migrated out , changed their means of transportation, **teleworking at home / near the home**

- Frequency of use changed from 4 times a week to 3 times a week on average.
  ⇒ **Maintaining high frequency for commuter pass users** & **change to low frequency for those who switch to non-commuter pass users**

People who commute almost every day
Approximately 170,000 people

People who did not changed there frequency during Covid-19 period
About 60,000 people

Frequency after change

Tokyu Line Departure / Arrival in 10 areas within Tokyo metropolitan area by commuter pass holder

Approximately 220,000 people

Once a month

Twice a week

Three times a week

Once a week

5 times a week

4 times a week

People who routinely change their frequency
Approximately 65,000 people

People whose frequency was changed (reduced) due to Covid-19
Approximately 45,000 people

0 times

Once a month

Once a week

Twice a week

3 times a week

Mainly telecommuting
About 20,000 people

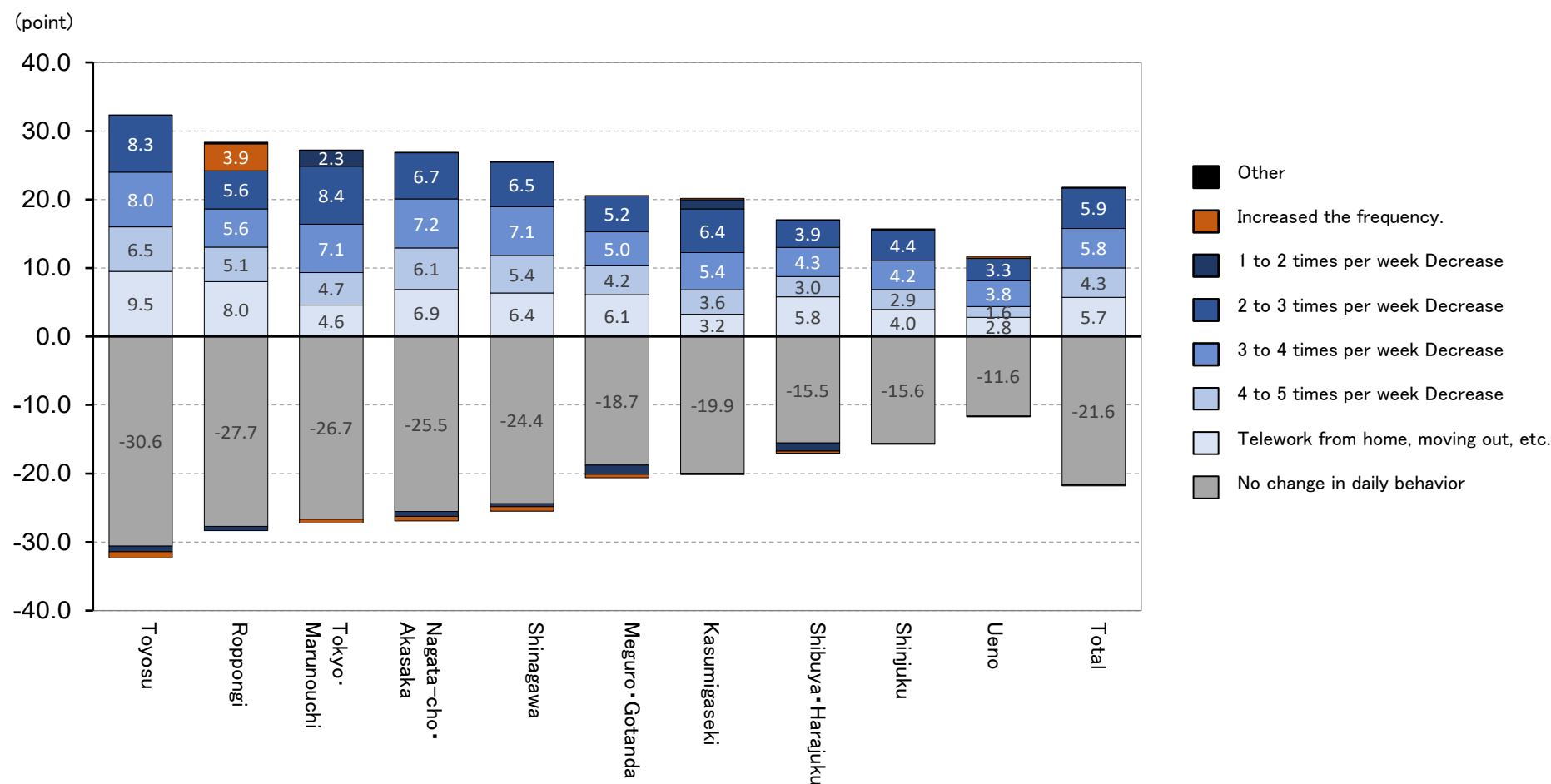Telecommuting and coming to work together
About 25,000 people

Of the approximately 170,000 people who commuted almost every day with a commuter pass, approximately 45,000 people changed their usage frequency due to the effects of Covid-19.
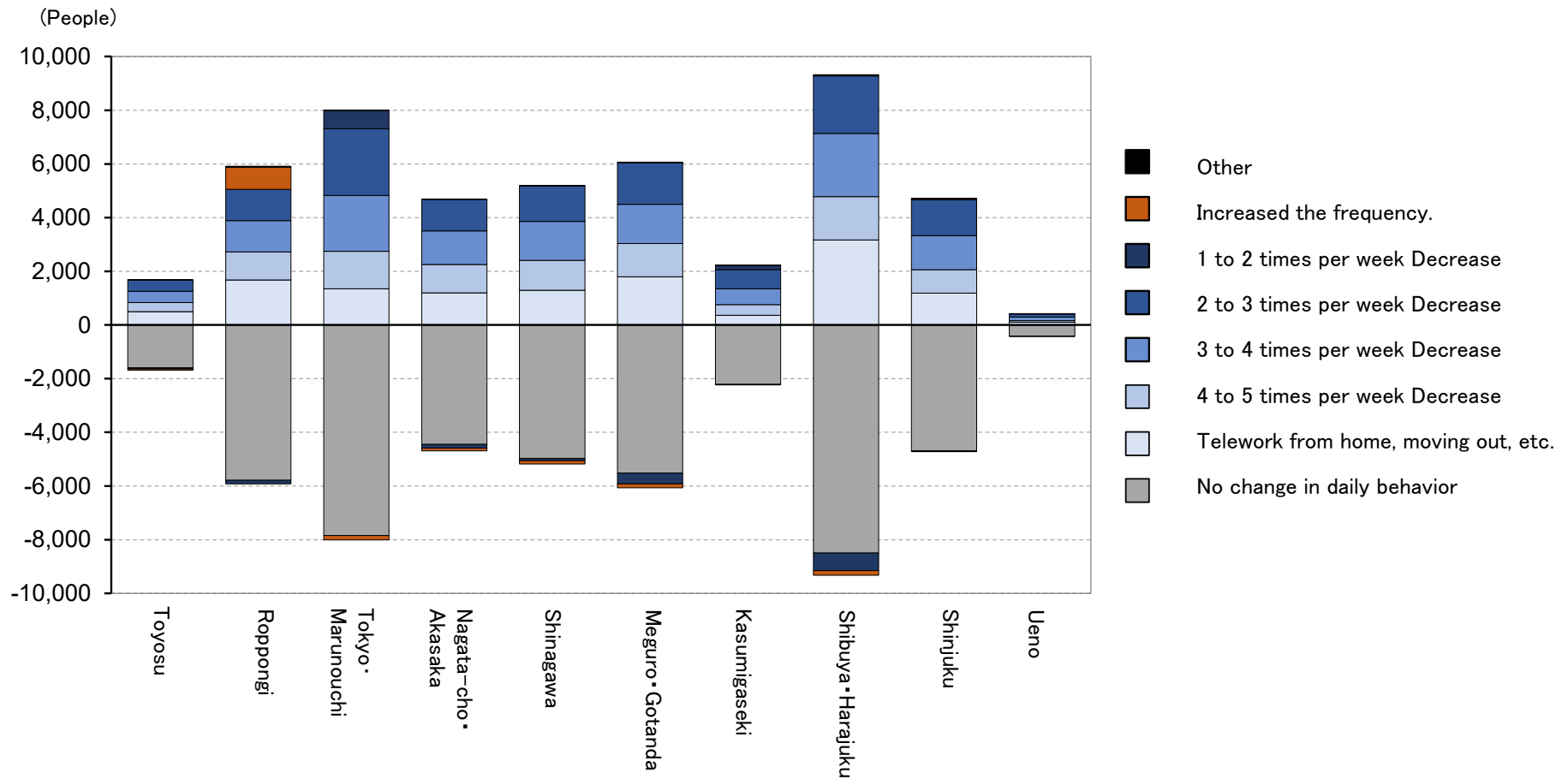
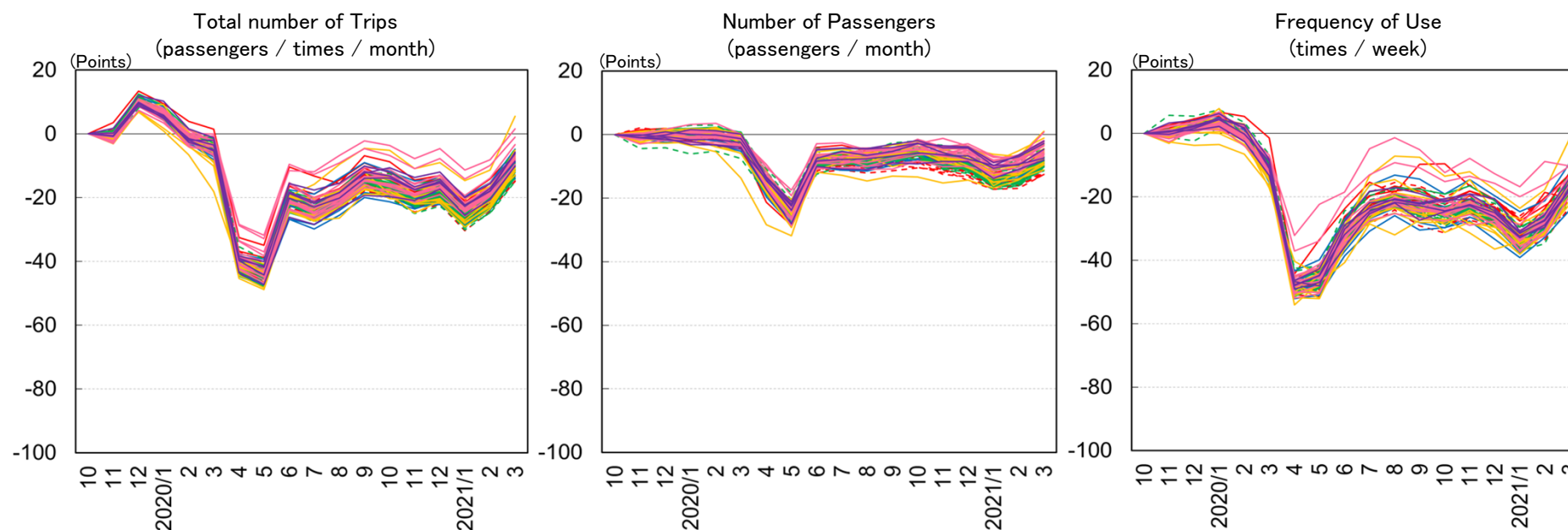# Changes in Frequency of Use by Area of Employment (%)
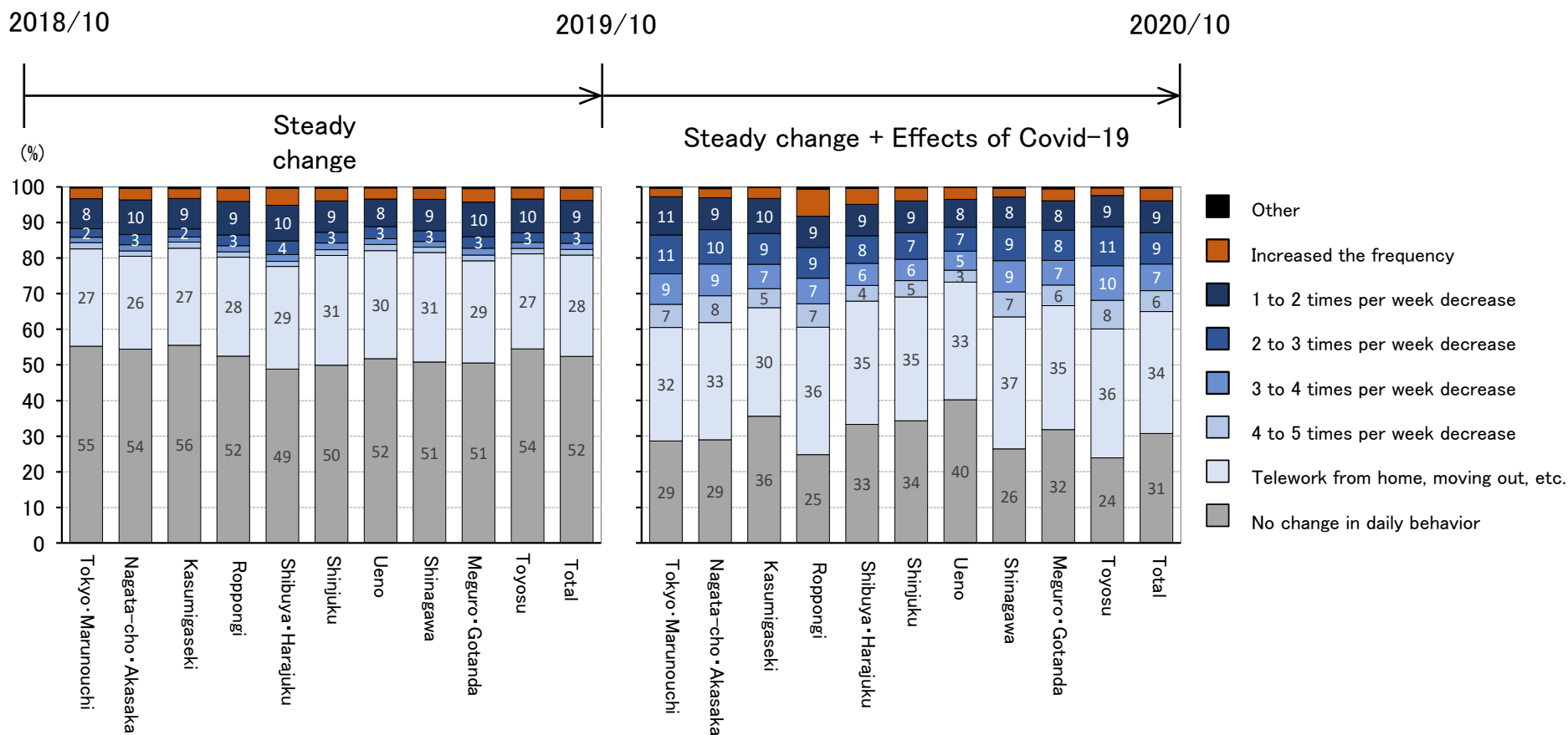
Changes in Frequency of Use by Area of Employment (%)(Difference)

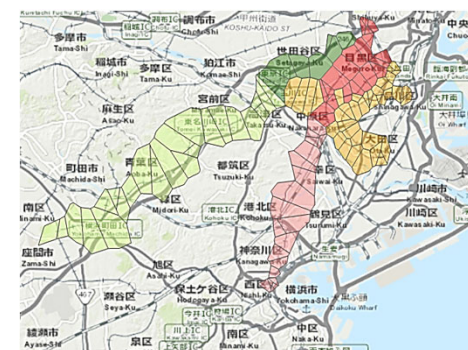Number of People Who Changed Frequency of Use by Area of Employment (Difference)

Changes in railway use behavior by the area of residence

Total number of Trips
(passengers / times / month)

Number of Passengers
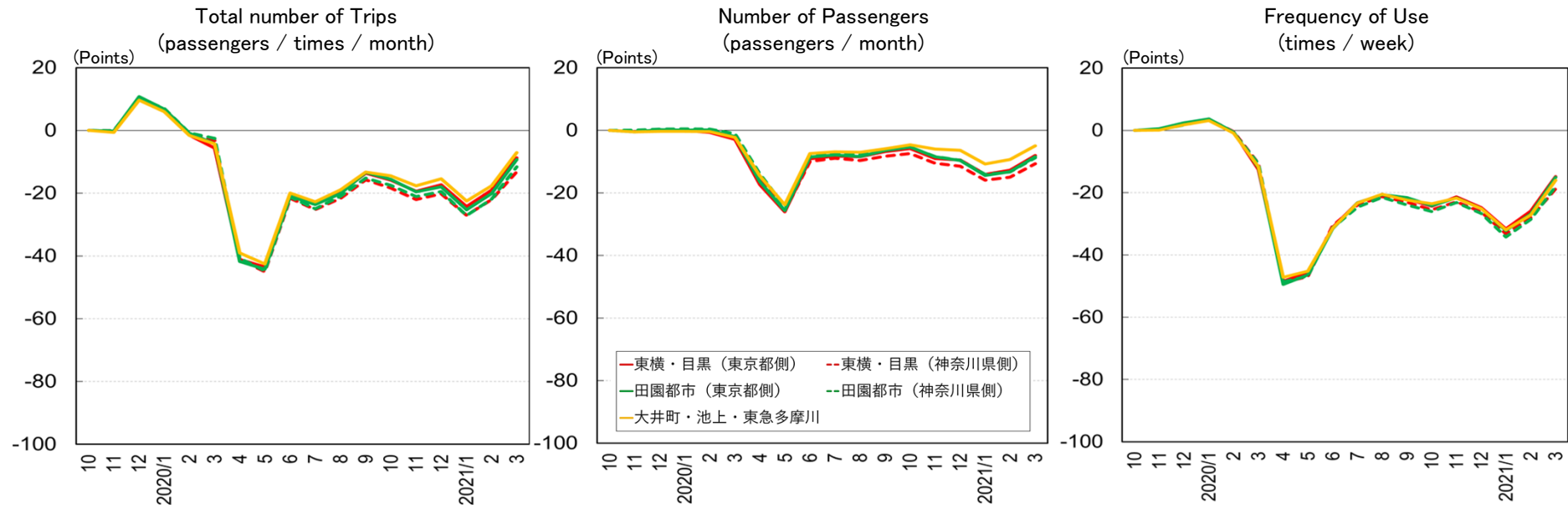(passengers / month)

Frequency of Use
(times / week)

Analysis divided into 5 areas

1. Toyoko, Meguro (Tokyo side)

2. Toyoko, Meguro (Kanagawa side)

3. Denentoshi (Tokyo side)

4. Denentoshi (Kanagawa side)

5. Oimachi, Ikegami, Tokyu Tamagawa

# Changes in Railway Use Behavior by the Area of Residence

Total number of Trips (passengers / times / month)

Number of Passengers (passengers / month)

Frequency of Use (times / week)

Legend:
- — Toyoko, Meguro (Tokyo side)
- -- Toyoko, Meguro (Kanagawa side)
- — Denentoshi (Tokyo side)
- -- Denentoshi (Kanagawa side)
- — Oimachi, Ikegami, Tokyu Tamagawa

Changes in passengers' departure times
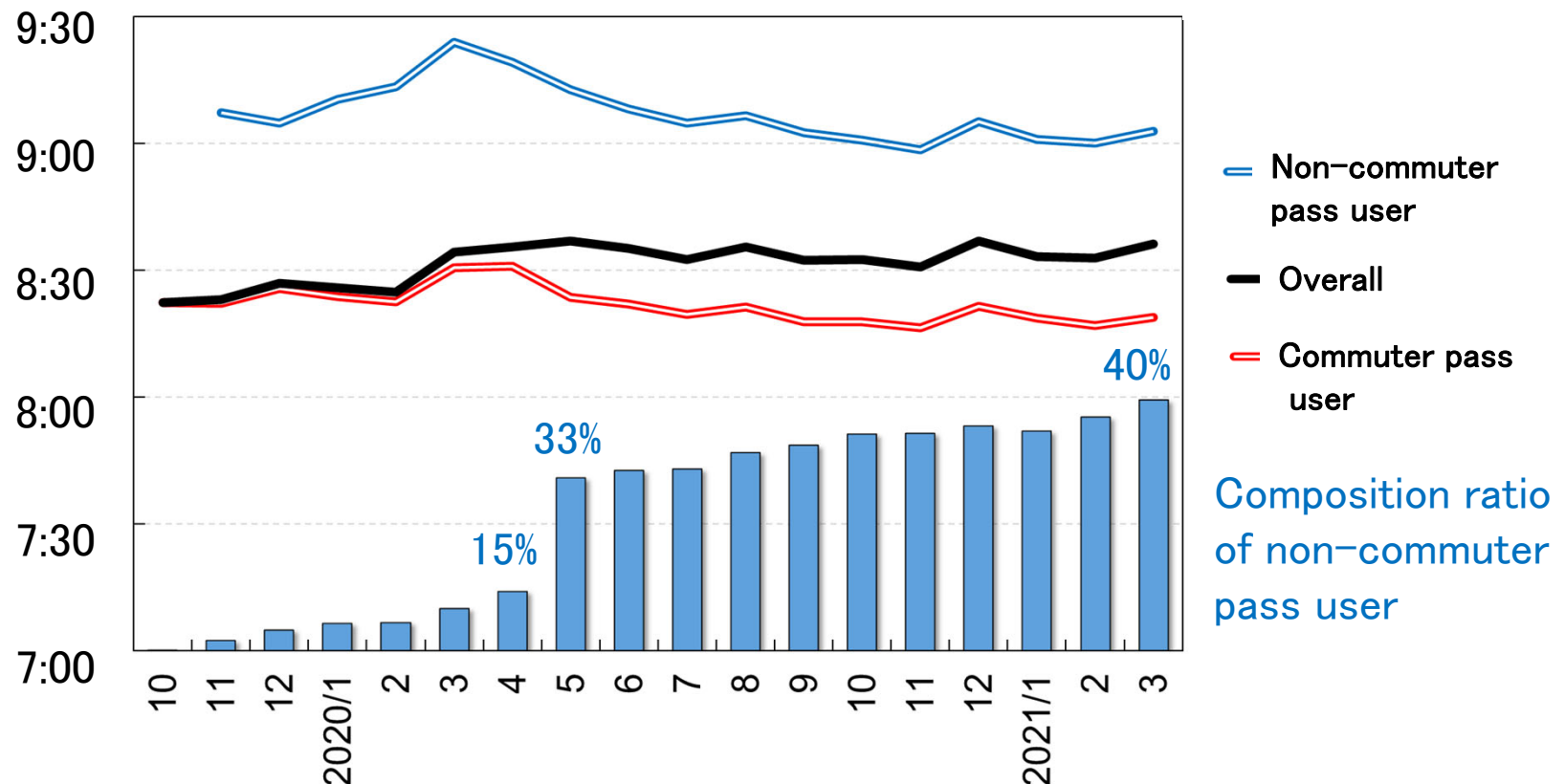

- Overall, shifted back about 15 minutes in March 2020 (=> no change thereafter)
- In the case of commuter pass and non-commuter pass users, the departure times shifted backward in March 2020, but returned to normal in the following months. However, the proportion of non-commuter pass users increased, and there was no change in the total.

Changes in passengers' departure times
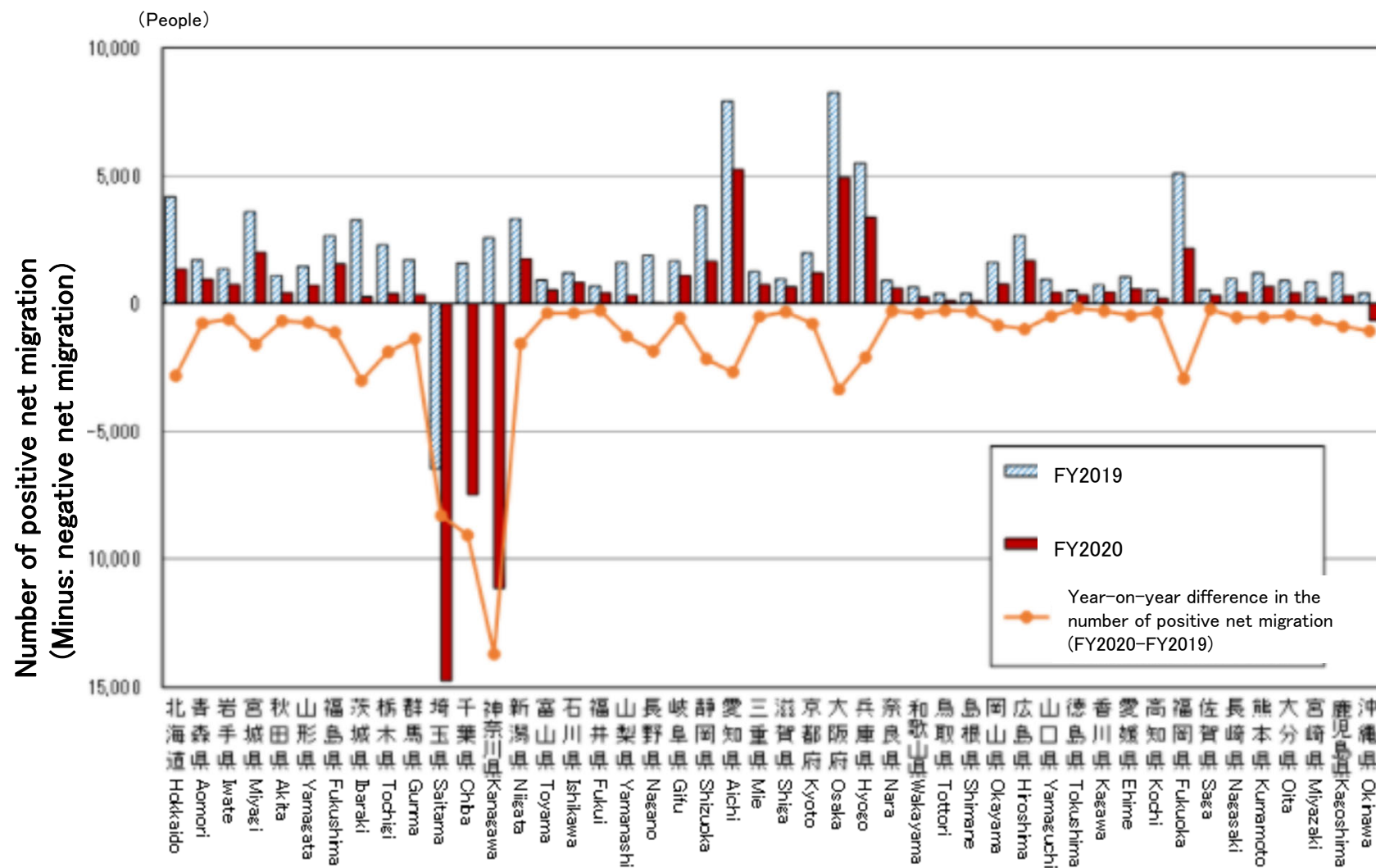（changes in individual behavior）
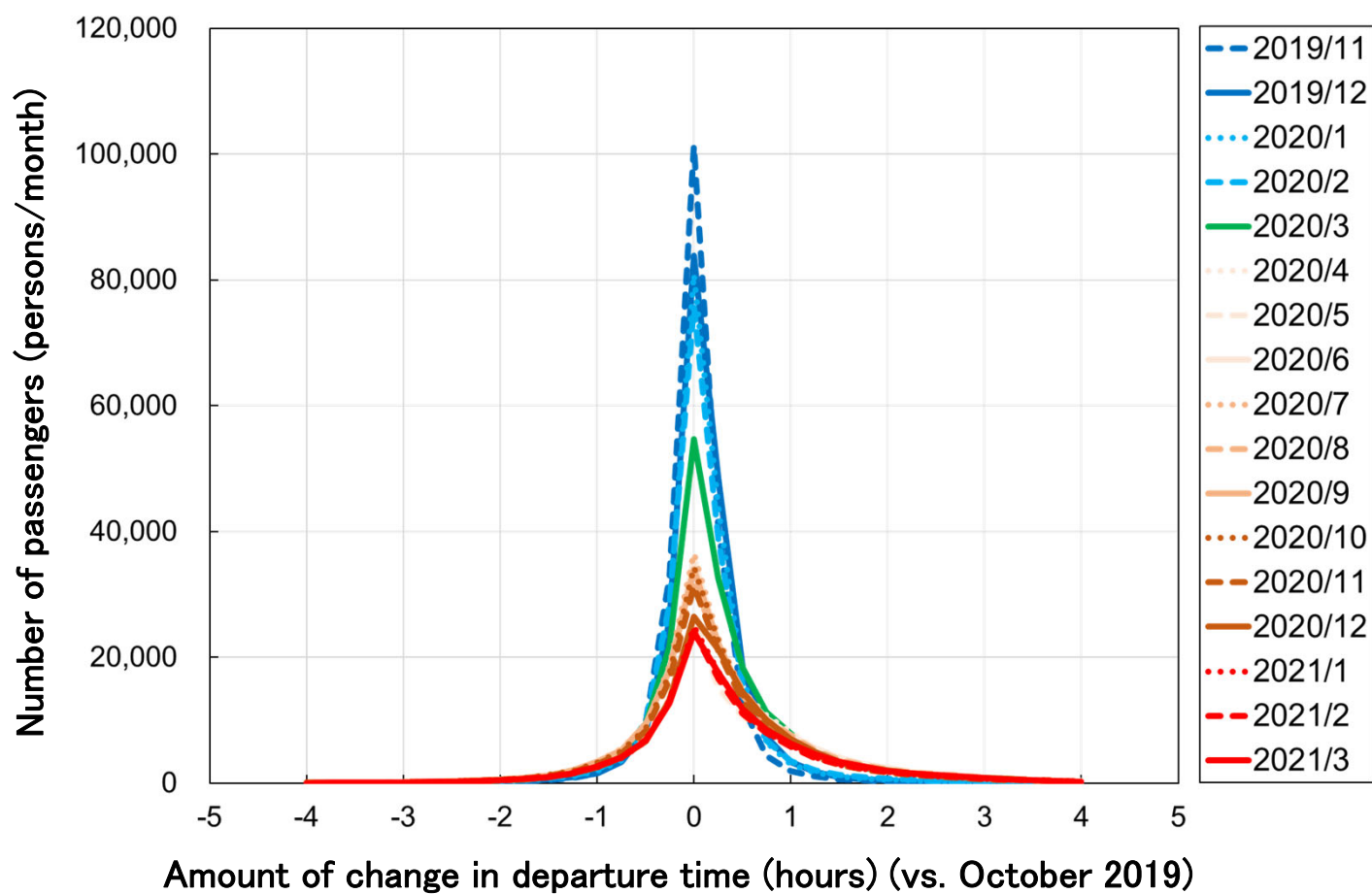
Demographic movements of Tokyo
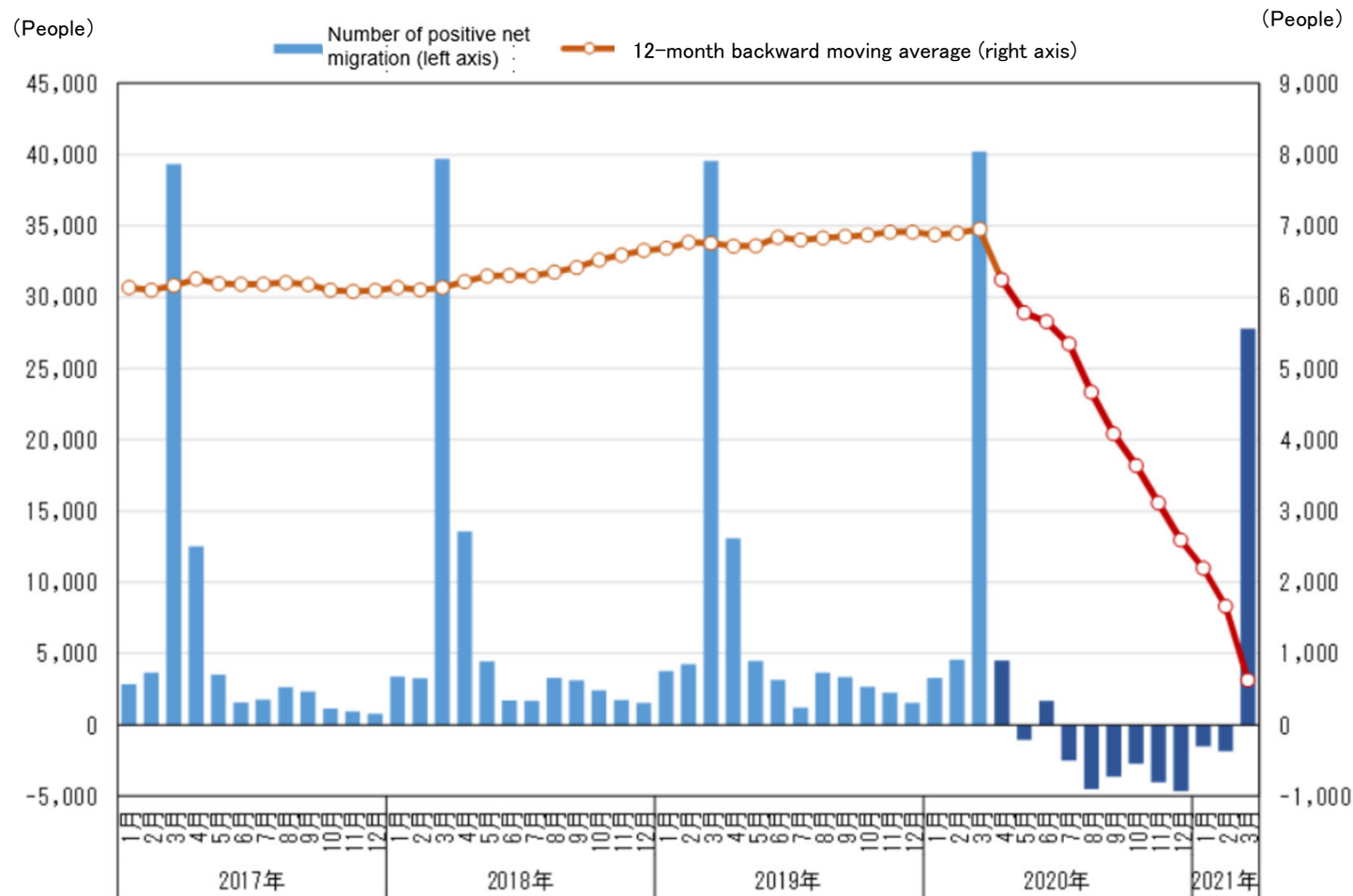
Source: Tokyo Metropolitan Government

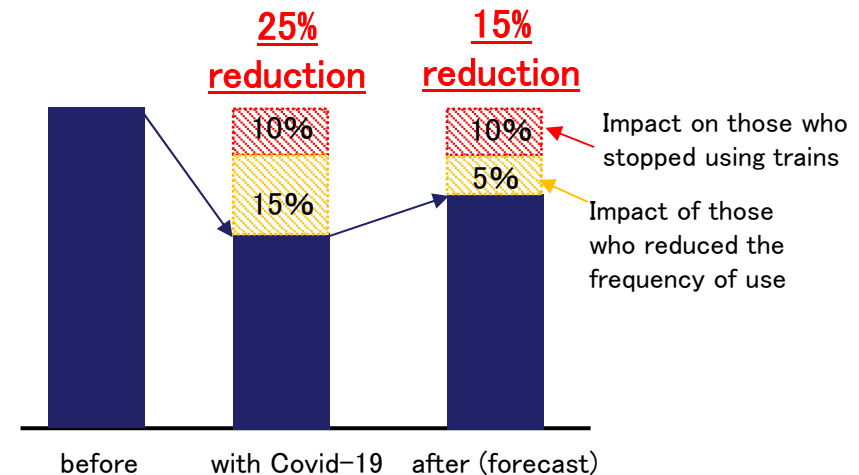# Demographic movements of Tokyo

Source: Tokyo Metropolitan Government

Conclusion

- Changes in the number of commuter pass users
  ⇒About 10% of respondents decreased their railway use
  (stopped riding trains at all), about 20% decreased their
  usage frequency (=> shifted to non-commuter pass), and
  about 70% had almost no change in frequency of use.

- Many of the behavioral changes resulting from the popularization of
  teleworking have occurred even among those who previously used trains
  almost every day.

  [About 45,000 out of about 170,000 people (mainly teleworking: 20,000; both coming to work and working
  from home: 25,000) changed their behavior.]

- Progress in teleworking affected the characteristics of the area of
  employment (company size and industry composition).

- There were almost no change in people's departure times.

- Moved from the central Tokyo area to Yokohama, Saitama, etc.

Changes in the future

- ✓ Decrease in the number of railway trips
- ✓ Concentration on rush hours

25% reduction

15% reduction

10%

15%

10%

5%

Impact on those who stopped using trains

Impact of those who reduced the frequency of use

before   with Covid-19   after (forecast)

- Congestion control needed despite revenue decline

- Development of satellite offices, co-working spaces, etc., and linkage with railway use

- Enhance related businesses along railway lines to recover non-commuter pass users

Support for flexible fare setting and congestion control are more important in the long term than temporary financial support for the decline in railway users due to Covid-19 measures.