

# Effect of commuting stress on the working people's satisfaction

Greater Tokyo Office Worker Survey 2019

June 4, 2019

The Japanese companies are accelerating their effort to workstyle reforms, and promoting many different workstyles that are not bound by time and/or place. These new workstyles have become the major topics not only for the management strategy of the companies but also for enhancement of productivity and work-life balance of the office workers.

For the purpose of getting grip on the changes of workstyles and workplace from the viewpoints of both companies and office workers, Xymax Real Estate Institute ("Xymax REI") have conducted questionnaire surveys among the companies (6 times in total since autumn 2016) and among the office workers (2 times in total since the end of 2016). In this 3<sup>rd</sup> Office Worker Survey, we focused on the commuting reality of those who work in the Greater Tokyo Area, and analyzed the data to investigate the effects of commuting stress on the office workers. This is a periodic report that summarizes the results.

Related survey:

- "Greater Tokyo Office Worker Survey 2018" published on June 6, 2018  
<https://www.xymax.co.jp/english/research/images/pdf/20180606.pdf>

## <Summary of Survey Results>

### 1. Reality of commuting time

- The mean of the commuting time to the workplace was **49 minutes**.
- **The longer his/her commuting time was, the greater commuting stress he/she experienced.**
- In general, the average commuting time was longer in men than in women. In analysis by age and sex, **men in their 60's experienced the longest commuting time (60.3 min)**, whereas women in their 60's experienced the shortest (36.7 min). When analyzed by the employment status (executives, managers, regular workers, or non-regular workers), managers experienced the longest commuting time (56.8 min).
- In analysis by workplace, those who needed longer commuting time tended to commute to the office located in the center of Tokyo and to experience higher level of commuting stress, while those who needed shorter commuting time tended to travel to their suburban workplace and to experience lower level of commuting stress.

### 2. Effect of commuting stress on the respondent's satisfaction

- **The lower the group's commuting stress level was, the higher their job satisfaction level was (the mean job satisfaction, 5.9).**
- **The lower the group's commuting stress level was, the higher their private life satisfaction level was (the mean private life satisfaction, 6.3).**
- "Feel acknowledged and valued" and "Can have a sense of achievement at work" were highly correlated with job satisfaction. "Having a good work-life balance" and "Can have a time for my hobby" were highly correlated with private life satisfaction.

### 3. Effect of commuting stress on the respondents' productivity and engagement

- **In the lower commuting-stress group, the ratings on the factors associated with productivity and engagement tended to be higher.**
- In particular, the percentage of answering "Enjoying my work every day" was **higher in the lower commuting-stress group (68.1%)** than in the higher commuting-stress group (35.3%) **by more than 30 percentage points.**

# 1. Reality of commuting time

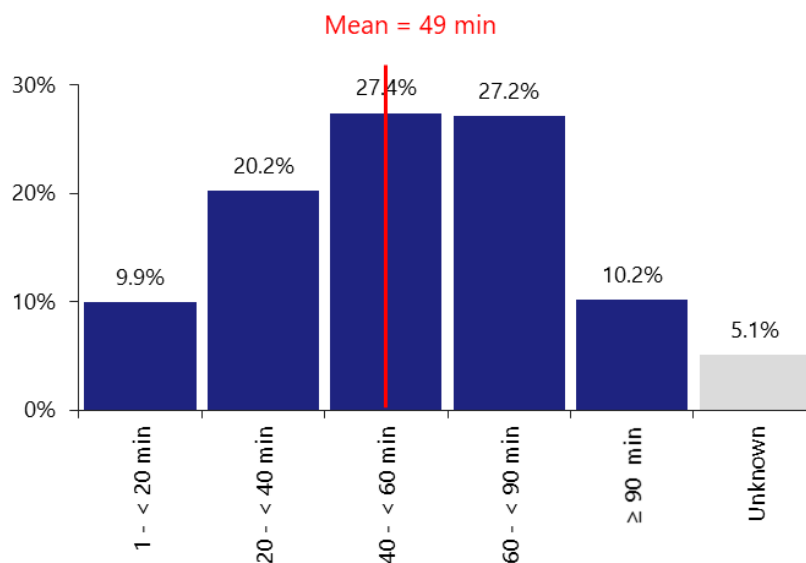
- ✓ The mean of the commuting time to the workplace was 49 minutes.
- ✓ The longer his/her commuting time was, the greater commuting stress he/she experienced.
- ✓ In general, the average commuting time was longer in men than in women. In analysis by age and sex, men in their 60's experienced the longest commuting time (60.3 min), whereas women in their 60's experienced the shortest (36.7 min). When analyzed by the employment status (executives, managers, regular workers, or non-regular workers), managers experienced the longest commuting time (56.8 min).
- ✓ Those who needed longer commuting time tended to commute to the office located in the center of Tokyo and to experience higher level commuting stress, while those who needed shorter commuting time tended to travel to their suburban workplace and to experience lower level of commuting stress.

In this survey, 2,009 valid responses were received from men and women aged 20 to 69 years who answered that his/her "employment status is a company or organization executive, company or organization worker, or self-employed individual (excluding restaurant owner, retailer, and interpersonal service provider), and the chief workplace (office) is located in the Greater Tokyo area (Tokyo and the 3 neighboring prefectures)."

First, we asked the average commuting time (\*) to the office the respondent belonged to. The result indicated that the majority took 40 minutes or longer but shorter than 60 minutes. The mean of the commuting time was 49 minutes (**Figure 1**).

\* The time required from the respondent's home to his/her workplace (one way) by his/her usual commuting method (e.g. train, bus, automobile, bicycle, or walk).

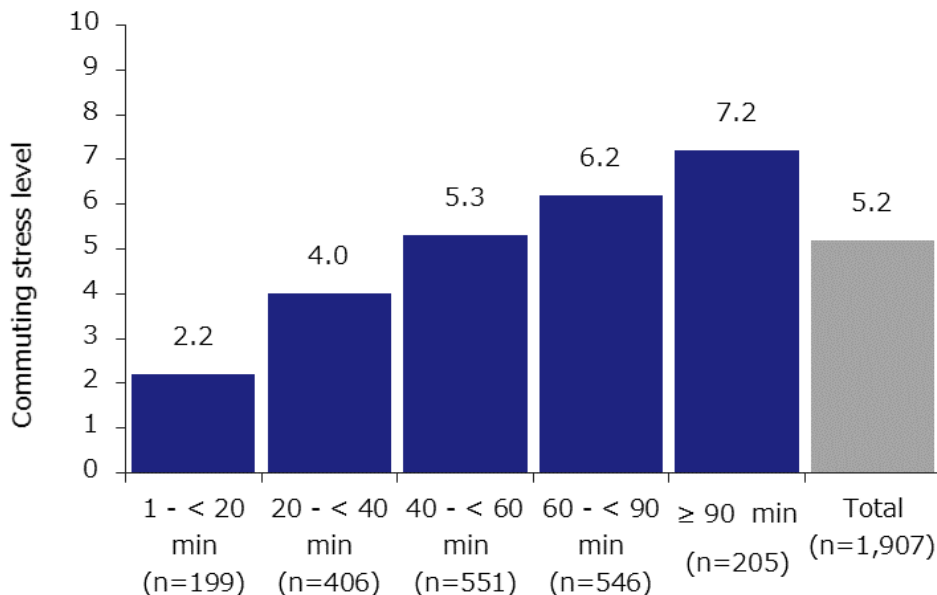
**Figure 1: Distribution of the average commuting time**



(n=2,009)

**Figure 2** shows the relationship of commuting time and commuting stress (11-level scale from 0 (minimum) to 10 (maximum)). It revealed that those who needed longer commuting time tended to experience higher commuting stress.

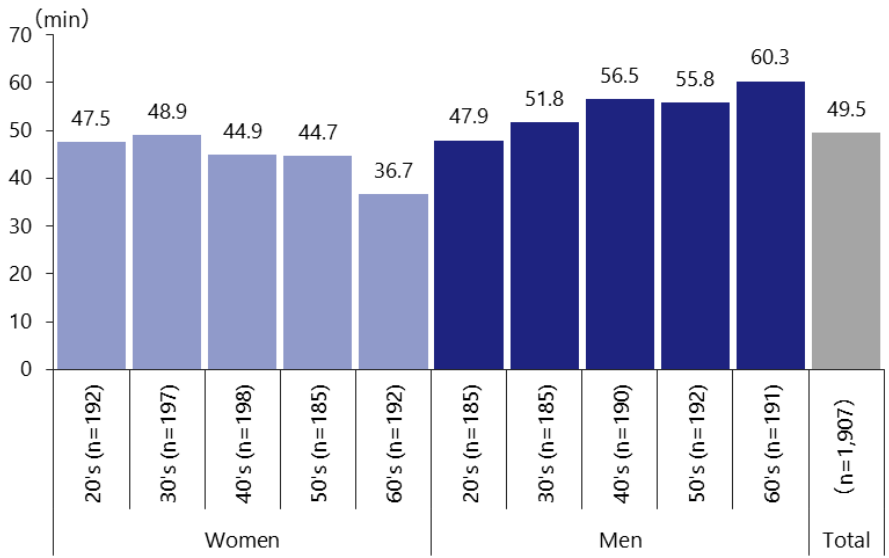
**Figure 2: The mean of commuting stress level by commuting time**



Also, we analyzed commuting time and commuting stress by the characteristics of the respondents.

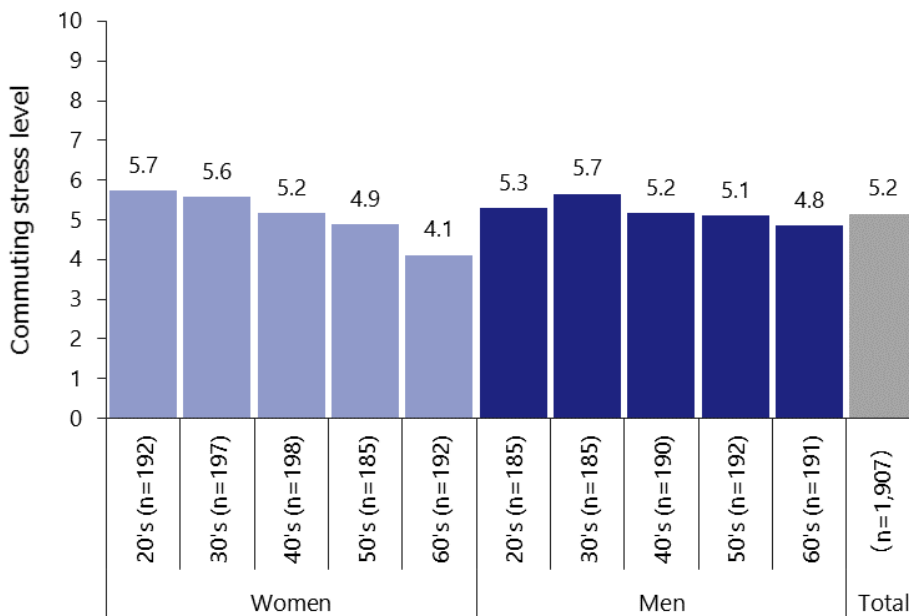
**Figure 3** is a result of comparing the average commuting time by sex and age group. When compared between men and women, men tended to take longer commuting time than women in general. It also shows that older men tended to take longer commuting time; the mean of the average commuting time was longest in men in their 60's (60.3 min). To the contrary, older women tended to take shorter commuting time; the mean of the average commuting time was shortest in women in their 60's (36.7 min).

**Figure 3: The average commuting time by age and sex**



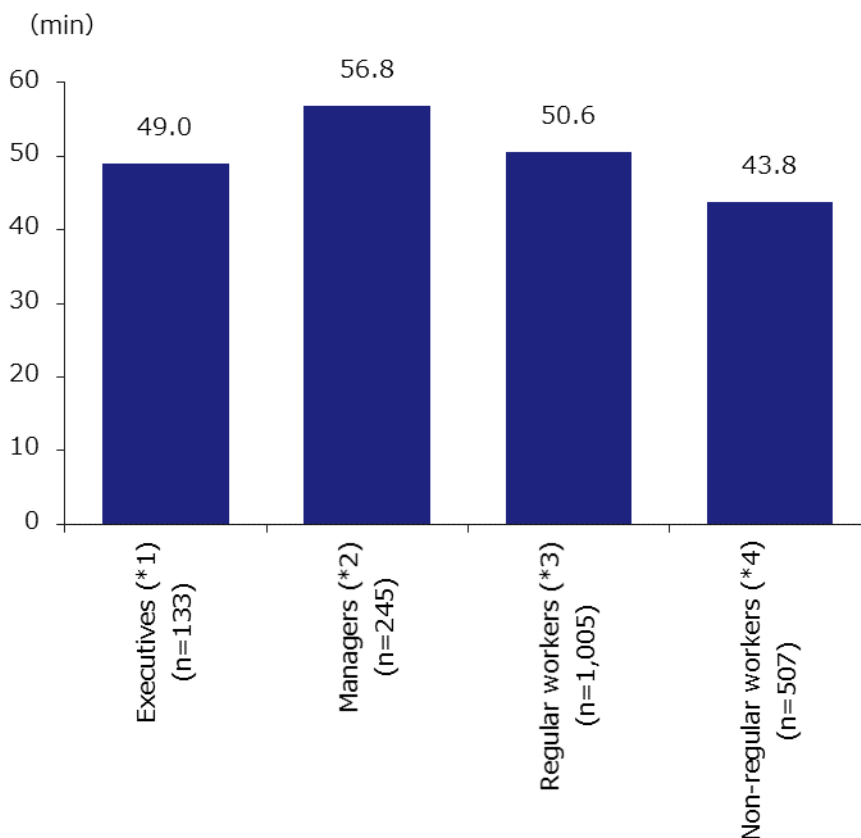
Next, we compared the mean of commuting stress level by sex and age group (**Figure 4**). As seen for the commuting time, older women tended to experience lower commuting stress; women in their 60's needed the shortest commuting time and their commuting stress level was lower by 1 point than the mean of the total. As for men, their commuting time was longer in older people, but their commuting stress tended to be lower.

**Figure 4: The mean commuting stress by sex and age group**



When we analyzed the average commuting time by employment status, “managers” took longest time (56.8 min) and “non-regular workers” took shortest time (43.8 min) (Figure 5).

**Figure 5: The average commuting time by employment status**

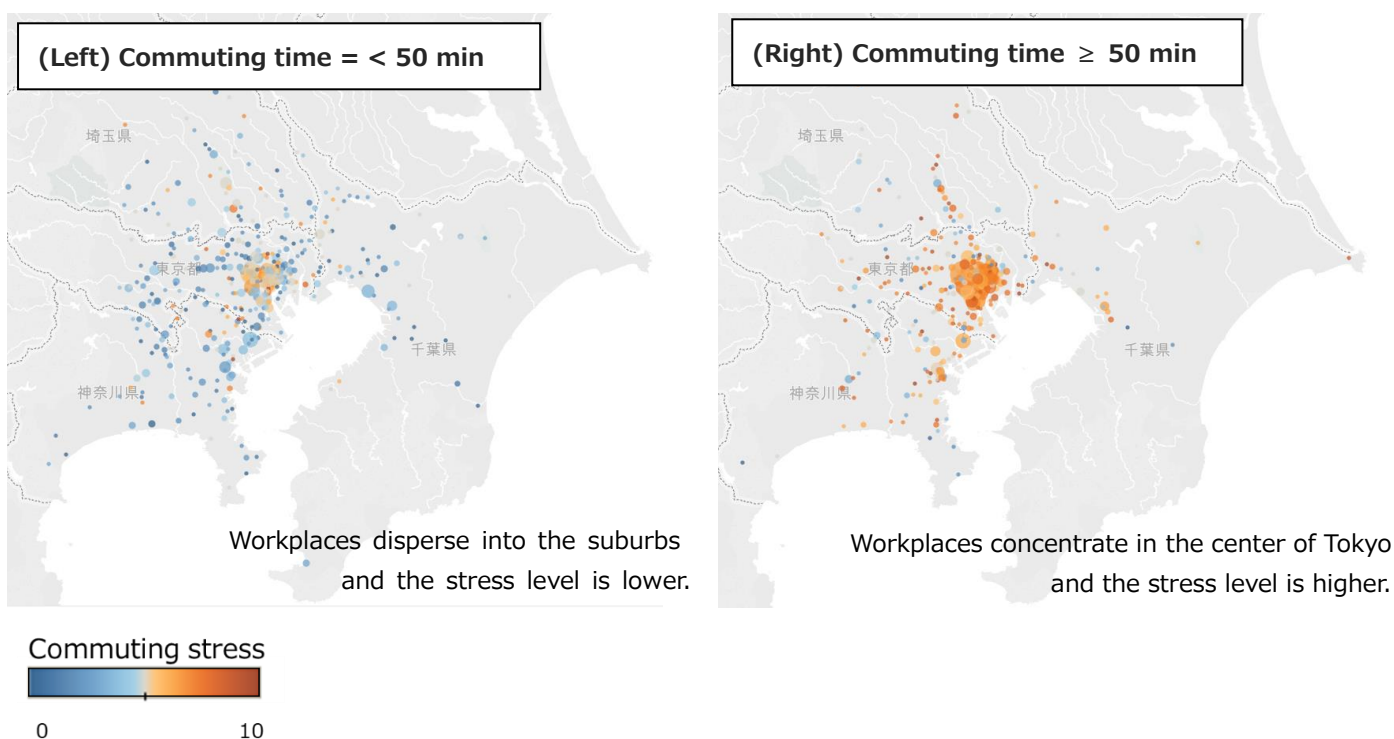


- \*1 Company or organization executives
- \*2 Company or organization managers
- \*3 Company or organization workers of regular employment excluding managers
- \*4 Company or organization workers of non-regular employment (e.g. part-timers, temporary workers)

**Figure 6 (left)** is a map plotting the train stations nearest to the respondents' workplace whose commuting time was shorter than 50 minutes. The size of each dot represents the number of respondents, and the color indicates the mean commuting stress; the warmer the color is, the higher their commuting stress is. Similarly, the map of the respondents whose commuting time was 50 minutes or longer is presented in **(Figure 6 (right))**.

Comparison of the left and the right figures shows that the workplaces of the respondents whose commuting time was shorter than 50 minutes did not concentrate in the center of Tokyo but dispersed into the suburban area, and that their commuting stress levels were relatively low (the colors are cooler). To the contrary, the workplaces of the respondents whose commuting time was 50 minutes or longer concentrated in the center of Tokyo and their commuting stress levels were higher.

**Figure 6: Distribution of workplaces by commuting time and the mean commuting stress**



## 2. Effect of commuting stress on the respondent’s satisfaction

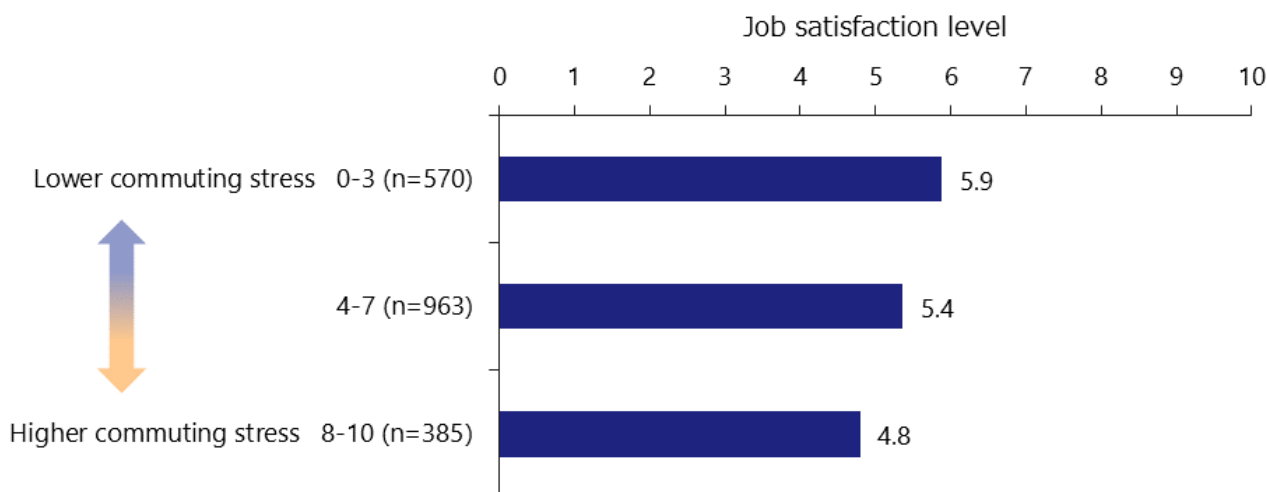
### 2-1. Commuting stress and job satisfaction

- ✓ The lower the group’s commuting stress level was, the higher their job satisfaction level was.
- ✓ “Feel acknowledged and valued” and “Can have a sense of achievement at work” were highly correlated with job satisfaction. (see **PICK UP**)

In the previous section, we analyzed the relationship of commuting time and commuting stress. But how the working people are affected by the high level of commuting stress? Thus, we investigated the relationship of commuting stress and the respondents’ satisfaction.

First, we focused on the relationship between commuting stress and job satisfaction. In this survey, we asked about the respondents’ job satisfaction by 11-level scale from 0 (minimum) to 10 (maximum), as we did for commuting stress. **Figure 7** shows the mean job satisfaction calculated for each of the 3 respondent groups classified by the commuting stress level (0-3, 4-7, and 8-10). It indicates that the lower their commuting stress level was, the higher their job satisfaction level was; the mean job satisfaction level (5.9) of the lowest commuting-stress-level (0-3) group is higher than that (4.8) of the highest commuting-stress-level (8-10) group by 1.1 points (approximately 23%).

**Figure 7: The mean job satisfaction by commuting stress**



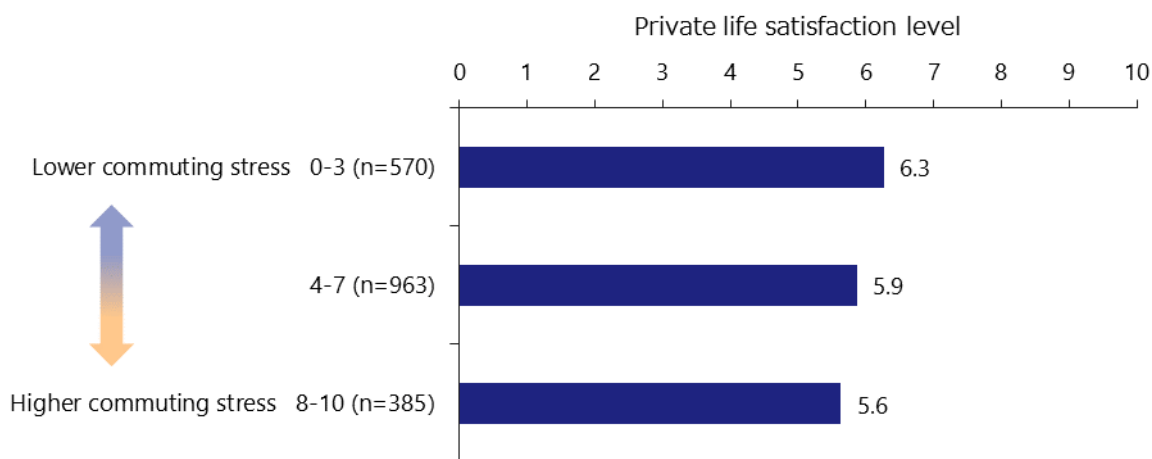
2-2. Commuting stress and private life satisfaction

- ✓ The lower the group’s commuting stress level was, the higher their private life satisfaction level was.
- ✓ “Having a good work-life balance” and “Can have a time for my hobby” were highly correlated with private life satisfaction (see **PICK UP**).

Next, we analyzed the relationship between commuting stress and private life satisfaction. Like job satisfaction, we asked the respondents to assess their private life satisfaction by 11-level scale from 0 (minimum) to 10 (maximum) and compared the results among the 3 groups classified by the commuting stress level (**Figure 8**).

It shows that the group of lower commuting stress tended to indicate higher mean private life satisfaction, although the difference is smaller than that for job satisfaction.

**Figure 8: The mean private life satisfaction by commuting stress**



**PICK UP**

**Job satisfaction, private life satisfaction, and the highly correlated factors**

Our result demonstrated that commuting stress was correlated with job satisfaction and private life satisfaction of working people. How should the companies/organizations translate it into their strategy? Here, we delve into job satisfaction and private life satisfaction.

First, we look at job satisfaction and the highly correlated factors. In this survey, we presented 12 factors associated with job satisfaction and asked the subjects to answer at which level each factor was true for him/her (\*) in addition to assessment of job satisfaction level. When the correlations of these 12 factors and job satisfaction were analyzed, the top 4 factors having high correlations were “Feel acknowledged and valued” (correlation index, 0.60), “Can have a sense of achievement at work” (0.58), “My workplace have a positive air to drive challenging and learning” (0.58), and “Working in a comfortable office” (0.57) (**Figure 9**). The result suggests that, for the companies/organizations, creating a relaxing air and preparing comfortable office for their working people are the effective ways to enhance job satisfaction of their people.

\* 4 levels: “True,” “Partly true,” “Not so much true,” “Not true.”



Next, we focus on private life satisfaction and the highly correlated factors. For private life satisfaction as well, we presented 8 factors associated with private life satisfaction, and asked the subjects to answer at which level each factor was true for him/her. When the correlations of these 8 factors and private life satisfaction were analyzed, the top 4 factors having high correlations were “Having a good work-life balance” (correlation index, 0.44), “Can have a time for my hobby” (0.40), “Can have a time to spend with my family” (0.40), and “Can have a time to spend with my friends” (0.37). The result indicates that the factors on the respondents’ time have higher correlations (**Figure 10**).

For the companies, there are limited measures to enhance their people’s private life satisfaction compared with job satisfaction; however, it may be possible to promote enhancement of private life satisfaction by, for example, adopting telework, to offer time-efficient workstyles and create leisure time.

**Figure 9: Correlation of job satisfaction and the associated factors**

12 factors associated with job satisfaction	Correlation index
<b>Compensation</b>	
Satisfied with my compensation (salaries and benefits).	0.42
<b>Career</b>	
Engaged in motivational job.	0.40
Key information such as business strategy is shared.	0.51
Can have a sense of achievement at work.	0.58
<b>Work environment</b>	
Feel acknowledged and valued.	0.60
Can work flexibly with flexible work hours and/or telework.	0.44
Working in a comfortable office.	0.57
My workplace have a positive air to drive challenging and learning.	0.58
<b>Communication</b>	
My workplace have a positive air to help cooperation with each other.	0.27
My workplace have a relaxed air to allow chatting.	0.45
<b>Valuation</b>	
Feel entrusted with my tasks.	0.45
Feel that my work outcome is valued.	0.48

**Figure 10: Correlation of private life satisfaction and the associated factors**

8 factors associated with private life satisfaction	Correlation index
<b>Sleep</b>	
Having a good sleep.	0.30
<b>Leisure time</b>	
Having a good work-life balance.	0.44
Can have a time for my hobby.	0.40
<b>Social life</b>	
Can have a time to spend with my friends.	0.37
<b>Family life</b>	
Can have a time to spend with my family.	0.40
<b>Well-being</b>	
Having worry about my financial problems.	-0.28
Having worry about my future.	-0.33
Having worry about my health.	-0.36

### 3. Effect of commuting stress on the respondents' productivity and engagement

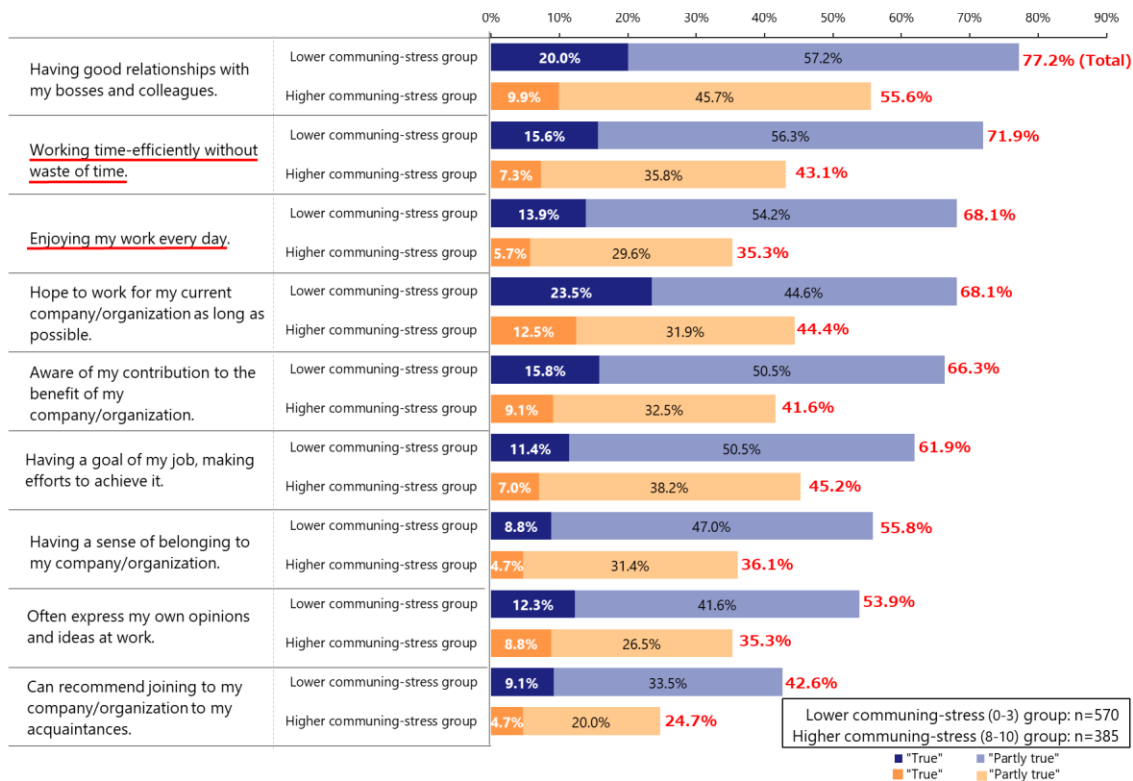
- ✓ In the lower commuting-stress group, the percentages of answering "True" for the factors associated with productivity and engagement were higher.
- ✓ In particular, the percentage of answering "Enjoying my work every day" was higher in the lower commuting-stress group than in the higher commuting-stress group by more than 30 percentage points.

In the previous sections, we focused on how commuting affected the working individuals. Then how should the companies translate it into their future measures? In this section, we analyze how commuting stress made impact on productivity and engagement of the working people, and discuss commuting of working people from the viewpoint of companies/organizations.

In this survey, we asked the subjects about the 9 factors associated with working people's productivity and engagement to their companies/organizations, to answer how true each factor was for themselves.

**Figure 11** shows the results compared between the higher commuting-stress-level (8-10) group and the lower commuting-stress-level (0-3) group. For all the factors, the totals of "True" and "Partly true" in the lower commuting-stress group exceeded those in the higher commuting-stress group. The greatest difference is found in the factor "Enjoying my work every day" for which the total is 32.8 percentage points higher in the lower commuting-stress group (68.1%) than that in the higher commuting-stress group (35.3%), which is followed by "Working time-efficiently without waste of time" for which the total is 28.8 percentage points higher in the lower commuting-stress group (71.9%) than that in the higher commuting-stress group (43.1%).

**Figure 11: Associations of commuting stress with productivity and engagement**



## PICK UP

### The factors having strong associations with “Sense of belonging” and “Enjoying my work every day”

Above, we looked at the associations of commuting stress with job satisfaction, productivity and engagement. However, there are limitations for the companies to relieve their people’s commuting stress. Then, what are the other factors that have impacts on the working people’s engagement and enjoyment other than commuting stress? Here, we picked up 5 factors the companies/organizations can tackle for improving 2 objective variables – “Having a sense of belonging to my company/organization” and “Enjoying my work every day,” and analyzed the strength of each association statistically.

The 5 factors we chose here were “Commute to multiple workplaces,” “Having a good work-life balance,” “Working flexibly with flexible work hours and/or telework,” “Working in a comfortable office,” plus “annual salary” that may affect the 2 objective variables (\*1).

**Figure 12** shows the results of our analyses. The larger numbers of asterisk(s) \*mean more statistically significant effect. The value in each cell indicates odds ratio: the greater the ratio (more than 1) of the factor is with asterisk(s), the stronger its association with “Having a sense of belonging” or “Enjoying my work every day.” Conversely, the smaller the ratio (less than 1) is, the weaker the association is. For example, when the level of commuting stress was higher (\*2), its associations with “Having a sense of belonging” and “Enjoying my work every day” were weaker, which was statistically significant. In these results, the other factors’ associations have been eliminated. Thus, the individual results indicate the association of each factor only, which means that the odds ratio of “Commute to multiple workplaces,” “Having a good work-life balance,” “Working flexibly with flexible work hours and/or telework,” or “Working in a comfortable office” is excluded from an association of “annual salary.”

- \*1 By the question “Commute to multiple workplaces,” the respondents who commute to multiple workplaces and those who commute to only one workplace were separated. For the questions “Having a good work-life balance,” “Working flexibly with flexible work hours and/or telework,” and “Working in a comfortable office,” each subject was asked to answer if the factor was true for his/her current situation by 4 levels (“True,” “Partly true,” “Not so much true,” “Not true”). The results were calculated separately in the group of “True” and “Partly true” and in the group of “Not so much true” and “Not true.” For “annual salary,” the subjects were asked to choose their answer from “less than 2 million yen,” “2 million yen or more but less than 4 million yen,” “4 million yen or more but less than 6 million yen,” “6 million yen or more but less than 8 million yen,” “8 million yen or more but less than 10 million yen,” “10 million yen or more but less than 12 million yen,” “12 million yen or more but less than 15 million yen,” “15 million yen or more but less than 20 million yen,” “20 million yen or more,” or “Have no idea.”
- \*2 For commuting stress, the answers by 11-level scale (0 (minimum) to 10 (maximum)) were divided into 2 groups (0-7 and 8-11).

**Figure 12: Associations with “sense of belonging” and “Enjoying my work every day” (odds ratio)**

	Sense of belonging	“Enjoying my work every day”
Commuting stress	0.73***	0.62***
Commute to multiple workplaces.	1.42**	1.28
Having a good work-life balance.	1.34**	2.73***
Working flexibly.	2.61***	2.15***
Working in a comfortable office.	3.18***	4.66***
Annual salary	1.11***	0.90**

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

As the result, the factor having the most statistically significant association with “Having a sense of belonging” is “Working in a comfortable office.” Those who “can work in comfortable office” have a greater association with “having a sense of belonging” than those who cannot. The second factor was “Working flexibly.” These results suggest that preparing good work environment and the system for flexible workstyles may be effective to enhance working people’s sense of belonging to their companies/organizations.

Also, for “Enjoying my work every day,” the association of “Working in a comfortable office” was strongest, followed by “Having a good work-life balance.”

In terms of “Having a sense of belonging” and “Enjoying my work every day” – the objective variables we chose this time, “Working in a comfortable office” had its strongest associations with both. It suggests that preparing an office environment that allows the working people feel comfortable should be an effective measure that may help them enjoying their work every day and lead to enhancement of their sense of belonging to their companies/organizations. It should be the prioritized area to address from now.

## 4. Summary

In this report, we analyzed the effects of commuting stress on office workers through our survey among the commuters to the Greater Tokyo Area, and discuss how the companies/organizations should translate the results and take future measures.

First, the result indicated that the longer their commuting time was, the greater their commuting stress was. Among those taking shorter commuting time, their workplaces did not concentrate in the center of Tokyo but dispersed into the suburban area, and their commuting stress levels tended to be lower. We can imagine that they should travel to their suburban workplace near their home or should commute by train to a suburban area that is relatively uncrowded. On the other hand, for those taking longer commuting time, their workplaces concentrated in the center of Tokyo, and their commuting stress levels tended to be higher. However, even though their workplaces located in the suburbs, their commuting stress levels tended to be higher if they needed longer commuting time.

Second, we demonstrated that the greater the working people's commuting stress was, the lower their job satisfaction and private life satisfaction were. Since "job satisfaction" was highly correlated with the factors associated with work environment, the measures such as creating a relaxing air and preparing comfortable office should be effective to enhance job satisfaction of the working people. As for "private life satisfaction," it was highly correlated with the factors on the respondents' time, which suggests that the companies/organizations should be able to promote enhancement of their people's private life satisfaction by offering time-efficient workstyles.

Third, this survey revealed that working people's commuting stress had impacts not only on their satisfaction but also on their productivity and engagement to their companies/organizations. For all the 9 factors we chose, the percentages of those who answered "True" or "Partly true" were higher in the higher commuting-stress group than in the lower commuting-stress group. In particular, the difference of the percentages of those who answered that "Enjoying my work every day" was 32.8 percentage points between the 2 groups. The results suggest that commuting stress is a problem to be addressed not only for the working individuals but also for the companies/organizations.

Finally, in addition to commuting stress, we demonstrated that the factors including "Commute to multiple workplaces," "Having a good work-life balance," "Working flexibly," and "Working in a comfortable office" had strong associations with working people's productivity and engagement to their companies/organizations. Thus, the companies/organizations should be able to improve their working people's productivity and engagement by preparing the flexible workstyles such as telework, flexible work hours, and rental office and by offering an office environment that helps their people to feel that they are "Working in a comfortable office."

Through this survey, we found that relieving commuting stress of working people brings benefits to both of themselves and their companies/organizations. It should provide a clue to consider what to do with their people's commuting stress as the companies/organizations. Xymax REI will continue to capture the trends of workstyles and workplaces through our constant researches focused on the working people's reality and values.

<Outline of Survey>

Time of Survey, February 2019; Target Area, the Greater Tokyo Area (Tokyo and Kanagawa, Saitama, and Chiba prefectures); Survey Method, Internet survey

Study Sample: 1) the Screening Survey was conducted in 20,000 men and women aged 15 to 69 years; 2) the Main Survey was conducted in 2,144 men and women aged 20 to 69 years who answered in the Screening Survey that his/her "employment status is a company or organization executive, company or organization manager, company or organization worker, or self-employed individual (excluding restaurant owner, retailer, and interpersonal service provider), and the chief workplace (office) is located in the Greater Tokyo Area (Tokyo and the 3 neighboring prefectures)." 2,009 valid responses were received.

<Characteristics of the respondents>

		%	n			%	n	
Age and sex	Men aged 20-24 years	1.6%	32	Industry	Agriculture, forestry	0.3%	6	
	Men aged 25-29 years	8.4%	168		Fishery	0.0%	1	
	Men aged 30-34 years	4.7%	95		Mining, quarrying, gravel extraction	0.0%	0	
	Men aged 35-39 years	5.2%	104		Construction	6.1%	123	
	Men aged 40-44 years	4.2%	84		Manufacturing	14.7%	296	
	Men aged 45-49 years	5.9%	118		Electricity, gas, heat supply, water utility	1.4%	29	
	Men aged 50-54 years	5.4%	109		IT	10.1%	202	
	Men aged 55-59 years	4.6%	92		Shipping, postal service	4.2%	84	
	Men aged 60 years or older	10.2%	205		Wholesale, retail	7.9%	158	
	(Men in total)	50.1%	1007		Finance, insurance	8.7%	174	
	Women aged 20-24 years	1.8%	36		Real estate, rental business	4.9%	98	
	Women aged 25-29 years	8.3%	166		Academic research, professional/technical service	3.5%	71	
	Women aged 30-34 years	5.3%	106		Lodging, restaurant business	0.6%	13	
	Women aged 35-39 years	4.7%	95		Life-related service, entertainment	1.6%	32	
	Women aged 40-44 years	5.3%	107		Education, learning support	2.9%	58	
	Women aged 45-49 years	4.9%	98		Healthcare, social work	3.6%	72	
	Women aged 50-54 years	6.6%	133		Compound services	0.9%	19	
	Women aged 55-59 years	3.2%	65		Other services	15.0%	301	
	Women aged 60 years or older	9.8%	196		Official business (not otherwise classified)	6.7%	135	
(Women in total)	49.9%	1002	Others/unclassified industries	6.8%	137			
Occupation	Administration, HR, accounting, planning, etc.	21.3%	428	Employment status	Company or organization executives	7.5%	150	
	Clerical work, receptionists, secretaries	30.8%	619		Company or organization managers	12.5%	251	
	Sales and marketing	15.5%	311		Company or organization workers of regular employment excluding managers	52.5%	1054	
	Concierge service	3.0%	61		Company or organization workers of non-regular employment (e.g. part-timers, temporary workers)	26.0%	522	
	Research analysts, patent experts, legal experts, etc.	1.6%	33		Self-employed individuals (restaurant owners, retailers, and interpersonal service providers)	0.0%	0	
	Engineers (e.g. R&D, engineering designers, system engineers)	14.0%	282		Self-employed individuals (excluding restaurant owners, retailers, and interpersonal service providers)	1.6%	32	
	Editots, designers, writers, etc.	3.0%	61		Othes/not working (including those in search of jobs, students, those who stay at home)	0.0%	0	
	Healthcare or educational professionals	1.7%	34		Annual salary	< 2 million yen	12.2%	246
	Line managers/supervisors	2.1%	42			≥ 2 million yen - < 4 million yen	26.6%	535
	Others	6.9%	138			≥ 4 million yen - < 6 million yen	21.9%	440
			≥ 6 million yen - < 8 million yen	11.2%		226		
			≥ 8 million yen - < 10 million yen	5.8%		116		
			≥ 10 million yen - < 12 million yen	2.8%		57		
			≥ 12 million yen - < 15 million yen	1.7%		35		
			≥ 15 million yen - < 20 million yen	0.6%		12		
			≥ 20 million yen	0.3%	7			
			Have no idea.	5.0%	100			
			Unknown	11.7%	235			

- In the charts of this report, the total of the percentages (%) may not be 100%, since the numbers were rounded to one decimal place.

**For further inquiry please contact:**

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