

# Analysis of Customers Visiting Customer Centers and Proposal on How to Manage them More Efficiently

October 2018

Data Analysis Division, KB Insurance

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**To analyze workload and characteristics of visiting customers for each of 86 posts\* serving as customer touchpoints (as of April 2018), and based on factors drawn from the analysis, to group posts and establish efficient management methods by group**

## In-depth Analysis

### Key Questions

1

Which post is relatively crowded?

2

What are the characteristics of customers by post?

3

What are the characteristics of frequently-visiting customers and their impact?

### Analysis Overview

- Produce statistics for teller workload
- Estimate congestion by post by reviewing workload against task, month, date, day of the week and time
- Analyze the profiles and contracts of customers visiting tellers
- Analyze indexes – customer’s age, gender and job, number of contracts, contract connection and multiple contracts – to estimate customer characteristics and value by post
- Analyze tasks requested by frequently-visiting customers and their profiles
- Analyze customers claiming insurance to draw contract profiles for frequently-visiting customers and to review frequently-visiting customers by post

### Analysis Results

Factors related to teller congestion

Factors related to customer value

Factors related to tasks handled by specific customers

## Modeling / Use of Analysis

Use factors drawn from each analysis sector and convert them into significant parameters

*“Group posts by using significant parameters”*

- ✓ Produce top-priority tasks tailored to characteristics of each group
- ✓ Establish detailed action plans for each task and execute them in the field (cooperation with customer support division)

**Analysis of customers visiting tellers have less data than other topical areas, so it is necessary to create a reasonable- estimate logic and analysis targets**

<p>Relevant Data</p>	<ul style="list-style-type: none"> <li>➤ Difficult to connect teller-visiting customer data, contract information and task data (except loan customers), and lack of integrated data mart for teller tasks The amount of tasks by post and by task can only be viewed on intra-net → Long-term and advanced data handling skills are necessary to establish analysis data and conduct data application</li> <li>➤ There is no data indicating visiting customers, so <a href="#">an “estimate” is generally needed</a> to analyze customers</li> </ul>
<p>Analysis Targets</p>	<ul style="list-style-type: none"> <li>➤ Number of tasks to process analysis targets : 916,100 (Jan. 2017 ~ Mar. 2018, 15 months)</li> <li>➤ Items excluded from analysis targets             <ul style="list-style-type: none"> <li>- Insurance payment and certificate issuance (related to compensation): Impossible to connect with contract data (Estimated at about 500 as of March 2018) <sup>1)</sup></li> <li>- Cases where some tasks couldn't be connected with contract data: about 3.0% of the entire task <sup>2)</sup></li> <li>- Contracts with corporations when customer characteristics are analyzed</li> </ul> </li> <li>➤ Estimate logic for visiting customers             <ul style="list-style-type: none"> <li>- For contracts that are for general or long-term insurance, customers are treated as contractors, and for car insurance, visitors are treated as the insured.</li> </ul> </li> </ul>
<p>Analysis Period</p>	<ul style="list-style-type: none"> <li>➤ Establishment of proper analysis period suitable for analysis objectives</li> </ul> <p>The diagram illustrates the analysis period from Jan. 2017 to Mar. 2018. It features three overlapping analysis windows:</p> <ul style="list-style-type: none"> <li><b>Top Window (Light Brown):</b> "Based on monthly average from Jan. 2017 to Mar. 2018 : Analysis of workload/number of customers". This window spans the entire duration from Jan. 2017 to Mar. 2018.</li> <li><b>Middle Window (Light Brown):</b> "2017 yearly basis: Analysis of frequently visiting customers". This window spans from Jan. 2017 to Dec. 2017.</li> <li><b>Bottom Window (Dark Brown):</b> "Based on 2018 monthly average: post grouping". This window spans from Jan. 2018 to Mar. 2018.</li> </ul> <p>Key dates marked on the timeline include Jan. 2017, Dec., Jan. 2018, and Mar.</p>

1) Certificate issuance: Among three areas (loan, contract & compensation), compensation certificate issuance is excluded.

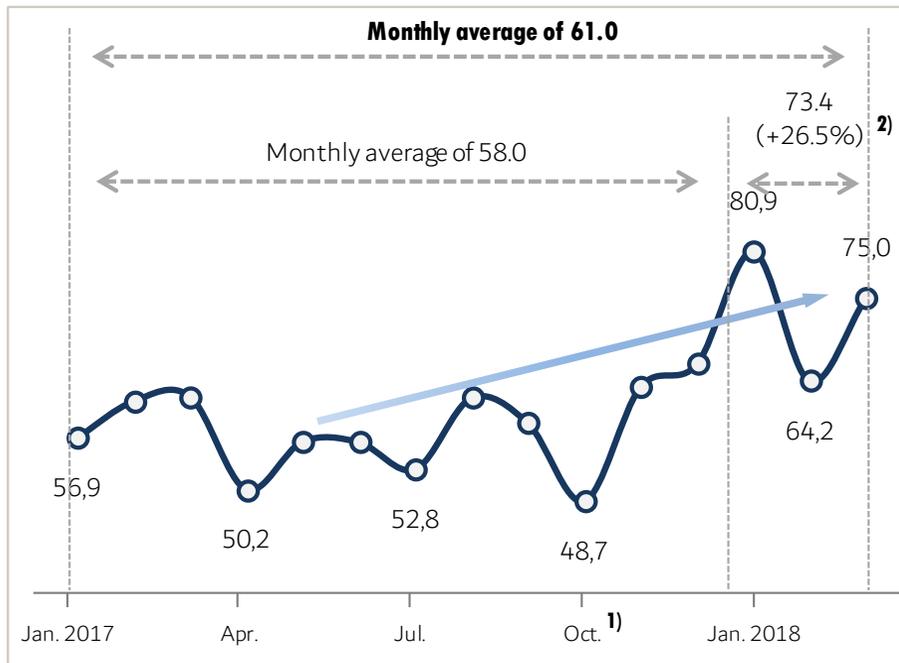
2) Some of certificate issuance tasks related to contracts - couldn't connect contract information

## II . Current Status of Teller Workload

### 1. General

The company-wide teller workload reaches a monthly average of about 61,000, showing a steadily rising trend. By task, insurance claims represent the highest portion of tasks (63.6% as of 2018)

Monthly Teller Workload Trend (Unit: 1,000)



1) Oct. 2017 and Feb. 2018 had a lower number of business days due to national holidays

2) Increasing workload was mainly caused by an increase in the number of applications following a change in the way of submitting long-term accident applications  
(Change in the way of calculating the number of cases)

Task Proportion (%)

	2017	2018	YoY
Insurance claims	58,6	63,6	+5.0p
Certificate issuance	17,9	14,9	Δ 3.0p
Change <sup>3)</sup> (endorsement)	11,7	12,0	+0.3p
Long-term payment <sup>4)</sup>	9,1	7,6	Δ 1.5p
Loan <sup>5)</sup>	2,7	1,9	Δ 0.8p

3) Change (endorsement): Visit + branch request (Transfer from branches to center/regional offices)

4) Long-term payment: Long-term contract cancellation + expiration + mid-term + mid-term withdrawal + pension

5) Loan: Contract-based loan + deposit refunds + payback

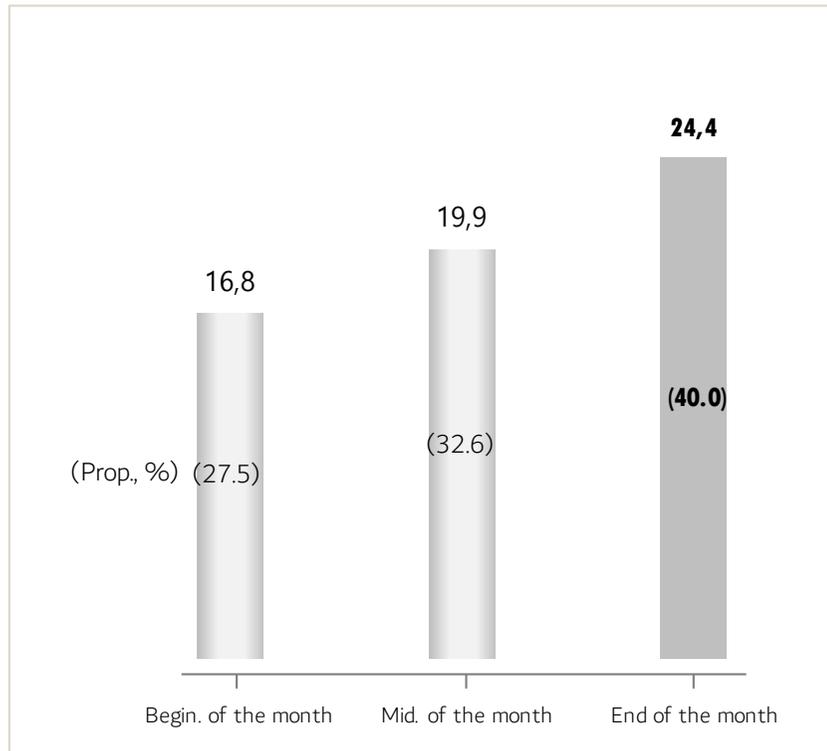
## II . Current Status of Teller Workload

### 2. By Date/Day of the Week

**Based on date, the end of the month represents the highest portion of teller business with 40.0%, and based on the day of the week, Tuesday is highest, but there's not much difference among days of the week.**

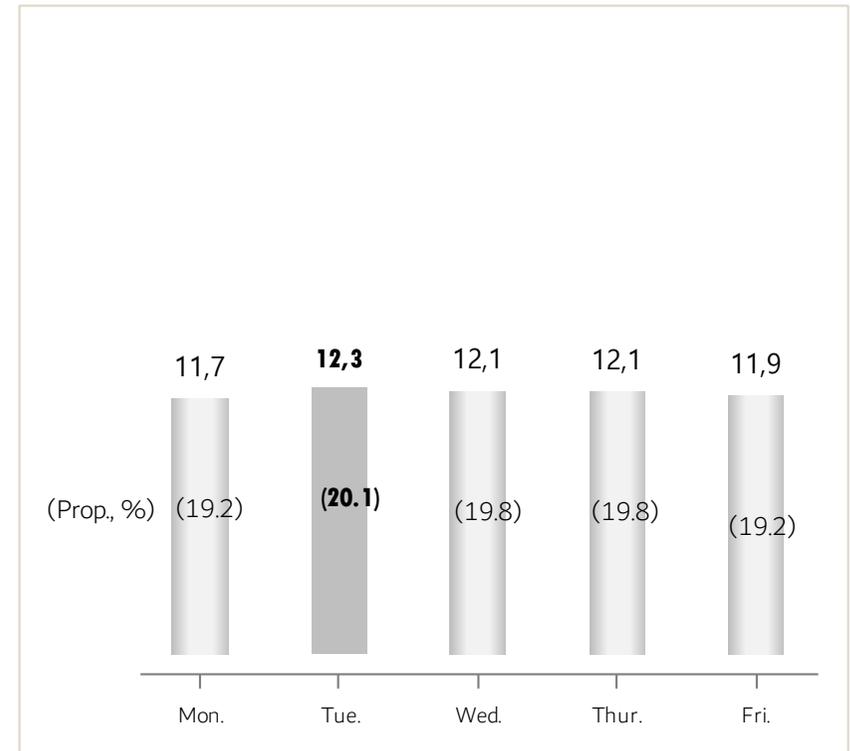
#### Teller Workload by Date (Unit: 1,000)

(Based on monthly average from Jan. 2017 to Mar. 2018)



#### Teller Workload by Day of the Week (Unit: 1,000)

(Based on monthly average from Jan. 2017 to Mar. 2018)

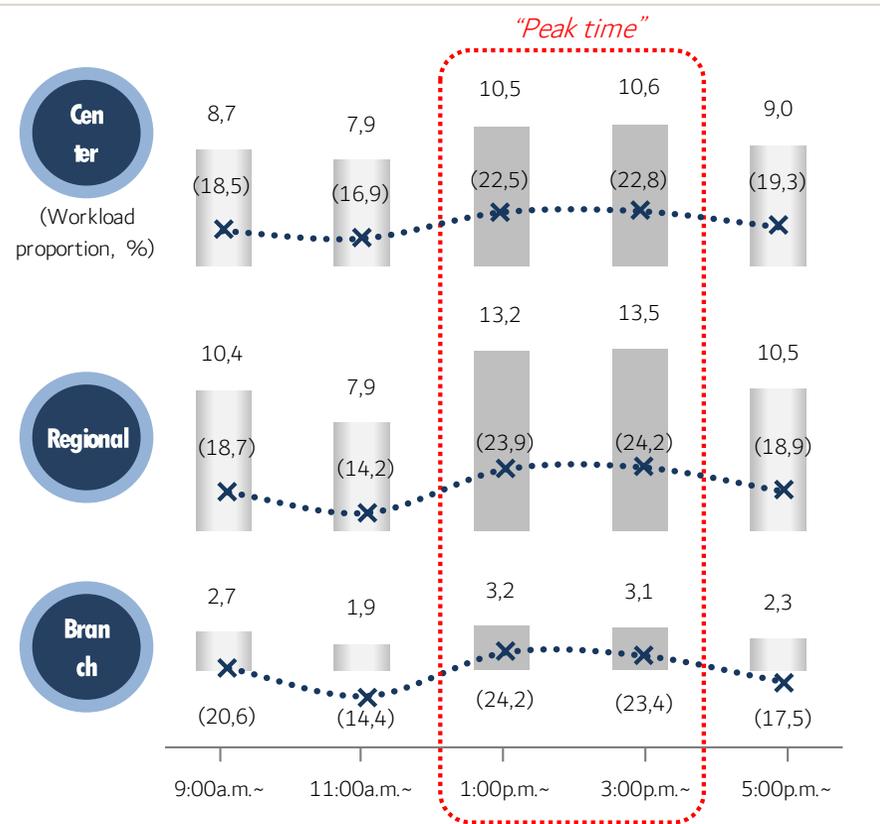


## II . Current Status of Teller Workload

### 3. By Time

**By time, 1:00~5:00 p.m. had the highest workload regardless of teller organization, but peak time for some tasks had distinctive patterns**

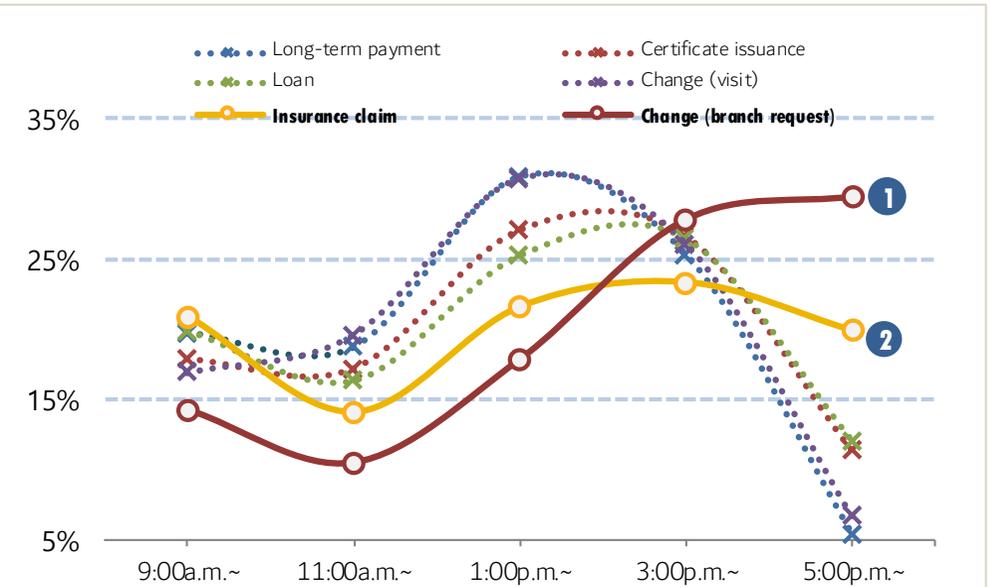
Teller Workload by Date (Unit: 1,000)



#### Result Analysis

- ✓ About half of the teller business is handled from 1:00 to 5:00 p.m., and there's not a big difference in the peak time pattern among teller organizations.

Tasks by Time (%)



#### Result Analysis

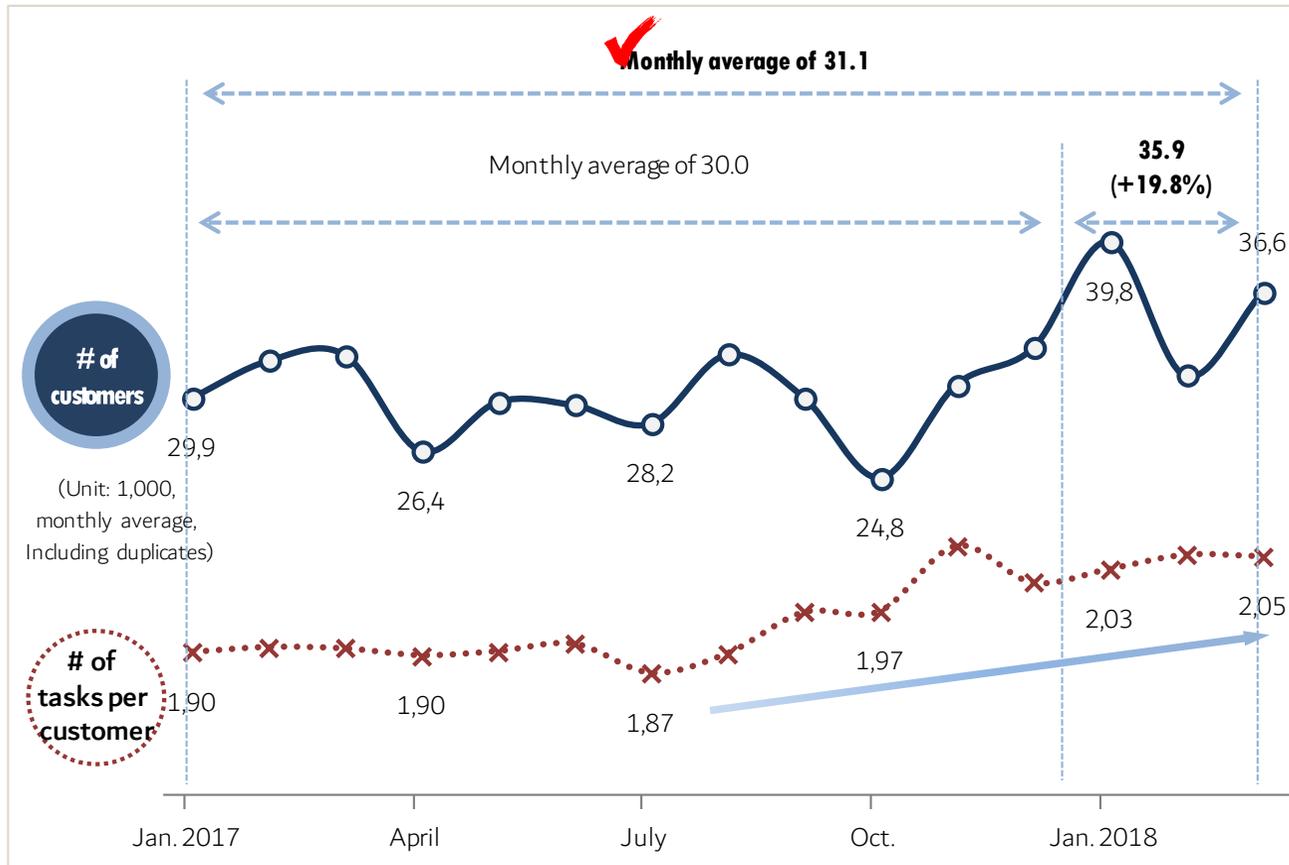
- 1 Change (branch request): The peak time is past 5:00 p.m.  
→ **Mainly handled at a time when the number of visitors at centers/regional offices is relatively small**
- 2 Insurance claim: Peak is not high, and this task continues even after 5:00 p.m.  
→ **This shows a practice where related documents are received and then processed electronically later. When the proportion of later processing is higher, teller windows are likely to be crowded at peak times.**

# III. Current Status of Customers Visiting Tellers

## 1. General

The number of customers visiting tellers across the enterprise reaches 359,300 annually (as of 2017, excluding duplicates (237,600)), meaning a monthly average of 31,100 (based on 15-month average). The number of requests per customer averages 2.

**Number of Customers Visiting Tellers Monthly**  
(Unit: 1,000, including duplicates)



**Number of Customers Visiting Tellers**

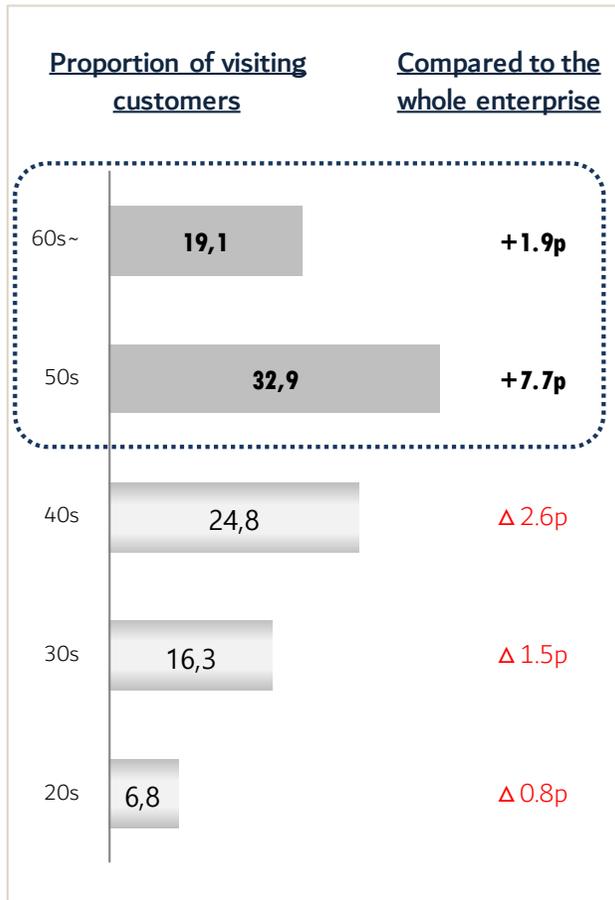
- **Based on 2017**
  - Number of customers visiting tellers totaled 359,300 (including dup.)
  - Excluding duplicates, the number reached 237,600
- **Based on 2017 monthly average,**
  - Number of customers visiting tellers reached 30,000 per month (including dup.)
  - Excluding duplicates, the number reached 26,900 per month
- **The number of requests per customer averaged 2, showing a steady increase.**

### Ⅲ. Current Status of Customers Visiting Tellers

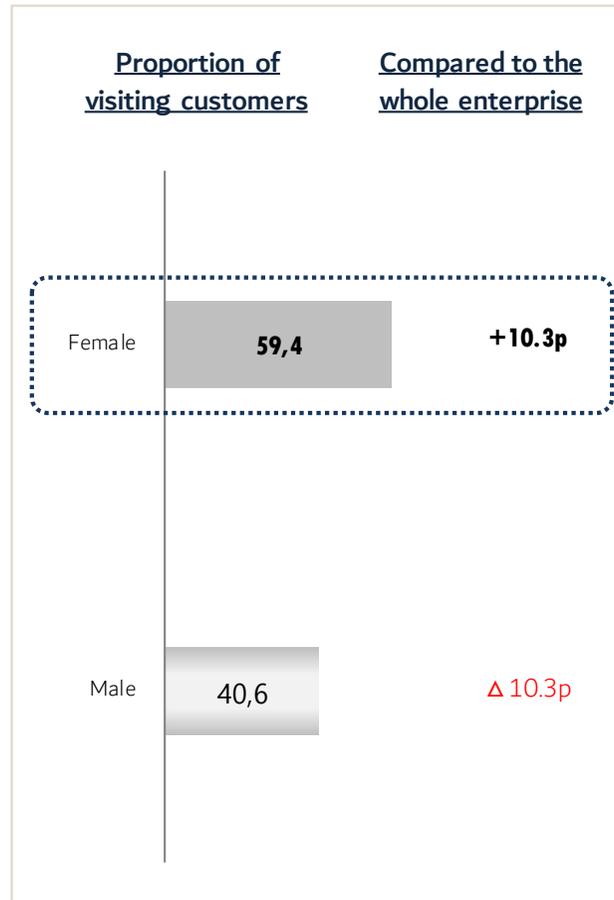
### 2. Customer Profiles

**By age, those in their 50s or older captured a high proportion of customers visiting tellers, and by gender and job, women and housewives represented a high percentage.**

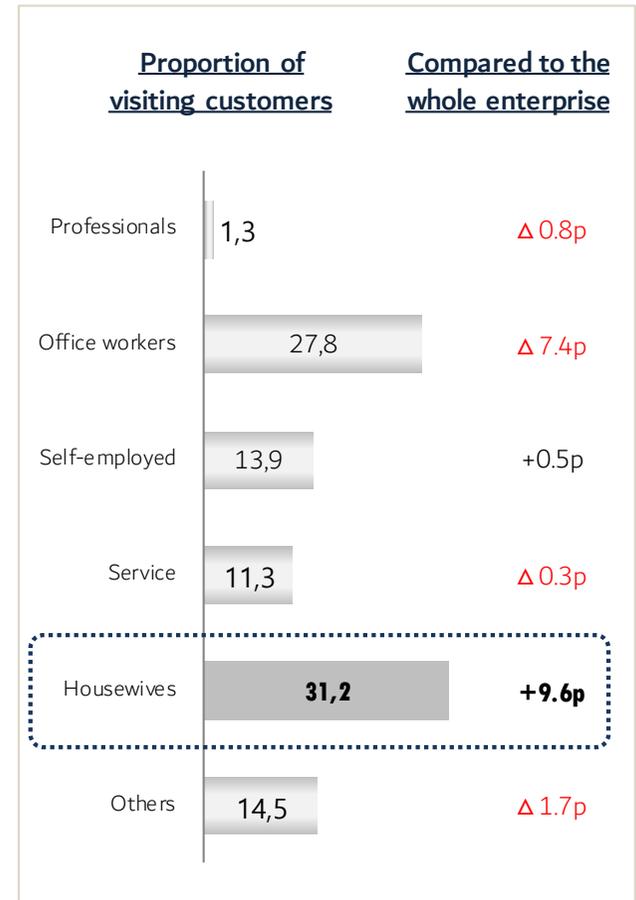
By Age (%)



By Gender (%)



By Job (%)

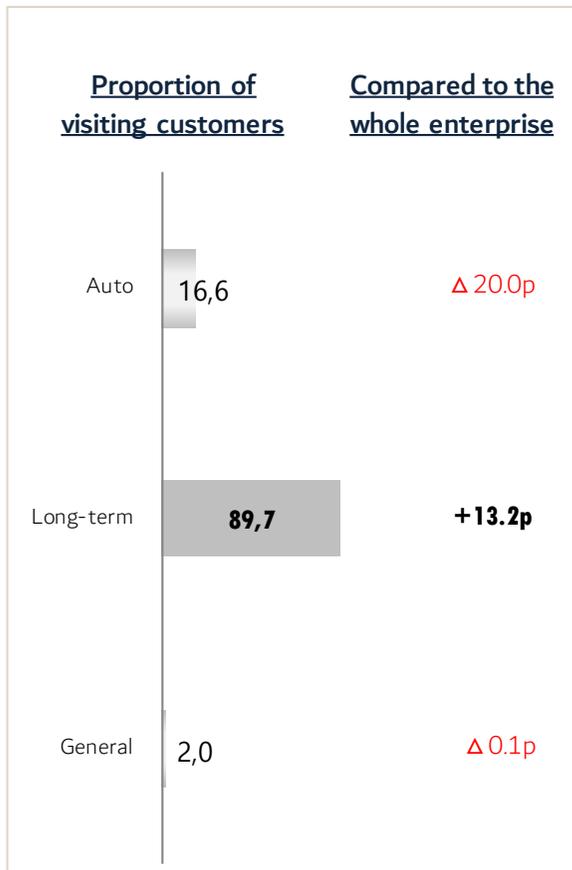


### Ⅲ. Current Status of Customers Visiting Tellers

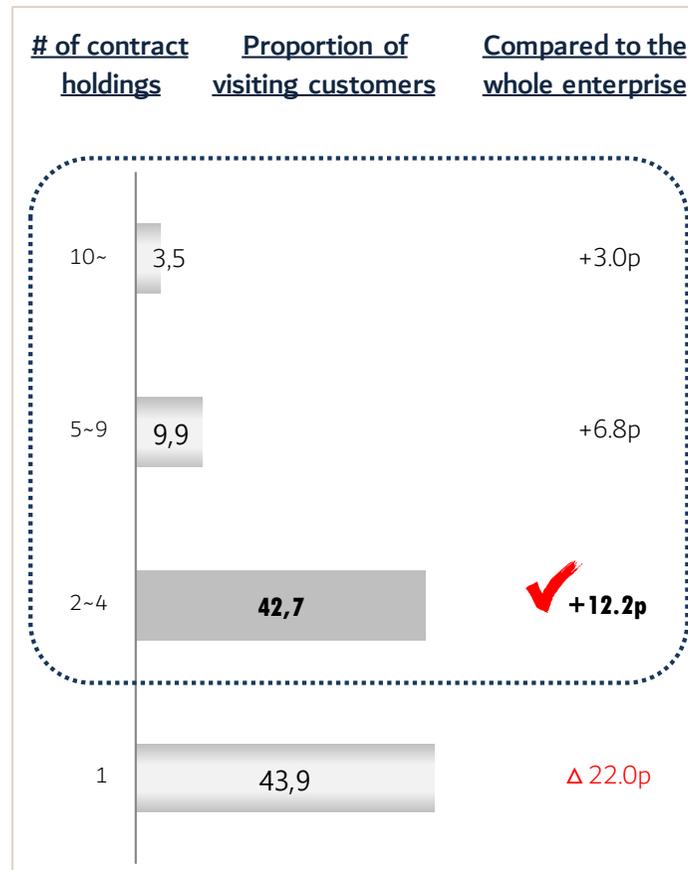
### 3. Contract Holdings

**A majority of customers visiting tellers hold long-term insurance, and have multiple insurance products compared to the company-wide average, and the multiple insurance holding rate is also above the enterprise average.**

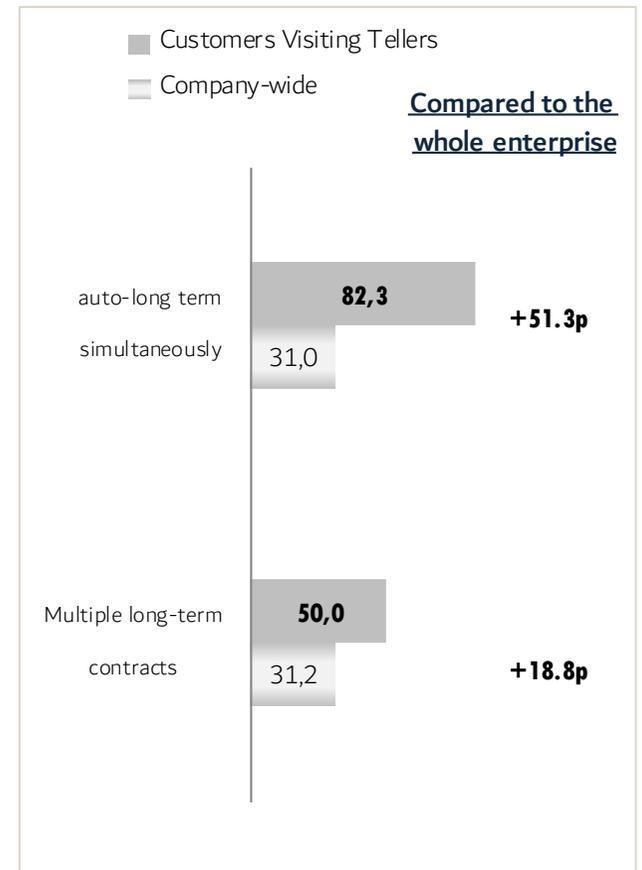
By Contract Type (%)



By Number of Contracts Held (%)



Connection/Multiple Holding Rate (%)

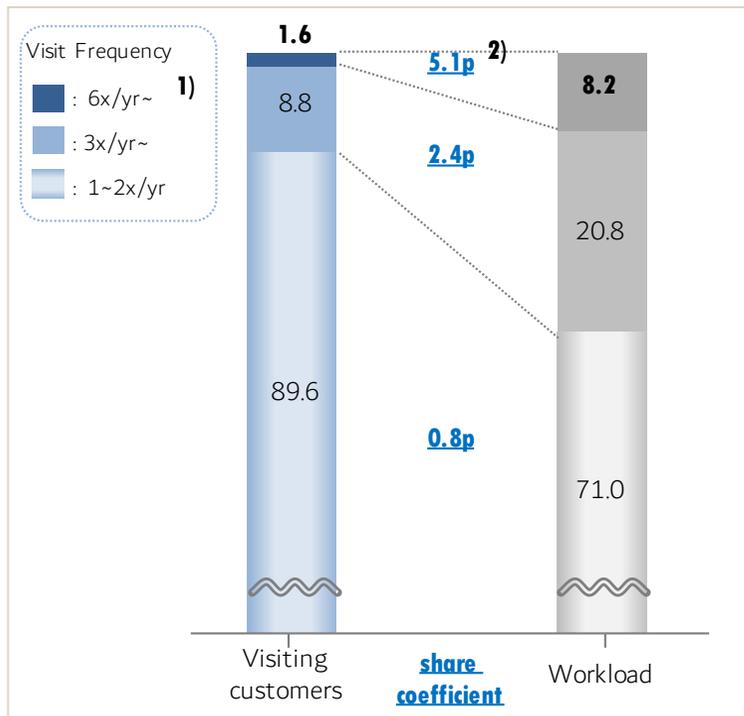


# IV. Current Status of Frequently-Visiting Customers

## 1.By Task

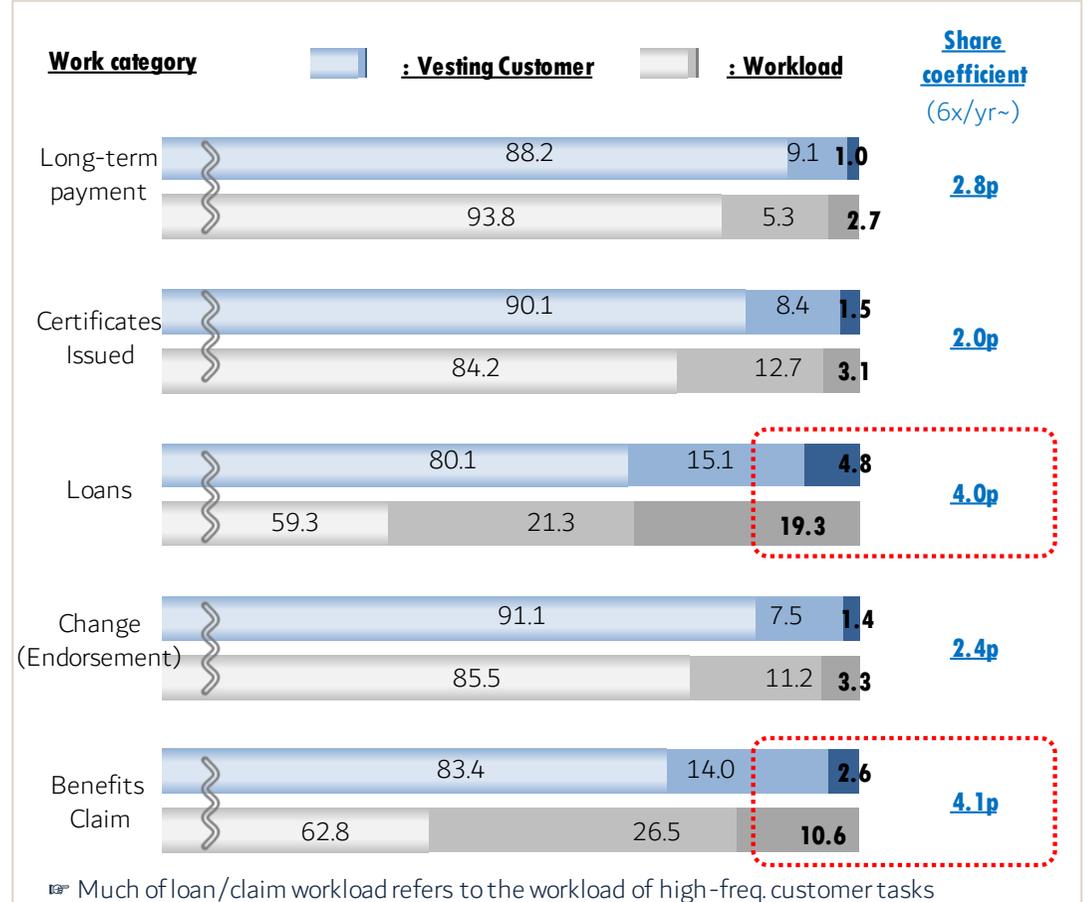
Among customers who visited tellers, 1.6% had visited 6 or more times per year and 8.2% of total workload was related to those customers (share coefficient 5.1p). By work category, loan/benefit claims have high share coefficients

# of clients/workload % per visit frequency



- 1) Includes visit terms and conditions for 3 months or more
- 2) Share coefficient: Indicator demonstrating the level of concentration of workload regarding a particular customer group 8.2% among workload refers to the fact that it is a task of 1.6% of clients ( $8.2\% \div 1.6\% = 5.1p$ )

# of clients/workload % per visit frequency segment(%)

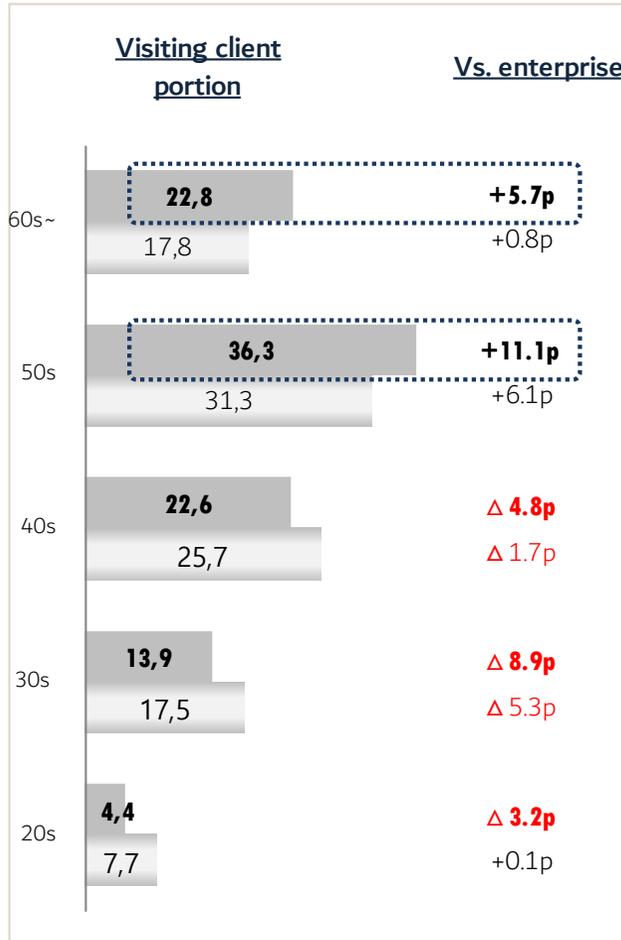


# IV. Current Status of Frequently-Visiting Customers

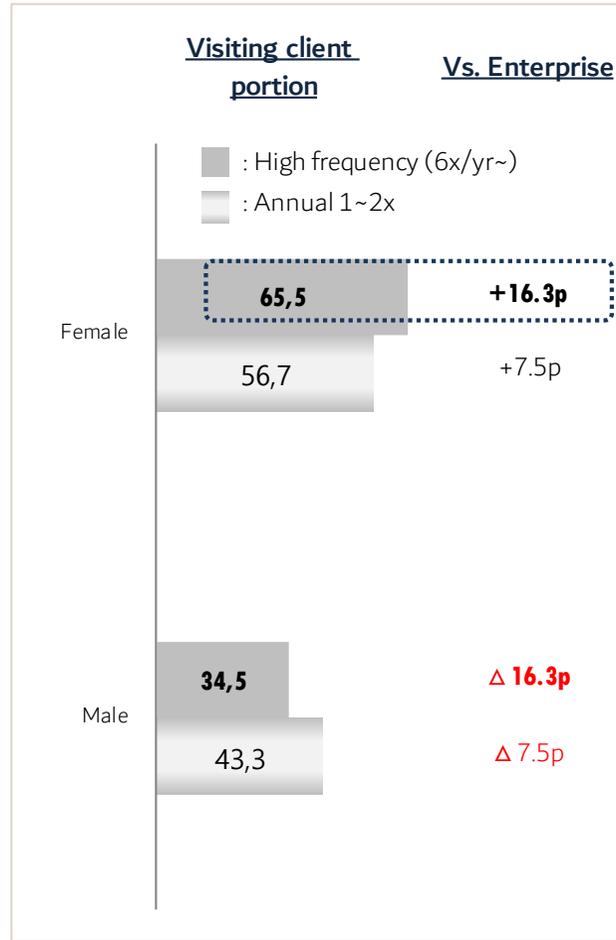
## 2. Profiles

**Among the customer group with high-window-visit frequency, clearly there was a higher portion of senior citizens/women/homemakers than the rest of the enterprise**

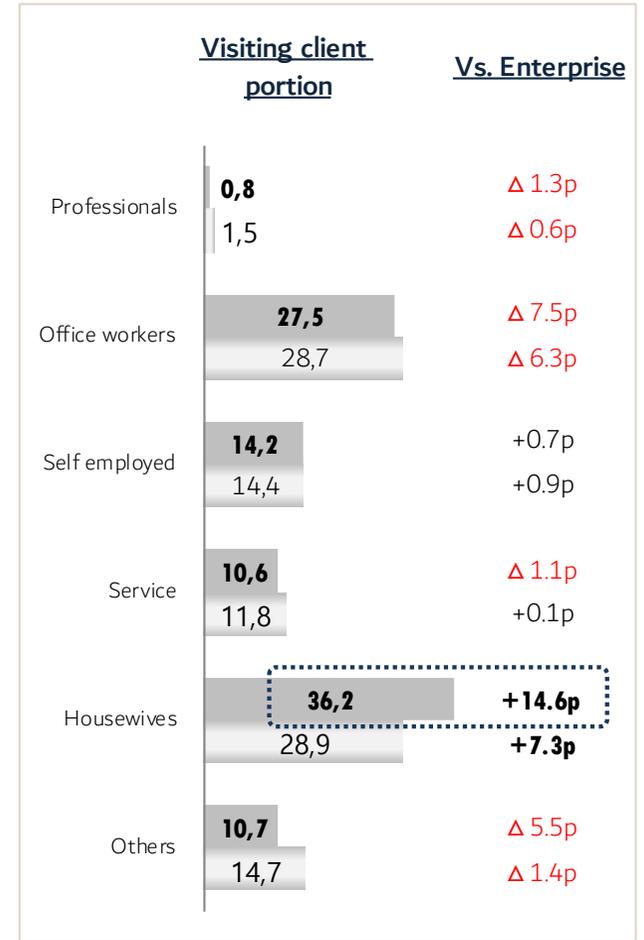
Per age group (%)



Per gender (%)



Per occupation (%)

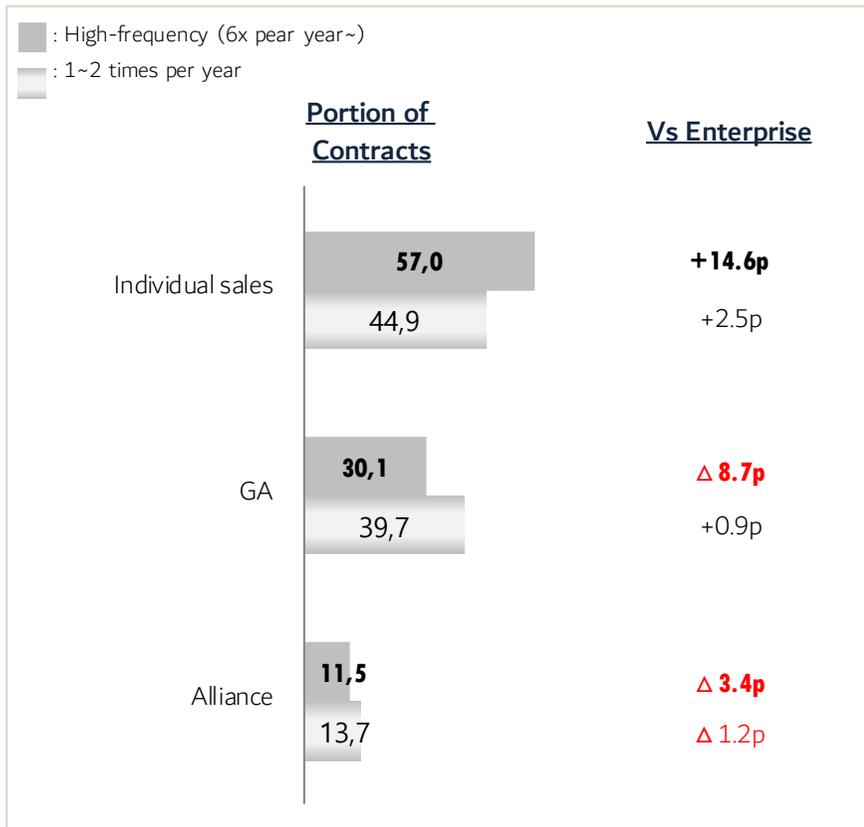


# IV. Current Status of Frequently-Visiting Customers

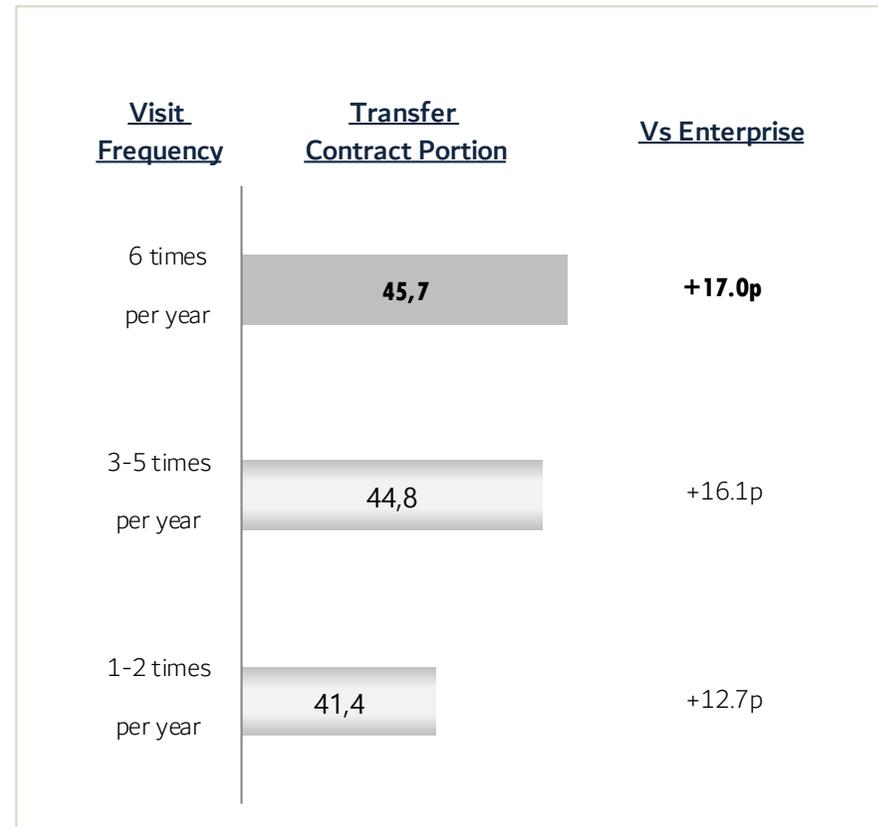
## 3. Contracts

**(Among insurance policy/benefit claims, 50% or more come from high-frequency-visiting customers, [Customers visit frequency] and [portion of transfer contracts among processed contracts] are inversely proportional to one another, and the portion of transfer contracts is higher than most other departments in the enterprise)**

Per Channel %



Among Processing Contracts % of Transfer Contracts



# V. Post Grouping and Extraction of Post Characteristics

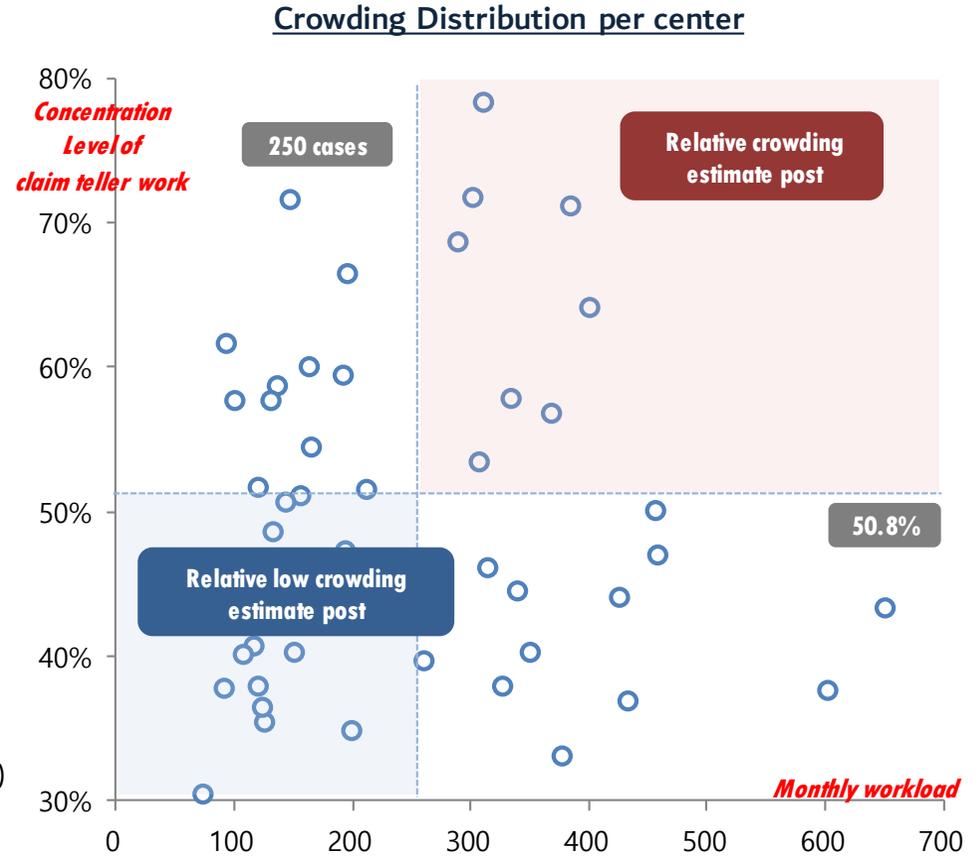
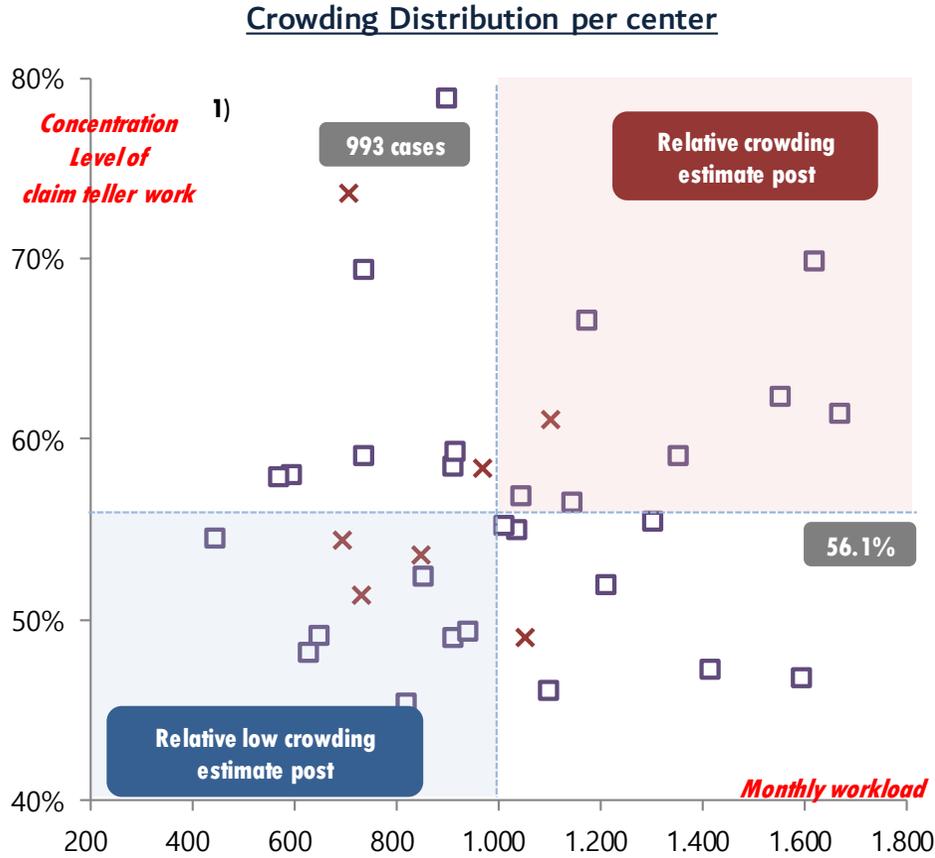
## 1. Overview

**Convert the prior analyzed factors per area into highly explanatory variables to measure traffic/customer value/concentration level, then based on the measured results, conduct post grouping**

Analytic Area	Already Analyzed Factor	Data Transformation	Measured Item	Results
Workload Analysis	✓ Total workload	.....> Monthly workload per person	Traffic	Based on the 3 items (6 variables) "Post Grouping"
	✓ Weighting per workload			
Analyze Visiting Customers	✓ Weighting workload per monthly day/weekly day	.....> Claims billing task concentration level	Customer Value	
	✓ Workload portion per time/task			
	✓ No. of all visiting customers	.....> Future Growth Customer Portion		
	✓ Portion of customers per age/gender/occupation	.....> Long-term multiple case rate		
Frequently-Visiting Customers Analysis	✓ Portion of held contracts/No. of contracts held		Concentration Level	
	✓ Auto-Long-term Simul/Long-term multiple contract %			
	✓ Portion of customer per visit frequency	.....> High-frequency-visiting customer portion		
	✓ Portion of workload by client per visit frequency	.....> share coefficient		
	✓ Portion of clients per age group/gender/occupation			
	✓ Weighting per channel of processed policies			
	✓ Portion of contracts transferred from processing policies			

# V. Post Grouping and Extraction of Post Characteristics

Based on the workload per sales rep and premium claim processing time, it is possible to estimate the level of crowding per post



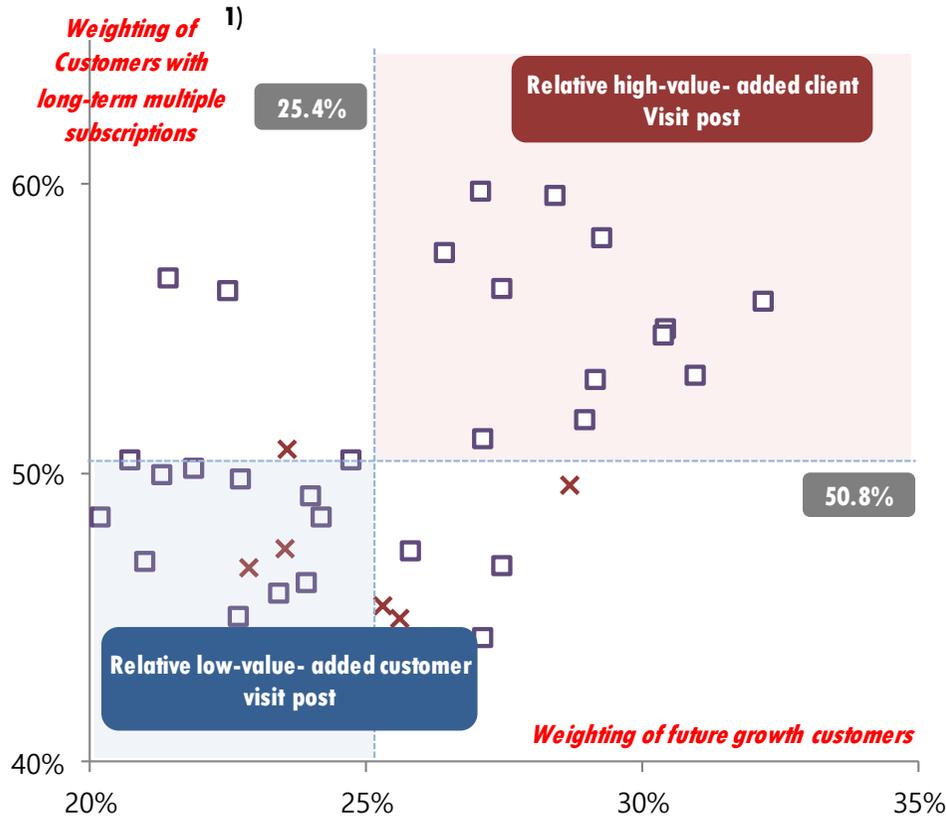
1) Insurance benefit claims concentration level: Workload of claims billing after 7pm ÷ 13~17 hours insurance premiums claims processing workload  
 For posts with long visiting-customer waiting time, first registering the documents and registering then processing them thereafter will be more efficient,  
 Accordingly this has been estimated to be a relatively crowded post

2) Workload per month: Average workload per month per teller

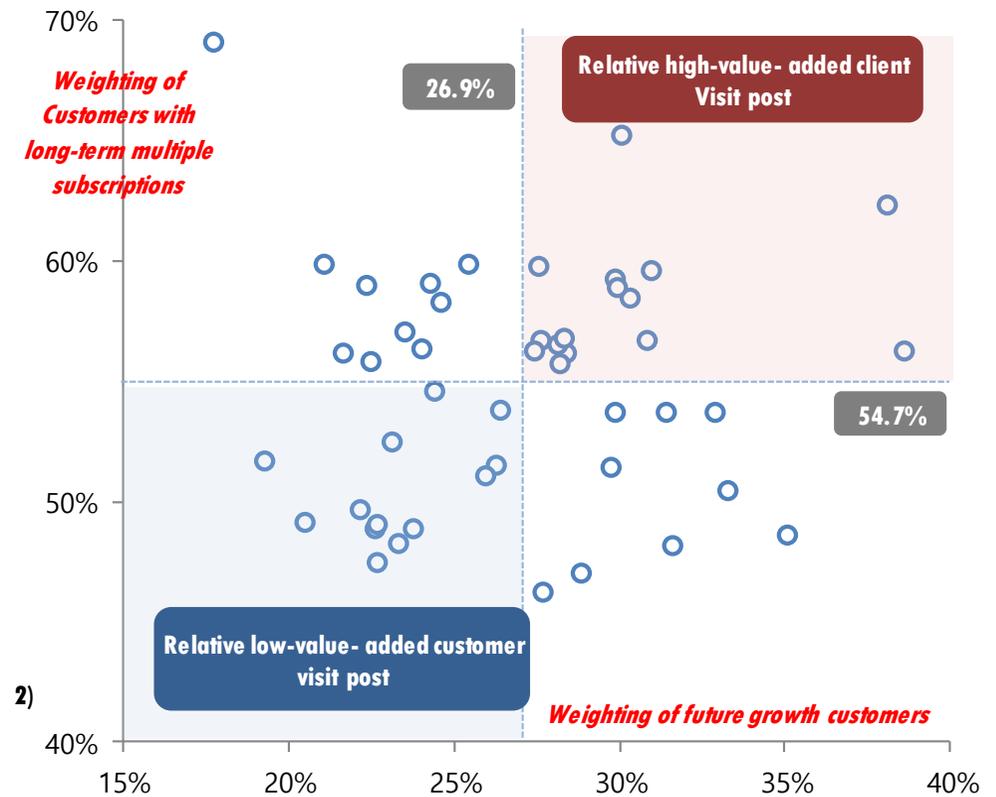
## V. Post Grouping and Extraction of Post Characteristics

Based on the age information and long-term insurance information of visits shared at the face-to-face channel, it is possible to define customer value of the clients who visit each post

Customer Value Distribution per center/DO



Customer Value Distribution per post



1) Long-term multiple case customer portion: Portion of customers holding 2 or more long-term contracts among long-term clients at face-to-face channels

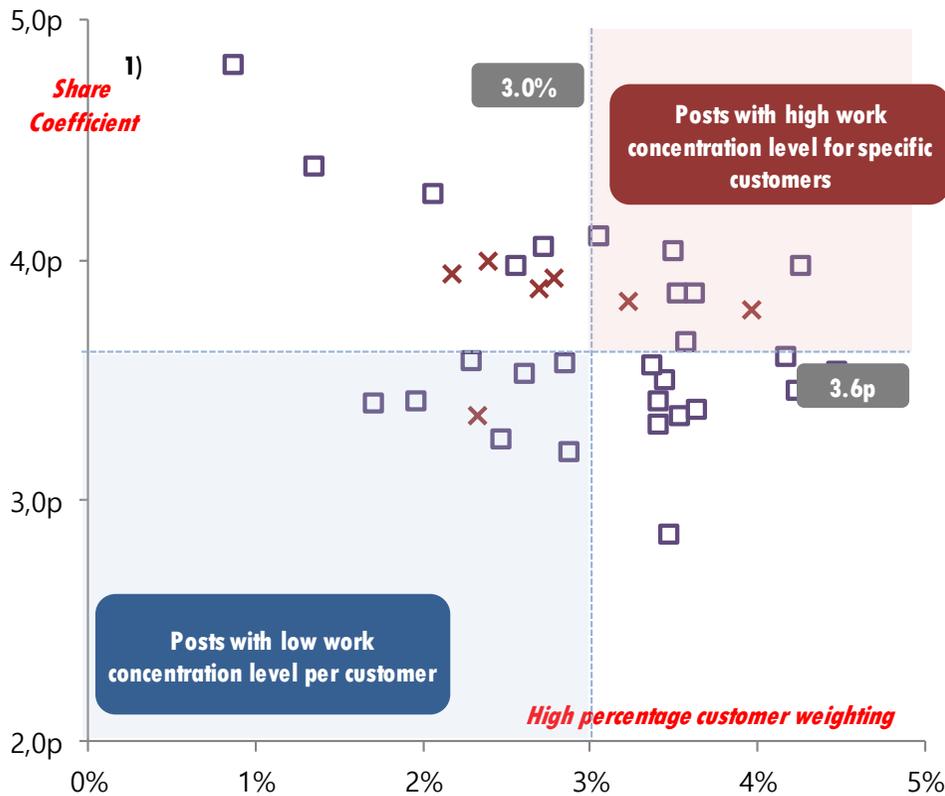
2) Customer age between 30 and 44

# V. Post Grouping and Extraction of Post Characteristics

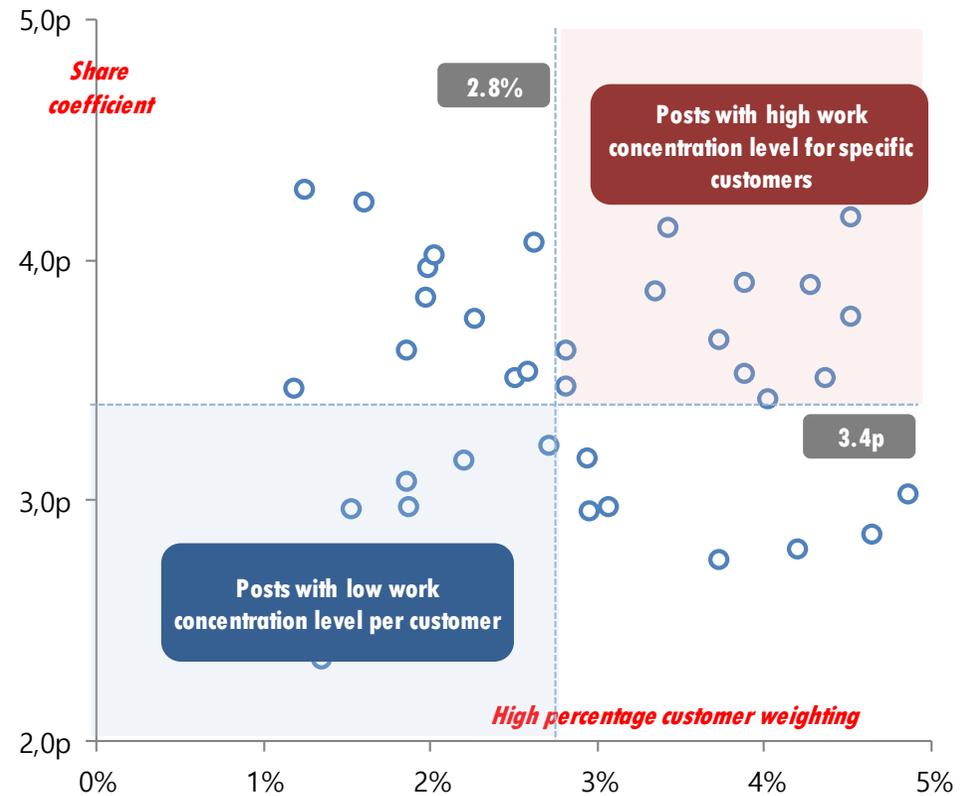
## 4. Concentration Level by Post

Based on the weighting of frequently visiting clients (6 or more times per year) and share coefficient, it is possible to define the work concentration among certain clients per post

Distribution of work concentration level among certain clients per center



Distribution of work concentration level per specific client per BO



- 1) Share coefficient: Posts with high share coefficient means, among its total workload, a high weighting of high-frequency customers
- 2) Frequent customer weighting: Among customers visiting the related post in 2017, the portion of customers with a visit history of 63 months and more than 6 times per year

**Based on the workload and customer characteristics derived from the foregoing analysis, split DO/Center into three groups(Use EDA)<sup>2)</sup>, and generate a task to increase efficiency for each group**

<u>Key Characteristic</u>	<u>Details</u>	<u>Measurement Criteria</u>	<u>Related Post</u> <sup>3)</sup>	<u>Most Important Task</u> <sup>4)</sup> <u>to make efficient (plan)</u>
<b>1</b> High Crowding	<ul style="list-style-type: none"> <li>➤ Excessive workload per sales rep</li> <li>➤ Frequent ex-post-facto measures in paying benefit claims due to excessive # and lack of work skills</li> </ul>	<ul style="list-style-type: none"> <li>① Above average no. of cases per 1</li> <li>② Above average weighting of billing tasks conducted after 17:00</li> </ul>	<ul style="list-style-type: none"> <li>② 8 offices incl. Gangbuk/Pohang/Jeonju, etc.</li> <li>① 8 offices Bucheon/Ilsan/Guri etc.</li> </ul>	Proactive provision of information at peak time for visiting customers
<b>2</b> High Value-Added-Customer Visit	<ul style="list-style-type: none"> <li>➤ High weighting of future-growth clients among visiting clients</li> <li>➤ High portion of 2 or more cases of long-term insurance among visiting customers</li> </ul>	<ul style="list-style-type: none"> <li>① Above average weighting of future- growth customers (30 years~44 years)</li> <li>② Above average weighting of long-term, large number of cases</li> </ul>	<ul style="list-style-type: none"> <li>② 7 offices in Jeju/Anyang/Seongnam, etc.</li> <li>① Gwangju (Center) 1 branch</li> </ul>	Focus improvements on service satisfaction from the POV of customer mgmt
<b>3</b> High Concentration of specific customers	<ul style="list-style-type: none"> <li>➤ Frequent visits by specific customers</li> <li>➤ Work volume requested by frequent-visiting customers account for a large portion of total workload</li> </ul>	<ul style="list-style-type: none"> <li>① Above average weighting of Frequently-visiting customers (6 times per year ↑&amp;ys 3 ms↑)</li> <li>② Above average share coefficient</li> </ul>	<ul style="list-style-type: none"> <li>② 7 offices in Changwon/Suncheon/Cheonan, etc.</li> <li>① Daegu (Center), Suwon, etc. 3 branches</li> </ul>	Face-to-face client target Compensation, App introduction, and usage method

1) Given that a branch teller is not a regular employee, tasks to increase efficiency are implemented first around DO/Center

2) Exploratory data analysis (EDA): Variables do not apply to the existing methodology (model) immediately. When monitoring the data itself is an analytic method of identifying the characteristics of variables and their structural relations, the (6 standard (variables)) have a strong tendency to be mutually independent. Accordingly, PCA and Clustering will not generate meaningful results

3) Related Post: Posts related to 2 main characteristic measurement standards. When the main characteristics number is 2 or more, assignment is conducted in the order of crowding > concentration > value (Gangnam (Central)/Gangbuk (Central) do not have key characteristics

4) Thereafter, prepare a detailed implementation method per task, which streamlines work by the Customer Support Team

조직명	측정항목		고객가치		집중도		주특성	주특성 기준 개수
	인당 업무량	청구업무 집중도	미래성 장비중	장기 다건율	다방문 비중	점유 계수		
전체평균	994	0.562	0.254	0.508	0.030	3.669		
강북지역단	1,043	0.569	0.202	0.485	0.042	3.454	혼잡도	2개
강원지역단	821	0.454	0.264	0.577	0.045	3.532	혼잡도	2개
경인지역단	912	0.489	0.240	0.492	0.013	4.389	혼잡도	2개
목포지역단	1,592	0.467	0.309	0.534	0.036	3.856	혼잡도	2개
울산지역단	1,669	0.614	0.271	0.443	0.026	3.527	혼잡도	2개
전주지역단	1,551	0.623	0.271	0.512	0.026	3.972	혼잡도	2개
진주지역단	910	0.584	0.304	0.550	0.035	2.862	혼잡도	2개
포항지역단	1,618	0.699	0.247	0.504	0.029	3.573	혼잡도	2개
강동송파지역단	735	0.590	0.242	0.485	0.025	3.252	혼잡도	1개
강릉지역단	650	0.491	0.271	0.598	0.034	3.410	혼잡도	1개
구리지역단	854	0.524	0.214	0.568	0.020	2.501	혼잡도	1개
부천지역단	939	0.494	0.219	0.502	0.017	3.406	혼잡도	1개
영등포지역단	899	0.788	0.227	0.498	0.036	3.377	혼잡도	1개
익산지역단	830	0.433	0.274	0.564	0.036	3.659	혼잡도	1개
청주지역단	915	0.593	0.239	0.462	0.021	4.273	혼잡도	1개
평택지역단	737	0.693	0.304	0.548	0.034	3.558	혼잡도	1개
강남고객센터	709	0.736	0.256	0.450	0.040	3.791	해당없음	無
강북고객센터	696	0.544	0.230	0.443	0.023	3.348	해당없음	無

조직명	측정항목		고객가치		집중도		주특성	주특성 기준 개수
	인당 업무량	청구업무 집중도	미래성 장비중	장기 다건율	다방문 비중	점유 계수		
전체평균	994	0.562	0.254	0.508	0.030	3.669		
부산고객센터	970	0.583	0.229	0.468	0.024	3.994	집중도	2개
순천지역단	1,301	0.554	0.290	0.519	0.043	3.976	집중도	2개
의정부지역단	1,009	0.552	0.213	0.500	0.035	3.349	집중도	2개
일산지역단	1,354	0.591	0.227	0.451	0.042	3.597	집중도	2개
창원지역단	1,415	0.472	0.258	0.473	0.023	3.575	집중도	2개
천안지역단	1,036	0.549	0.274	0.468	0.035	3.862	집중도	2개
충주지역단	627	0.481	0.225	0.563	0.034	3.313	집중도	2개
대구고객센터	1,102	0.611	0.235	0.474	0.028	3.917	집중도	1개
대전고객센터	731	0.513	0.236	0.508	0.032	3.827	집중도	1개
수원고객센터	847	0.536	0.253	0.454	0.022	3.941	집중도	1개
강서지역단	596	0.580	0.207	0.505	0.020	3.410	고객가치	2개
구미지역단	1,101	0.461	0.291	0.533	0.027	4.057	고객가치	2개
성남지역단	1,143	0.564	0.210	0.469	0.034	3.500	고객가치	2개
안동지역단	571	0.578	0.322	0.560	0.009	4.806	고객가치	2개
안양안산지역단	1,175	0.666	0.234	0.459	0.029	3.202	고객가치	2개
제주지역단	1,210	0.519	0.292	0.581	0.035	4.033	고객가치	2개
충남지역단	445	0.545	0.284	0.596	0.031	4.096	고객가치	2개
광주고객센터	1,053	0.489	0.287	0.496	0.027	3.877	고객가치	1개

**End of Document**

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