

Outlook for Retail Trade Sales—A Consumption Expenditure Approach Based on Demographic Trends

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To predict how aging and declining fertility rate will impact the retail industry and retail sales in the long term, we estimated the effect of demographic trends on household composition and consumption expenditure. Our results show that demographic trends will reduce consumption expenditure by only 7% from 2005 to 2030. However, large disparities will likely occur in consumption patterns based on householder's age, household size, consumption category, and region. Our demographics-based approach offers J-REITs and other investors a new perspective for assessing the long-term investment fundamentals of commercial real estate.

1. Introduction ¹

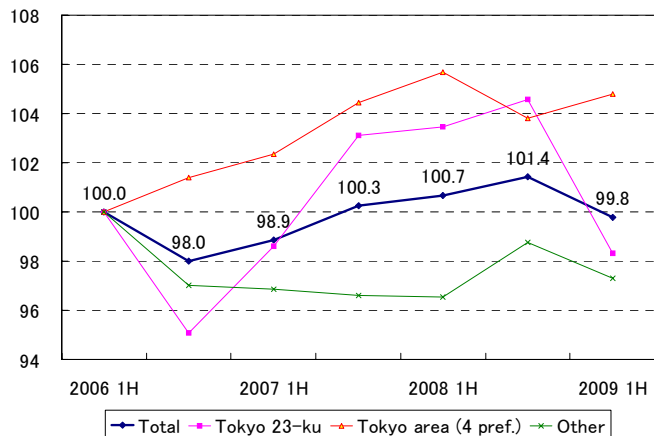
Domestic retail trade sales fell sharply after September 2008 in the wake of the Lehman Brothers collapse and ensuing global economic slump. As a result, the net operating income of commercial properties continuously held by J-REITs fell for the first time in two years, while new investment in commercial properties has also waned (Exhibit 1).

Recently, however, signs of optimism have surfaced, including the government's upbeat assessment that the economy has likely bottomed out. ² Needless to say, an end to the economic slump would alleviate the retail sales slump.

In the long term, however, demographic trends such as population decrease, declining fertility rate, and aging will profoundly affect consumption expenditure and retail trade sales revenue.

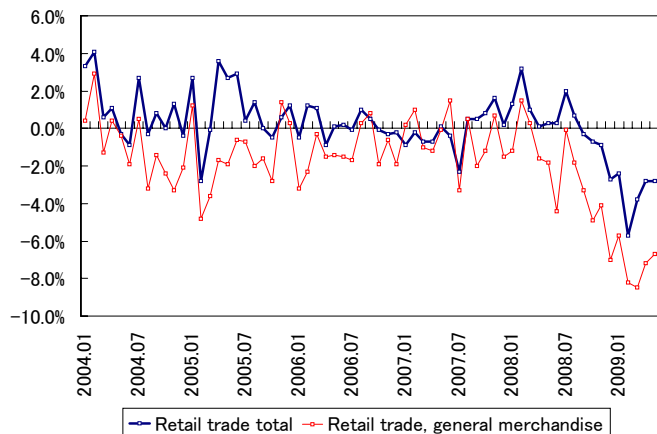
In this paper, after briefly describing past retail sales trends, we estimate the impact of demographic trends (specifically, changes in the number of households by age group) on household consumption expenditure (by householder's age, consumption category, and region). Finally, we consider the long-term implications for commercial real estate investment fundamentals.

Exhibit 1 NOI of J-REIT Commercial Properties by Region



Note: Shows aggregate NOI of 43 retail properties owned continuously from 1H 2006 to 1H 2009 accounting periods (until the announcement of June 2009).
 Source: Compiled from J-REIT financial disclosures.

Exhibit 2 Retail Trade Sales Growth (yoy change)



Source: Compiled from METI, Yearbook of the Current Survey of Commerce.

2. Retail Trade Sales Trends

1. Sudden Decline Amid a Medium-term Slump

Retail trade sales were seriously affected by the global economic downturn. According to the *Preliminary Report on the Current Survey of Commerce*, sales revenue fell -2.8% in May 2009 from a year ago for the ninth consecutive monthly decline since September 2008. General merchandise retailers (department stores and supermarkets) suffered a particularly large decline of -6.7% for the 14th consecutive month since April 2008 (Exhibit 2).³ However, the pace of decline has slowed, and growth (year on year) has even resumed at convenience stores and supermarkets (Exhibit 3).

More significantly, retail sales revenue has stagnated in the longer term. After peaking at over 145 trillion yen per year in 1991, sales have steadily waned to approximately 135 trillion yen at present (Exhibit 4). Growth has also declined from 57% in the 1980s, to 1% in the 1990s, and a -3% decrease in the 2000s (2000 to 2008).

2. Retail Trade Trends in the *Census of Commerce*

According to the *Census of Commerce* (METI), from 1991 to 2007, the number of establishments plummeted 29%, while sales floor space rose 36% and sales revenue edged down 5% (Exhibit 5). As a result, sales floor space per establishment surged 92%.

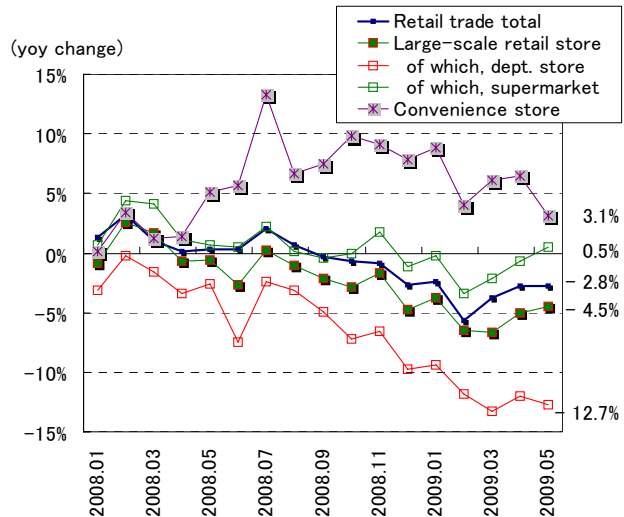
By retail trade sales form, sales revenue and number of establishments increased at convenience stores, specialty supermarkets, and drug stores (the latter from 1999), with sales floor space also more than doubling (Exhibit 6).⁴ However, both sales revenue and number of establishments declined at all other sales forms.

3. Sales Growth Factors

We next look at retail sales growth from 2004 to 2007 by location characteristics and sales form.⁵

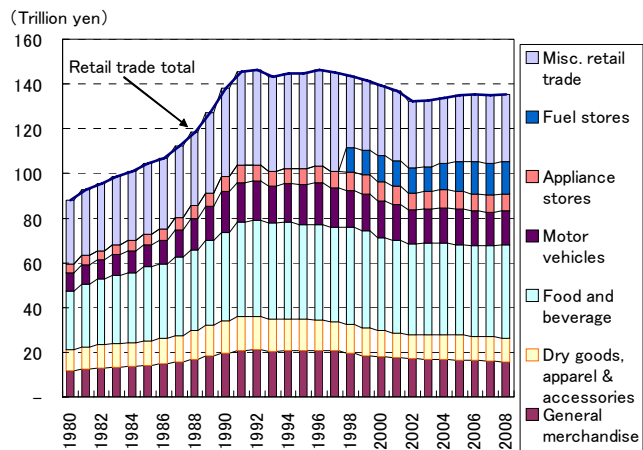
By location characteristics, retail sales grew at roadside-type commerce-integrated areas, office building areas, and

Exhibit 3 Retail Trade Sales Growth, by Sales Form



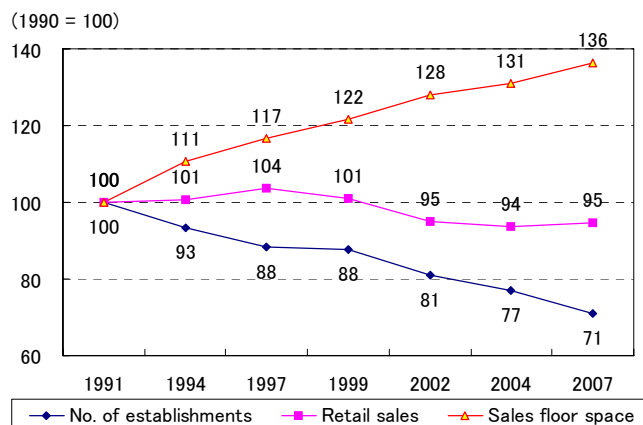
Source: Compiled from METI, *Yearbook of the Current Survey of Commerce*.

Exhibit 4 Retail Trade Sales, by Commodity (1980-2008)



Source: Compiled from METI, *Yearbook of the Current Survey of Commerce*.

Exhibit 5 Growth of Retail Trade Establishments, Sales Revenue, & Sales Floor Space



Source: Compiled from METI, *Census of Commerce*.

industrial areas (Exhibit 7).⁶ While sales floor space per establishment grew in all areas, the number of establishments fell in most areas. Sales growth was concentrated in areas where the number of establishments rose (or else decreased minimally).

By sales form, sales growth was seen at drug stores, medium-scale general supermarket stores, other supermarkets, specialty stores, and convenience stores (Exhibit 8). Different factors contributed to sales growth—strong growth of sales floor space per establishment contributed at drug stores, while growth (or minimal decrease) in number of establishments contributed at convenience stores and specialty stores.

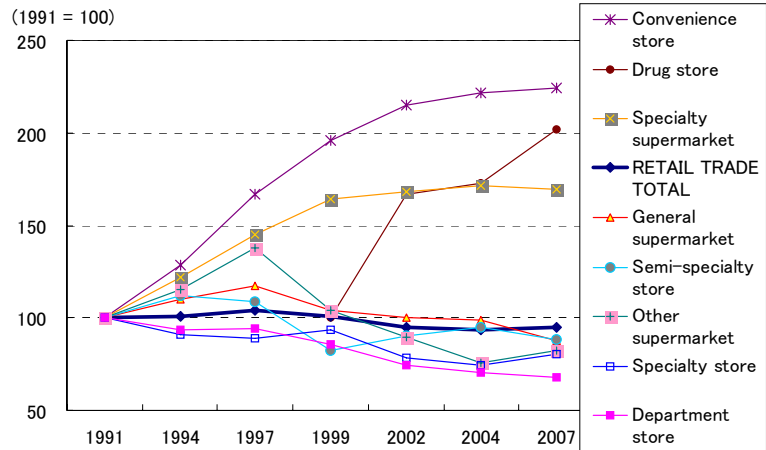
At large-scale general supermarkets, larger sales floor space failed to boost sales revenue. In contrast, medium-scale general supermarkets achieved higher sales by decreasing floor space per establishment while increasing the number of establishments and sales floor productivity.

3. Aging and Household Spending

1. Household Demographics

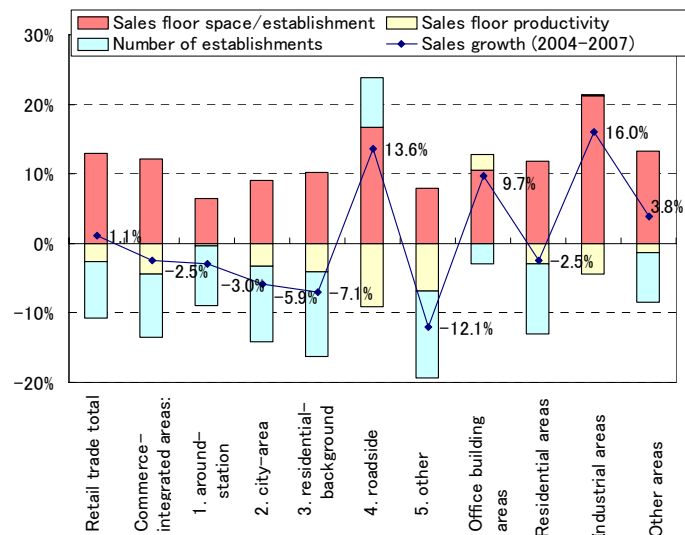
The rapid advance of aging and declining fertility rate are expected to greatly affect the age composition of households. According to projections by the National Institute of Population and Social Security Research, while the total number of households will decline only 1% from 2005 to 2030, households under age 30 (by householder's age) will decrease 33%, and households age 70-or-over will increase 59% (Exhibit 9). As a result, the share of under-30 households will drop by half from 13% in 1985 to 7% in 2030, while the share of 70-and-over households will grow from 8% to 30% (for 60-or-over households, the

Exhibit 6 Retail Trade Sales Growth, by Sales Form



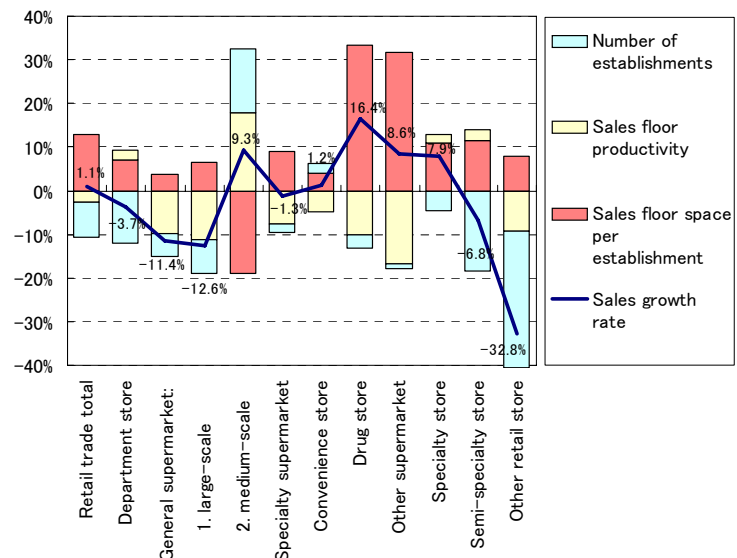
Source: Compiled from METI, *Census of Commerce*.

Exhibit 7 Retail Sales Growth Factors, by Location (2004-2007)



Source: Compiled from METI, *Census of Commerce*.

Exhibit 8 Retail Sales Growth Factors, by Sales Form (2004-2007)



Source: Compiled from METI, *Census of Commerce*.

share will rise from 21% to 49%).

2. Consumption Pattern by Age

According to the *Family Income and Expenditure Survey*, monthly consumption expenditure per household in 2008 peaked at 310,000 yen among age 40-49 and 50-59 households, compared to 200,000 yen among under-30 and 70-or-over households (Exhibit 10). This data suggests that consumption spending increases with age in the 40s and 50s (their spending is 1.5 times that of under-30 households), and subsequently decreases (by 33% from the peak at 70-or-over households).

This peak-out in the 40s and 50s also occurs in many spending categories including food.⁷ The peak is most pronounced in categories such as pocket money (unknown use) and other expenditures (which includes money transfer). Another characteristic is the large spending by younger households on housing, and by older households on medical care.

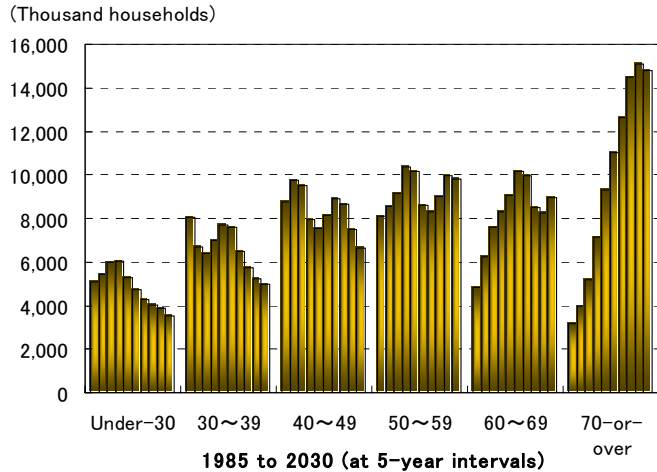
3. Spending of Older Households

To see how aging affects spending by consumption category, below we compare the monthly spending pattern of 70-or-over households with that of 50-59 households (Exhibit 11).

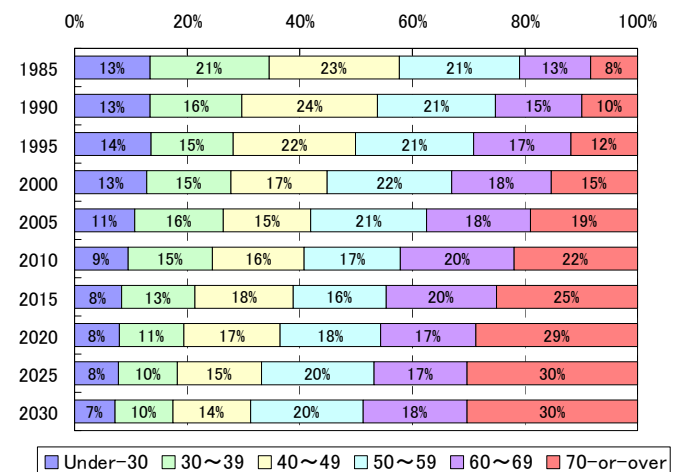
First, we note that monthly consumption expenditure decreases 110,000 yen among 70-or-over households compared to 50-59 households. Second, of the 58 categories covered in the survey, spending increases with age in 9 categories, and decreases in 49 categories.

The largest increase occurs in social expenses (3,800 yen increase), followed by repairs & maintenance and health care. On the other hand, the largest decrease occurs in other consumption expenditure (30,000 yen decrease), followed by transportation and communication, food, money transfer, pocket money, education, and vehicle-related

Exhibit 9 Household Growth Forecast, by Age (1985-2030)

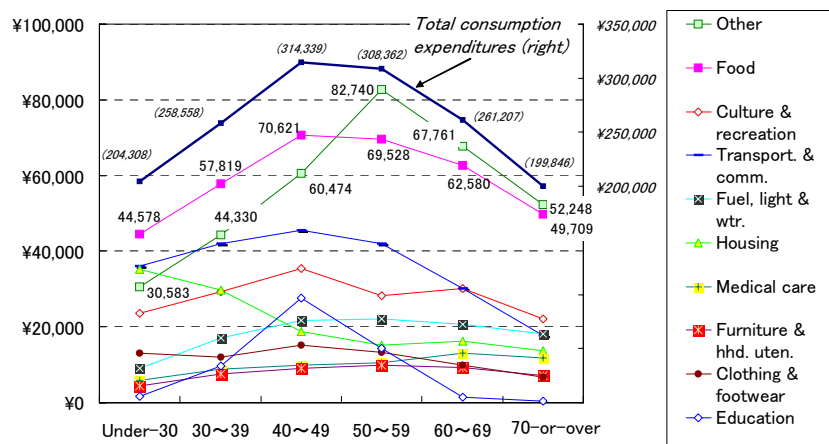


Forecast of Household Composition, by Age



Note: Shows historical data for 1985 to 2005, forecast for 2010 to 2030.
Sources: Compiled from MIC, *National Census*; IPSS, *Household Projections for Japan*, March 2008.

Exhibit 10 Monthly Household Consumption Expenditure, by Age and Spending Category



Source: Compiled from MIC, *Family Income and Expenditure Survey*.

expenses.

Consumption tends to decrease with age primarily due to changes in income and household size. Moreover, as seen from the large spending differences by consumption category, we expect that as households age in the future, spending patterns will also shift by category.

4. Demographic Trends and Consumption Expenditure

As we saw above, demographic trends are predicted to boost the number of older households, while spending per household is predicted to decrease by one-third. Moreover, the impact of aging can vary considerably in some spending categories.

Below we look at how demographic trends will affect consumption expenditure by shifting age composition of the population and households.

1. Secular Decline of Consumption

To estimate the impact of demographic trends on future consumption expenditure, we assume that consumption expenditures per household (by householder's age) remain constant at the present level (2004),⁸ and extrapolate these amounts using the projected number of households (by householder's age) to obtain the total consumption expenditure for the nation.⁹

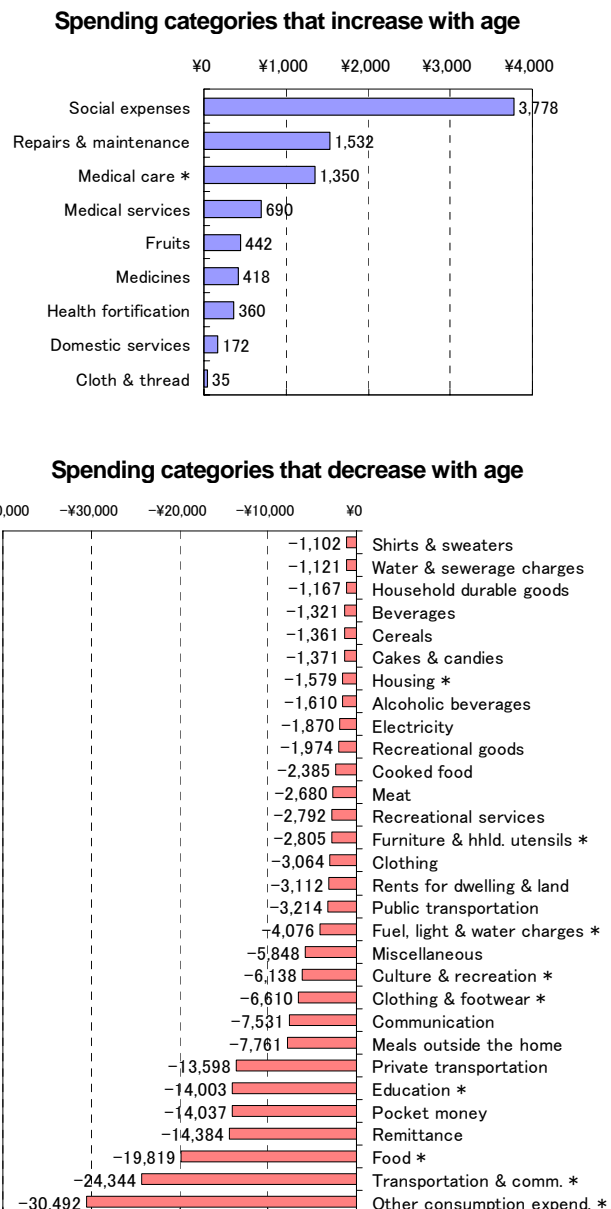
Our results show that compared to 2005, total consumption expenditure increases 1% in 2010, but then gradually decreases to -7% in 2030 (Exhibit 12). These results indicate that aging and the declining fertility rate will have a relatively mild impact on consumption expenditure.¹⁰

By householder's age, spending will grow consistently only among 70-or-over households. After 2010, spending growth will be sporadic among younger households—from 2010 to 2015 for age 40s, 2015 to 2025 for age 50s, and 2025 to 2030 for age 60s. Meanwhile, consumption will persistently slide among households under age 40.

By spending category, we predict total consumption will peak out in 2010 in many categories (Exhibit 13). Moreover, growth from 2005 to the peak will be less than 5%. Categories expected to peak out in 2015 are light, gas & water charges and medical care. By 2025, medical care alone will still exceed the 2005 spending level.

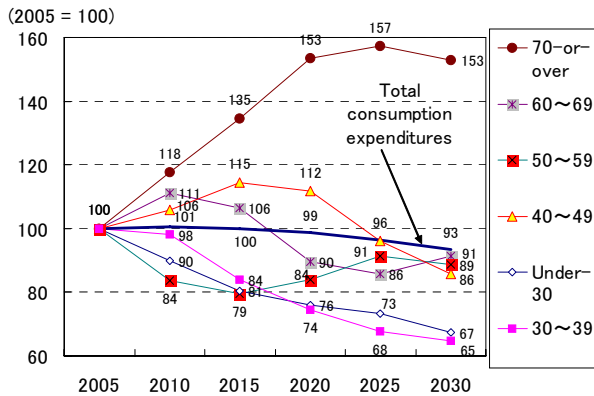
Thus even with the expected spending growth of older households, none of the major consumption categories will grow persistently in the long term. Even medical care, which older households are

Exhibit 11 Spending Categories Most Affected by Aging (difference in monthly spending, 2008)



Notes: Compares consumption expenditures of age 70-or-over households and age 50-59 households by category. In the rankings, major categories are not differentiated from sub-categories (* denotes a major category).
Source: Compiled from MIC, *Family Income and Expenditure Survey*.

Exhibit 12 Forecast of Total Consumption Expenditure, by Age



(2005 = 100)

	2005	2010	2015	2020	2025	2030
Under-30	100	90	81	76	73	67
30~39	100	98	84	74	68	65
40~49	100	106	115	112	96	86
50~59	100	84	79	84	91	89
60~69	100	111	106	90	86	91
70-or-over	100	118	135	153	157	153
TOTAL	100	101	100	99	96	93

Source: Compiled from MIC, *Family Income and Expenditure Survey*.

expected to increasingly consume, will peak out in 2015 at only 4% above the 2005 level.

2. Consumption Growth of One-Person Households

By household size, total consumption expenditure is expected to grow among one-person households, but continue decreasing among two-or-more-person households (Exhibit 14). By 2030, consumption expenditure of one-person households is projected to grow 23% compared to 2005, but to decline 14% among two-or-more-person households.¹¹

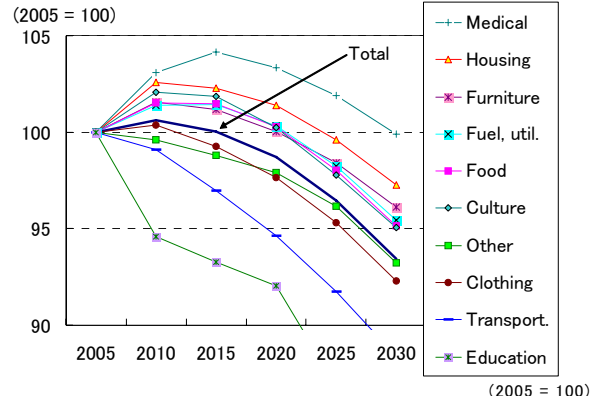
Despite the conspicuous growth of one-person households, an overwhelming 74% share of total consumption expenditure will still be accounted for by two-or-more-person households in 2030 (compared to 80% in 2005).

3. Consumption Forecast by Retail Sales Form

Demographic trends will not only affect total consumption expenditure, but the market share of retail sales forms such as supermarkets, department stores, convenience stores, and drugstores.

In predicting retail sales revenue by sales form, we assume that current market shares will remain constant, and apply these market shares to the projected total consumption expenditures of two core consumption categories with the

Exhibit 13 Forecast of Total Consumption Expenditure, by Spending Category

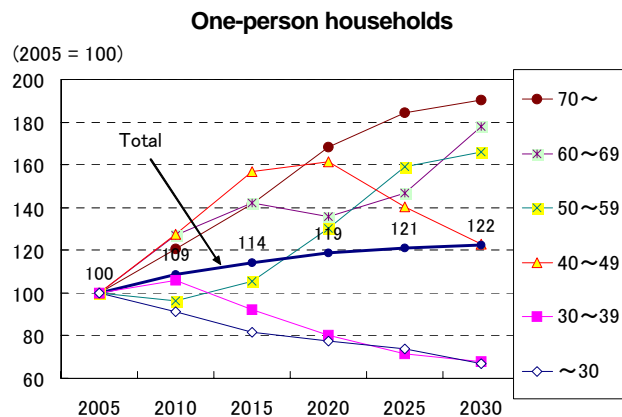
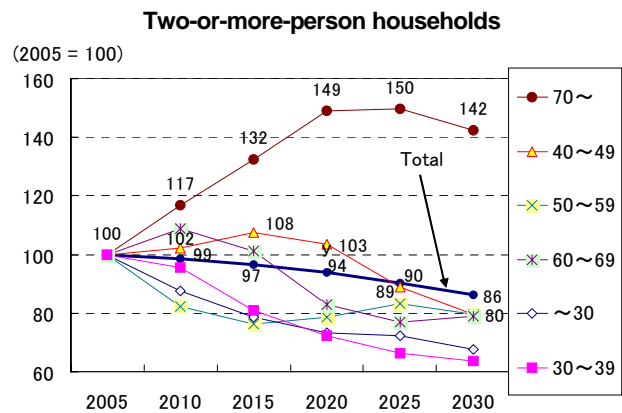


(2005 = 100)

	2005	2010	2015	2020	2025	2030
TOTAL	100	101	100	99	96	93
Food	100	102	101	100	98	95
Housing	100	103	102	101	100	97
Fuel, light & water	100	101	101	100	98	95
Furniture & hhd. uten.	100	102	101	100	98	96
Clothing & footwear	100	100	99	98	95	92
Medical care	100	103	104	103	102	100
Transport. & comun.	100	99	97	95	92	88
Education	100	95	93	92	87	79
Culture & recreation	100	102	102	100	98	95
Other	100	100	99	98	96	93

Source: Forecast by NLI Research Institute.

Exhibit 14 Forecast of Total Consumption Expenditure, by Household Size & Age



Source: Forecast by NLI Research Institute.

highest data capture rates in the *Family Survey*—food and clothing & footwear.

Our results show that department stores will enjoy robust growth of food sales and a minimal decline of clothing & footwear sales. In contrast, relatively large declines are seen in both categories at discount stores (Exhibit 15).

Considering that these results contradict current industry trends, the strengths and limitations of our methodology should be noted.¹²

The retail industry is undergoing significant changes in the composition of sales forms (see Exhibit 6). However, our forecast does not take into account any of the major retail industry trends such as increase of store closings (due to decline of shopping districts and aging of proprietors), emergence of powerful new sales forms (Internet shopping and in-station stores), aggressive entry of corporations into supermarkets and convenience stores, and intensifying competition for market share of older consumers.

Our intention is not to discount the importance of industry trends. Instead, we seek to isolate the impact of household demographic trends on consumption expenditure and retail sales in the long term. One implication of our forecast, for example, is that as demographic trends become more pronounced in the future, department stores can try to offset declining sales by bolstering and expanding their older customer base, while discount stores can seek to remain competitive by retaining their younger customer base as aging progresses.

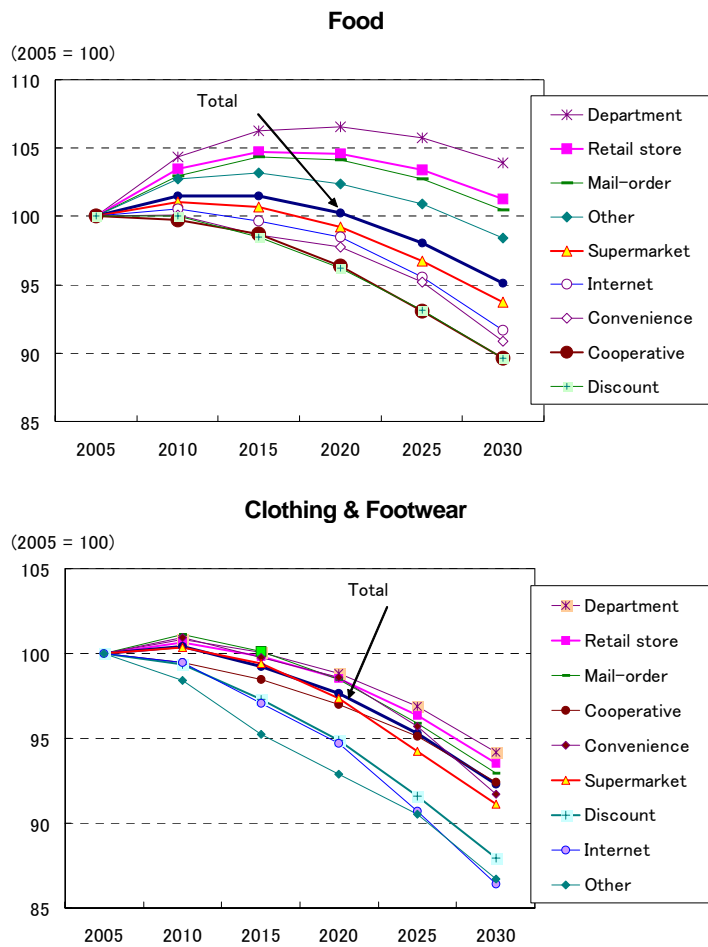
5. Conclusion

To make informed investment decisions on commercial properties, J-REITs need quantitative data on the effect of aging and declining fertility rate on future retail sales. Our aim has been to provide such an estimate using an approach based on household consumption expenditure data.

Our results show that consumption expenditure will only decline 7% from 2005 to 2030. This means that demographic trends will have a limited effect on consumption expenditure. However, we must note that the impact on retailers will not be uniform, and that significant differences are likely to occur based on householder’s age, type of household, and consumption category. Similarly, large disparities will likely occur by region (Exhibit 16).¹³

As a result, we expect increased entries into markets and sales forms where total consumption expenditure is expected to benefit from demographic trends, while competition will intensify in markets and sales forms predicted to contract.

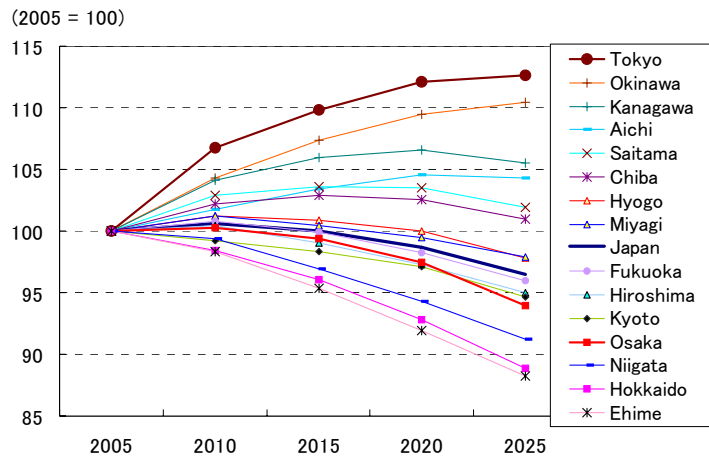
Exhibit 15 Forecast of Total Consumption Expenditure for Food and Clothing & Footwear, by Sales Form



Source: Forecast by NLI Research Institute.

Although our estimates are based on simplified assumptions, we hope they serve as a useful starting point to estimate the effect of aging and declining fertility rate on consumption expenditure and retail trade sales.

Exhibit 16 Forecast of Total Consumption Expenditure, by Prefecture



Source: Forecast by NLI Research Institute.

Endnotes

- For the full-length version of this report (in Japanese), see Kazumasa Takeuchi, *Shoshi-koreika no shohi shishutsu he no eikyo: shogyo shisetsu toshi no kisoteki joken no kosatsu* (Effect of aging and declining fertility rate on consumption expenditure: implications for commercial real estate investment fundamentals), *Real Estate Investment Report*, NLI Research Institute, June 5, 2009. (<http://www.nli-research.co.jp/report/misc/2009/fudo090605.pdf>)
- At a press conference on June 17, 2009, Kaoru Yosano, minister of state for financial services and economic and fiscal policy, stated that “we can strongly infer that the economy has hit bottom.” For details, see *Monthly Economic Report*, Cabinet Office, June 2009.
- The industrial classification of retail trade, general merchandise refers to establishments such as department stores and general supermarkets that sell a variety of goods including clothing, food, and household goods.
- Specialty supermarkets are self-service stores where one category (clothing, food, or household goods) comprises at least 70% of sales. The ratio is at least 90% for specialty stores, and at least 50% for semi-specialty stores.
- Sales revenue growth rate equals the sum of growth rates of number of establishments, sales floor space per establishment, and sales floor productivity.
- Commerce-integrated areas are shopping districts in commercial or near-commercial areas, and consist of five types. Around-station-type commerce-integrated areas are located around JR or private railway stations. City-area-type commerce-integrated areas are located in shopping or office districts in the center of a city. Residential-background-type commerce-integrated areas have a residential district in the background and mainly serve local residents. Roadside-type commerce-integrated areas are located along a national route or major road. Other type of commerce-integrated areas cannot be classified in any of the above categories (shopping districts for tourists, for example). Other categories are office building areas (which are areas that do not classify as near-commercial or commercial areas, residential areas, industrial areas, and other areas (areas that do not match any of the above four major categories).
- Food comprises a relatively constant 22% to 25% share of consumption expenditure in all age groups, and is thus roughly proportional to total consumption expenditure.
- Here we used the *2004 National Survey of Family Income and Expenditure* instead of the *2008 Family Income and Expenditure Survey* because the latter does not tally consumption expenditures by householder’s age, household size, and consumption category.
- To predict total consumption expenditure (by household size, age, and consumption category), we multiplied consumption expenditure per household (by household size, householder’s age, and consumption category) by number of households in each age group as of 2005 (actual value), 2010, 2015, 2020, 2025, and 2030 (projections). The estimate omits the effect of changing economic conditions, and assumes that the composition of consumption by household characteristics remains constant from 2004. In this way, we isolated the effect on consumption of household demographic trends.
- However, since we assume that consumption per household remains constant at 2004 levels for two-or-more-person households, our estimate will likely overshoot if household size decreases as projected. In addition, we omit factors that could significantly affect consumption expenditure such as the income and employment situation and status of the public pension.
- The difference is more pronounced by householder’s age. For two-or-more-person households, total expenditure will increase from 2005 to 2030 only for 70-or-over households. For one-person households, it is expected to increase for all households from age 40 upward.
- The inconsistency with historical trends might be explained by our use of constant 2004 market shares in the forecast. Although we could have chosen to extrapolate past rates of change in market share, doing so would obscure the effect demographic trends, and make the forecast inconsistent with other forecasts in this paper.
- Exhibit 16 shows total consumption expenditure growth estimates from 2005 to 2025 by prefecture. Growth is highest in the Tokyo area (Tokyo, Saitama, Chiba, and Kanagawa), Aichi, and Okinawa, with Tokyo leading at 13%. The results reflect the high projected growth rates of population and number of households in these prefectures.