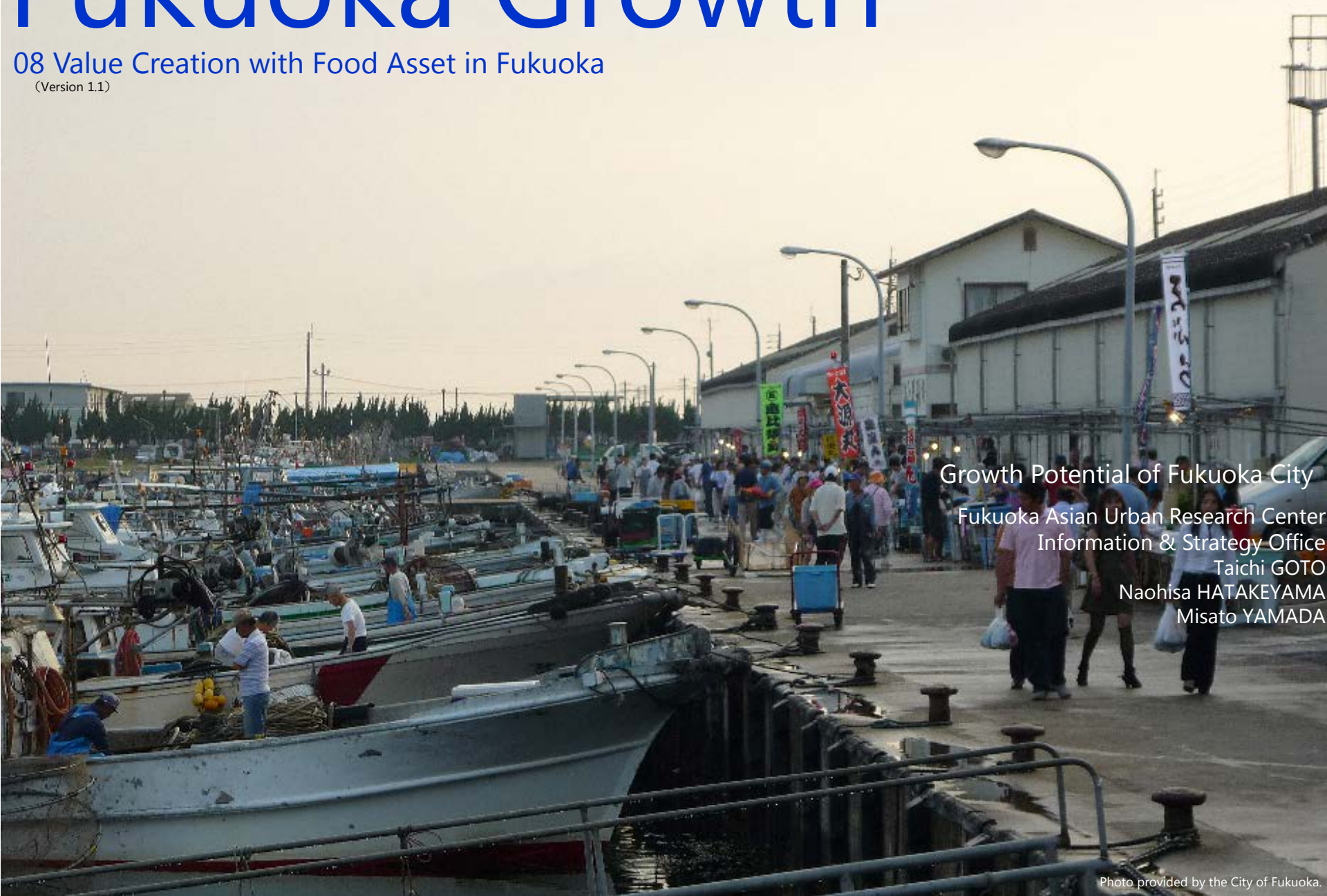


# Fukuoka Growth

08 Value Creation with Food Asset in Fukuoka

(Version 1.1)



Growth Potential of Fukuoka City

Fukuoka Asian Urban Research Center

Information & Strategy Office

Taichi GOTO

Naohisa HATAKEYAMA

Misato YAMADA

The world's "food market" is expected to be doubled over the next 10 years mainly because of the population growth in the developing countries. Japan's growth strategy, "Japan Revitalization Strategy" also includes the reinforced promotion of Japanese diversified "food" such as farm and marine produce.

While the multi-national "food" related enterprises raise their presence in the world, the Japanese consumers show their high interests in the safety of the "food" and strongly prefer products made in Japan. The movement of "local production for local consumption" has spread out all over Japan, and the Japanese consumers tend to focus on the ingredients or the place of production as the added value of the products.

These backgrounds led Japan to establish an industry related to the "food" based on the regional culture and the local distribution system, with the different sense of values in "food" from other part of the world. Fukuoka has created the attractive and diversified food culture supported by many people who make the best use of the variety of food ingredients from all over Kyushu Region.

The industry related to "food" includes not only agriculture, forestry and fishery industries but also processing industry and other service sectors. In Fukuoka City, business in these industries has been major economic activity for a long while.

The range of the related industry is also expanding, for example, the production control with IT, the innovative distribution system, the medical service and the biotechnology.

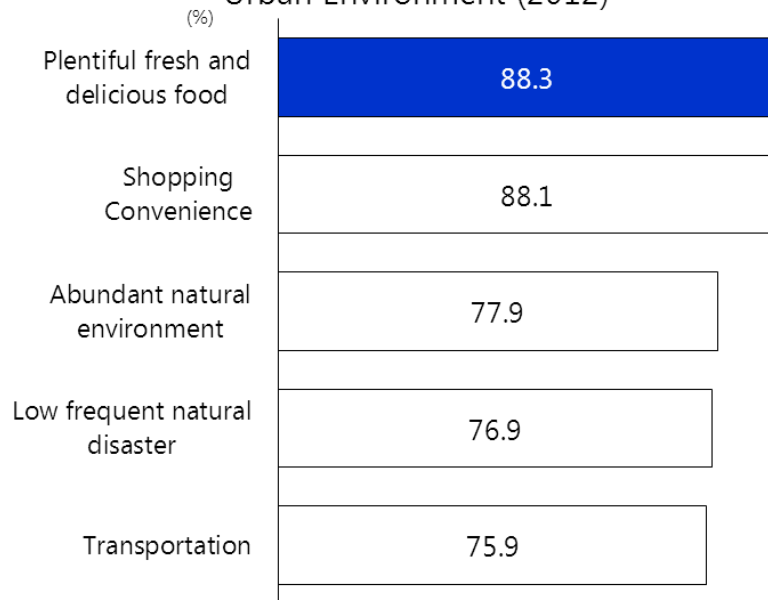
The industry with abundant "food" in Fukuoka City needs to be developed as a pillar of the next generation of sectors. In order to develop the "food" industry, it is necessary to increase the value of produce, products and services and to promote it in the market. The required development includes not only to generate the global "food" supply chain but also to develop high value-added "food" and to attract many people into Fukuoka City.

Fukuoka City has an advantage of being a place of both production and consumption. In the "food" related sector, there are many people with entrepreneurships, and there are many business entries and exits as well. The reason why the citizen's satisfaction on "food" is high can be considered because of these background and advantage. It is needed to increase the opportunities to share the citizen's satisfaction on "food" with Fukuoka City visitors at dining on sightseeing and business.

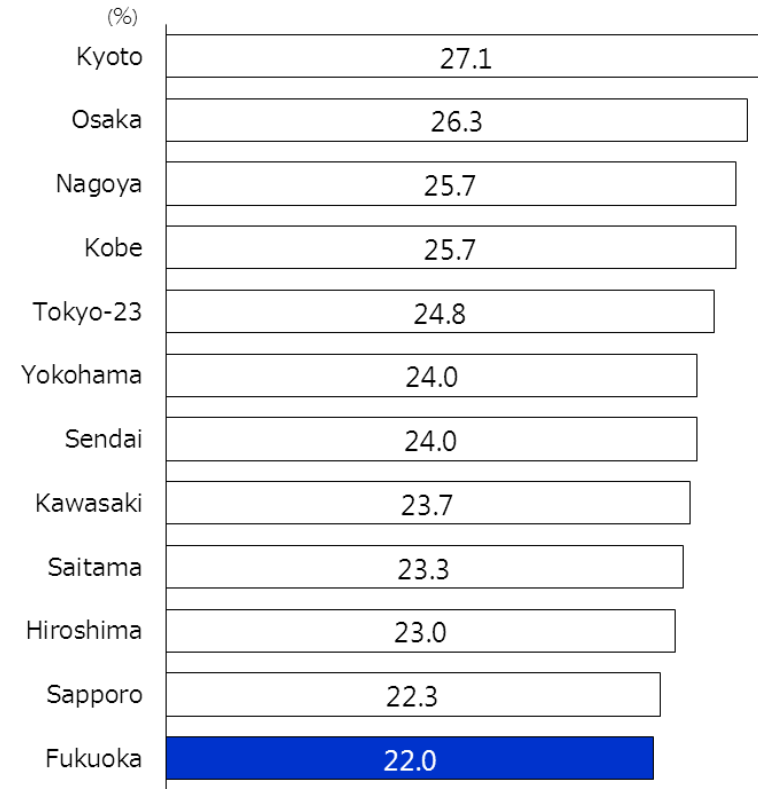
(Naohisa HATAKEYAMA, Information and Strategy Office, Fukuoka Asian Urban Research Center)

# Fukuoka City with abundant “food”.

Top 5 Points of Fukuoka Citizen Satisfaction on Urban Environment (2012)



Engel's Coefficient, Major large cities (AVG 2008-2012)



Fukuoka City has plenty of delicious “food”.

The citizen’s satisfaction on “food” is high, and they can obtain “food” with relatively low expenses.

The city center of Fukuoka is located near ocean and mountains, and it has a two-sided face of production and large-scale consumption. Many people in Fukuoka City have been engaged in the food related services that connect these two sides of face, which enabled the city to develop the rich “food culture” for a long while.

Tokyo-23=Tokyo 23 wards.  
 Note: Major large cities are the cities with more than 1 million population.  
 Sources: Fukuoka City. Public Opinion Poll on Municipal Administration (2012); Ministry of Internal Affairs and Communications. Annual Family Income and Expenditure Survey.

# The lowest price level of food-related expenses among large cities in Japan.

The Retail Price Survey, Major large cities (Annual average prices. 2012)

Tuna YEN per 100g		Horse mackerel YEN per 100g		Beef meat YEN per 100g		Pork loin YEN per 100g		Chicken meat YEN per 100g		Chicken egg YEN per pack		Cabbage YEN per kg		Daikon (Japanese radish) YEN per kg		Apple (Fuji) YEN per kg	
Sendai	465	Kobe	134	Yokohama	866	Kyoto	265	Kobe	146	Saitama	226	Osaka	183	Kobe	187	Kyoto	583
Nagoya	398	Nagoya	129	Kyoto	855	Kobe	259	Osaka	135	Kobe	218	Sapporo	176	Osaka	180	Osaka	576
Tokyo-23	390	Hiroshima	123	Nagoya	797	Hiroshima	254	Saitama	132	Tokyo-23	213	Kobe	172	Kyoto	169	Tokyo-23	573
Yokohama	384	Sapporo	114	Tokyo-23	786	Saitama	251	Kyoto	132	Sendai	210	Tokyo-23	163	Tokyo-23	168	Kobe	569
Kyoto	368	Osaka	108	Saitama	706	Osaka	251	Sendai	129	Yokohama	210	Yokohama	162	Yokohama	165	Nagoya	564
Saitama	342	Tokyo-23	106	Sendai	675	Yokohama	239	Yokohama	128	Osaka	206	Sendai	160	Saitama	161	Sapporo	557
Osaka	332	Yokohama	105	Hiroshima	632	Tokyo-23	237	Tokyo-23	125	Kyoto	203	Saitama	157	Nagoya	160	Yokohama	557
Kobe	325	Sendai	103	Kobe	629	Sendai	236	Hiroshima	121	Hiroshima	198	Kyoto	151	Sendai	159	Saitama	556
Hiroshima	299	Fukuoka	102	Osaka	615	Fukuoka	236	Fukuoka	117	Nagoya	193	Fukuoka	150	Fukuoka	157	Fukuoka	554
Sapporo	279	Kyoto	100	Fukuoka	583	Nagoya	225	Sapporo	106	Fukuoka	193	Nagoya	147	Sapporo	154	Hiroshima	518
Fukuoka	265	Saitama	94	Sapporo	517	Sapporo	205	Nagoya	106	Sapporo	186	Hiroshima	135	Hiroshima	147	Sendai	499

Grapes (Delaware) YEN per kg		Bread YEN per kg		Instant noodle YEN per portion		Miso (soybean paste) YEN per 750g		Green tea YEN per 100g		Chinese noodle YEN per portion		Sushi YEN per person		Curry and rice YEN per portion		Hamburg steak YEN per portion	
Fukuoka	1,401	Saitama	476	Tokyo-23	144	Kobe	379	Saitama	627	Sapporo	608	Kyoto	1,389	Hiroshima	726	Saitama	1,117
Kobe	1,378	Osaka	473	Hiroshima	143	Kyoto	378	Tokyo-23	610	Hiroshima	588	Saitama	1,305	Tokyo-23	720	Kyoto	1,052
Sapporo	1,361	Yokohama	443	Sapporo	142	Hiroshima	363	Sapporo	609	Tokyo-23	587	Tokyo-23	1,284	Kyoto	697	Tokyo-23	973
Nagoya	1,324	Hiroshima	435	Kobe	141	Osaka	355	Yokohama	608	Nagoya	579	Fukuoka	1,248	Saitama	670	Yokohama	890
Osaka	1,292	Kobe	434	Osaka	138	Tokyo-23	349	Sendai	557	Kyoto	567	Hiroshima	1,220	Yokohama	653	Sapporo	874
Yokohama	1,270	Tokyo-23	429	Saitama	137	Yokohama	339	Nagoya	534	Sendai	548	Yokohama	1,175	Kobe	644	Osaka	847
Tokyo-23	1,260	Kyoto	429	Yokohama	137	Nagoya	331	Osaka	516	Yokohama	527	Nagoya	1,100	Nagoya	638	Nagoya	841
Sendai	1,196	Nagoya	421	Nagoya	137	Sendai	318	Kobe	511	Osaka	523	Osaka	1,077	Sendai	621	Sendai	828
Saitama	1,196	Sapporo	381	Kyoto	137	Sapporo	310	Hiroshima	494	Saitama	520	Sapporo	1,000	Osaka	561	Hiroshima	805
Kyoto	1,189	Sendai	355	Sendai	132	Saitama	294	Fukuoka	401	Kobe	513	Sendai	918	Sapporo	478	Kobe	801
Hiroshima	1,120	Fukuoka	329	Fukuoka	132	Fukuoka	293	Kyoto	392	Fukuoka	505	Kobe	915	Fukuoka	477	Fukuoka	787

The food retail price in Fukuoka is relatively low in Fukuoka City.  
It is because of the proximity to the production district of meat and vegetables.

Tokyo-23=Tokyo 23 wards.

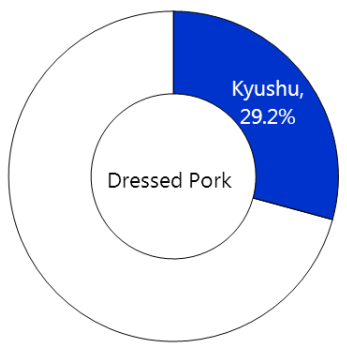
Note: Major large cities are the cities with more than 1 million population.

Source: Statistic Bureau, Ministry of Internal Affairs and Communications. Retail Price Survey(2012).

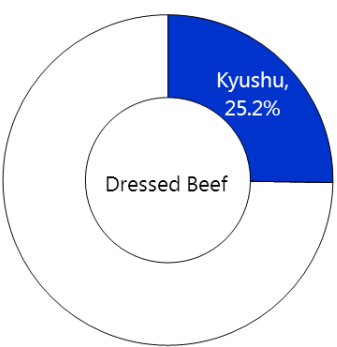
# Kyushu Region supports Japan as a food production base.

## - Supported by Food in Kyushu Region -

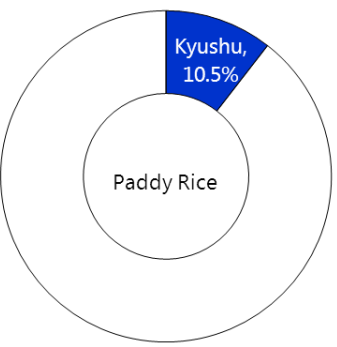
Domestic Share of Dressed Pork in Kyushu (2012)



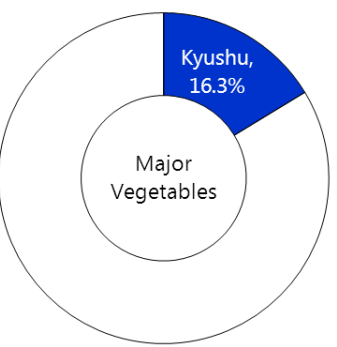
Domestic Share of Dressed Beef in Kyushu (2012)



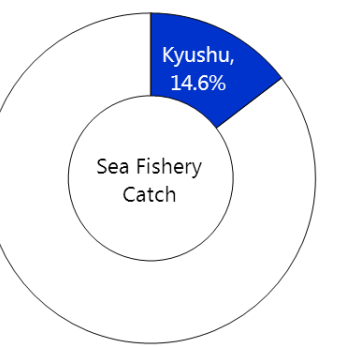
Domestic Share of Harvested Paddy Rice in Kyushu (2012)



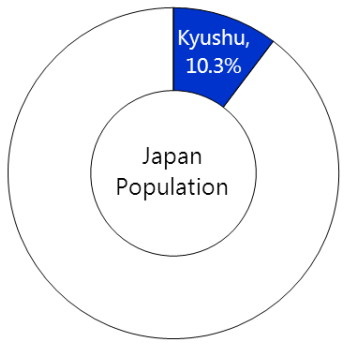
Domestic Share of Shipped Major Vegetables in Kyushu (2012)



Domestic Share of Sea Fishery Catch in Kyushu (2012)



\*Domestic Share of Population in Kyushu (2012)



Eating is essential for life, and "food" is literally a "lifeline".  
 Due to the innovative distribution technology and the substantial high speed transportation network, people in Fukuoka City can purchase the plentiful farm and marine produce of Kyushu Region while they are still fresh.

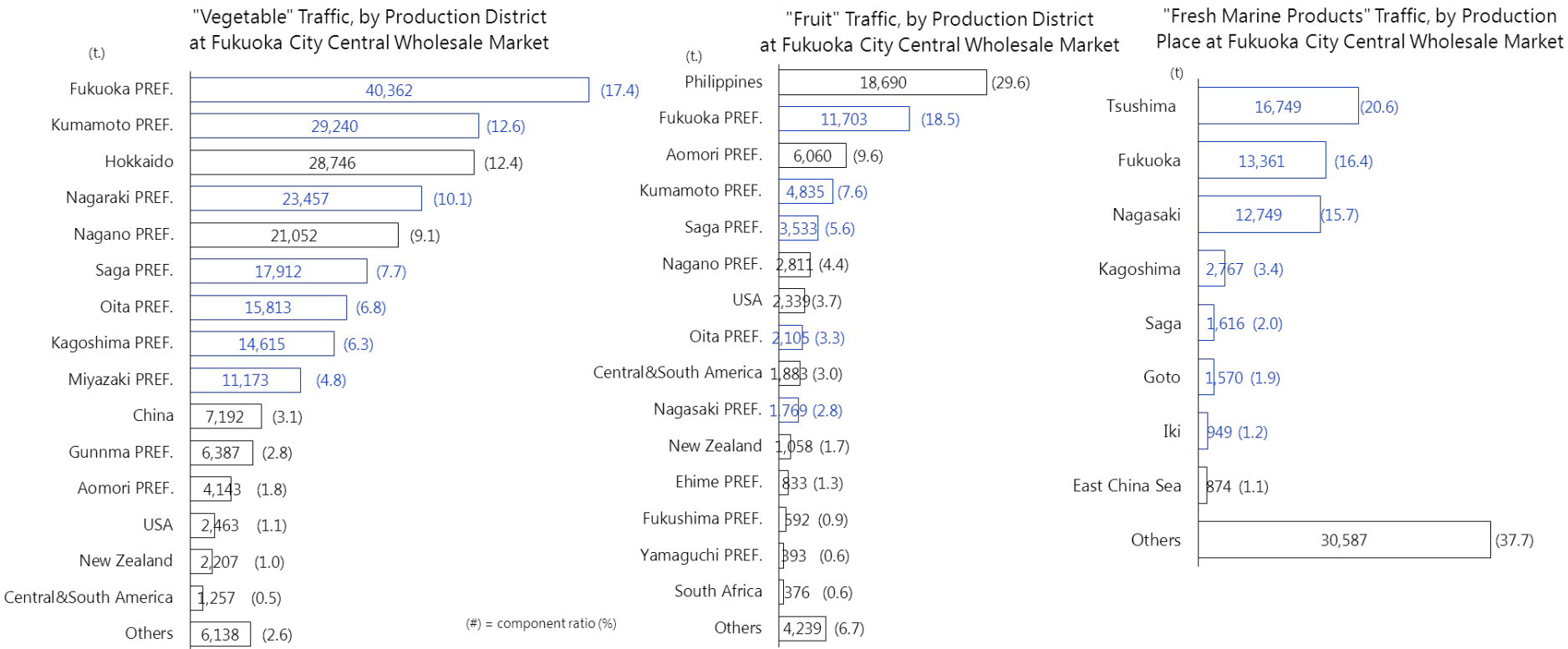
Tokyo-23=Tokyo 23 wards.

Note: Major large cities are the cities with more than 1 million population. Major vegetables are total shipments of Radish, carrot, potato, taro, Chinese cabbage, cabbage, spinach, lettuce, green onion, onion, cucumber, eggplant, tomatoes, green peppers.

Sources: Ministry of Agriculture, Forestry and Fisheries. Market Statistics of Animal Products, Farm Produce, and Marine Produce; Statistic Bureau, Ministry of Internal Affairs and Communications. Estimated Population (October 1, 2012).



# Food ingredients all over from Kyushu Region gather to Fukuoka City.



The good quality farm and marine produce in Kyushu Region are highly evaluated in Japan. Most of these produce get immediately delivered to Fukuoka City which is the closest large-scale consumption area. Besides for the domestic consumption, the safe and high quality food in Kyushu Region can be expected to be exported to other Asian countries where the needs for the food safety are rising as the income level grows.

The food ingredients produced in Kyushu Region are also delivered to Fukuoka City. The high value of these food ingredients should be promoted from Fukuoka City not only domestically but also internationally.

PREF.=Prefecture.

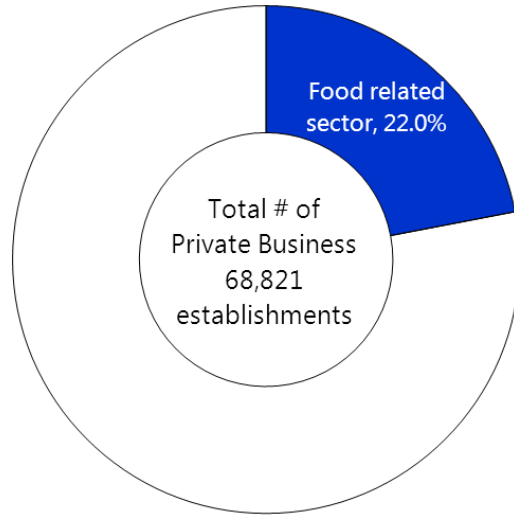
Note: Major large cities are the cities with more than 1 million population.

Source: Central Wholesale Market fruit and vegetable market, Agriculture, Forestry and Fisheries Bureau, Fukuoka City (2011).

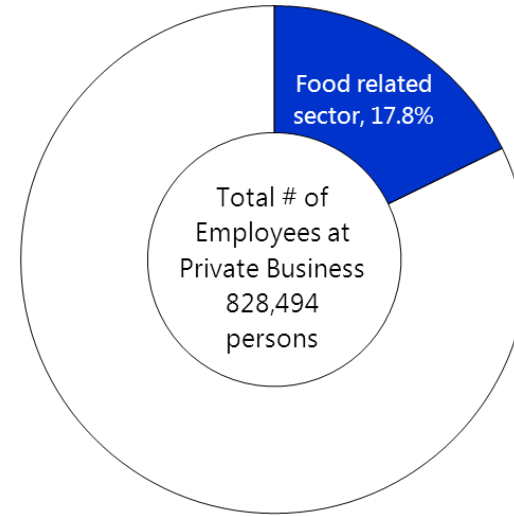
# Industrial and cultural development by making the best use of the plentiful food ingredients.

## - People and Techniques Transforming Abundant Food Ingredients to Satisfaction -

Food Related Business Share among Private Business in Fukuoka City (2012)



Food Related Employee Share of Private Business in Fukuoka City (2012)



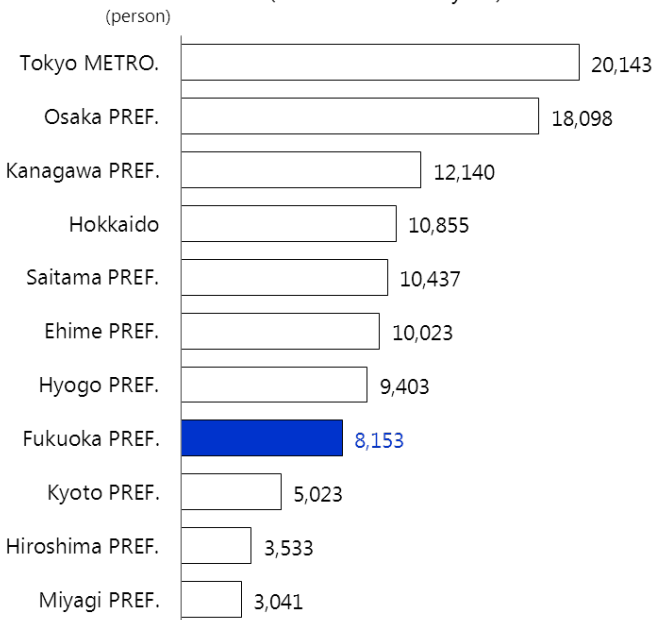
Fukuoka City has knowledge and techniques of people who add values to the food ingredients delivered to the city.

The reason why the Fukuoka citizen's satisfaction on "food" is high is because the food costs in the city is relatively low and they also have a variety of choices of good food provided by many people who are engaged in the services and techniques which raise the value of food ingredients.

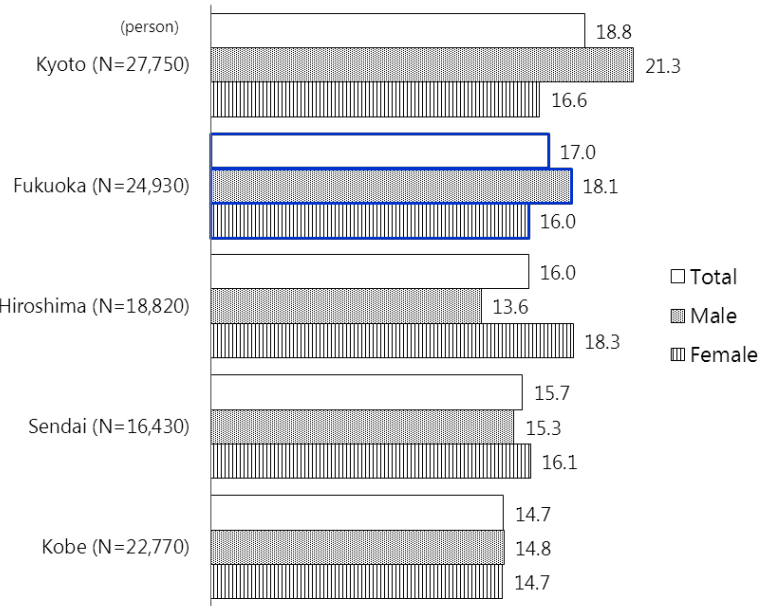
Fukuoka City has a culture that transforms the food into "pleasure" and "satisfaction" for a very long time.

# The number of chefs is constantly increasing.

Number of Chef License Issued, by Major Prefectures (2007-2011 fiscal year)



Number of Chef per 1,000 Population, by Gender, Large Cities (2010)



The number of chefs in Fukuoka City is large. The number of chefs per capita is the second largest following Kyoto City among large cities which have officially announced the data. There are many culinary schools with a variety of courses opened in Fukuoka City. One of these school graduates have granted a star in the Michelin Guide (France); Mr. Masafumi Hamano, a graduate from Nakamura Culinary School.

Major Culinary Schools in Fukuoka City

Name of School	Department	Ward	Years Required for Graduation
Aso Foreign Language Tourism and Patisserie College	Confectionery	Hakata	2
Kyushu Institute of Tourism	Café & Sweets		2
Vocational School Fukuoka Visionary Arts	Food Creation		2
Fukuoka School of Culinary Arts	Cooking		2
	Confectionery & Baking		2
	Café General		2
Nakamura Culinary School	Cooking	Chuo	2 or 1
	Confectionery Hygienist		1
	Confectionery Skill		2
Fukuoka Culinary Academy	Cooking	Minami	1.5
Totani Culinary School	Cooking		1.5

PREF.=Prefecture.  
 Note: Major prefectures are the prefectures with large cities with more than 1 million population. Data for Miyagi Prefecture is the total data between 2006 and 2011 due to lack of data in 2010.  
 Sources: Ministry of Health, Labour and Welfare. Health Administration Report; Statistic Bureau, Ministry of Internal Affairs and Communications. National Census (2010); Fukuoka Prefecture. List of schools.



# Food related research institutions in Fukuoka City.

In Fukuoka City, there are many food related research institutions where a variety of research on food is conducted.

## List of Major Food Research Institutions in Fukuoka City

Name of Institution	Category of Ingredients	Functional Ingredient	Research Field
Kyushu University	Grain, tea, other farm products	Peptide, polyphenols, fragrance ingredient	Functional component analysis, circulatory system adjustment function, digestion and absorption system adjustment function, functional food development
Kyushu University	Milk, vegetables, fruit, potatoes, other farm products	Fragrance ingredient	Others
Kyushu University	Carnivores, milk, eggs, vegetables, fruit, beans, other farm products, oils and fats	Protein, lipids, steroids	Immune system adjustment function, circulatory system adjustment function, metabolic regulation function, digestion and absorption system control function
Kyushu University	Carnivores, milk, eggs, fish, algae, vegetables, fruits, grains, beans, tea, mushrooms, oils and fats, food additives, microorganisms	Protein, amino acids, peptides, lipids, steroids, carbohydrates, polyphenols, carotenoids, vitamin-like substance, sulfur-containing compounds, organic acids	Functional component analysis, immune system adjustment function, circulatory system adjustment function, metabolic regulation function, anti-allergic, anti-inflammatory function, antioxidant, anti-aging function, anti-cancer function, functional food development
Kyushu University	Animal products such as meat, eggs and other fats and oils	Proteins, amino acids, peptides, lipids	Functional component analysis, brain and nervous system control function, metabolic adjustment function, functional food development, others
Kyushu University	Animal products such as meat, milk, and other algae, mushrooms	Proteins, amino acids, peptides, lipids, carbohydrates	Functional component analysis, immune system adjustment function, brain and nervous system control function, metabolic regulation function, digestion and absorption system adjustment function, anti-allergic, anti-inflammatory function, antioxidant function, anti-aging function, anti-cancer function, function food development
Kyushu University	Milk, eggs, algae, vegetables, fruit, tea, other farm products, oils and fats, food additives	Proteins, peptides, lipids, carbohydrates, polyphenols, carotenoids, vitamin-like substance	Functional component analysis, immune system adjustment function, circulatory system adjustment function, metabolic regulation function, digestion and absorption system adjustment function, anti-allergic, anti-inflammatory function, antioxidant, anti-aging function, anti-cancer function, functional Food Development
Fukuoka Women's University		Vitamin-like substance	Brain and nervous system control function
Nakamura Gakuen University	Fruit	Polyphenols	Functional component analysis, antioxidant function
Kyushu Nutrition Welfare	Animal products such as meat,	Others	Functional food development

### List of Major Food Manufacturing Fundamental Technology in Fukuoka City

Name of Institution	Owned Fundamental Technology	Category of Food Materials (Includes processed products)
Kyushu University	<ul style="list-style-type: none"> <li>● Distribution</li> <li>Storage, traceability</li> <li>● physical property, analysis, and evaluation</li> <li>Food analysis</li> </ul>	
Kyushu University	<ul style="list-style-type: none"> <li>● Pretreatment</li> <li>Washing, dipping</li> <li>● Distribution</li> <li>Storage, transportation environmental analysis</li> <li>● Sterilization</li> <li>Heating, electromagnetic wave</li> </ul>	Vegetables, fruits, grains, beans
Kyushu University	<ul style="list-style-type: none"> <li>● Enrichment and pulverized</li> <li>Membrane treatment, filtration, freezing, evaporation, distillation, or decrease the pressure</li> <li>● Enzyme-microbe-reaction</li> <li>Enzymes, microorganisms, fermentation</li> <li>● Sterilization</li> <li>Heating</li> </ul>	Carnivores, milk, other farm products, algae
Kyushu University	<ul style="list-style-type: none"> <li>● Pretreatment</li> <li>Drying</li> <li>● Distribution</li> <li>Storage, packaging</li> <li>● Sterilization</li> <li>Electromagnetic wave</li> </ul>	
Nakamura Gakuen	<ul style="list-style-type: none"> <li>● Enzyme-microbe-reaction</li> <li>Enzyme</li> </ul>	Fruit

# The 6<sup>th</sup> industrialization\* of agriculture, expanding the range of food related industry.

## New Collaboration of Food Industry and Different Type of Industries in "Japan Revitalization Strategy" (The 6<sup>th</sup> Industrialization)

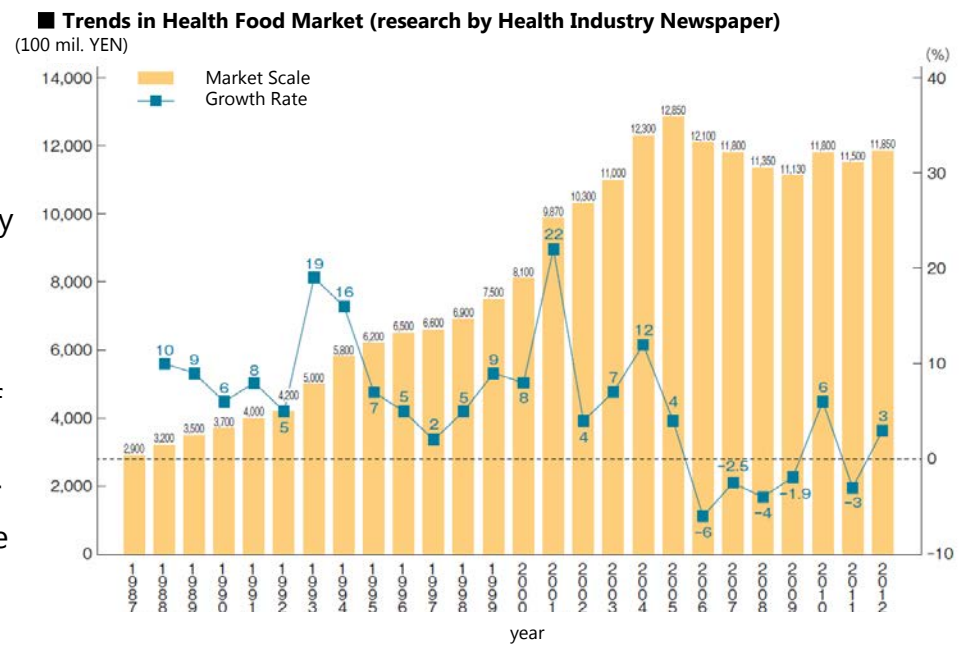
- ① Practical use of A-FIVE (Agriculture, forestry and fisheries Fund corporation for Innovation, Value-chain and Expansion Japan)
- ② Collaboration with medical care business
- ③ Development of new breed and new technology, IPR Protection
- ④ Expansion of farm and marine produce consumption by model area development
- ⑤ Practical use of renewable energy in rural areas

\*The term "the 6th industrialization" refers to the vertical integration of primary (agriculture, forestry and fisheries), secondary and tertiary industries (1 x 2 x 3=6).

The food related industry has connections with a variety of sectors.

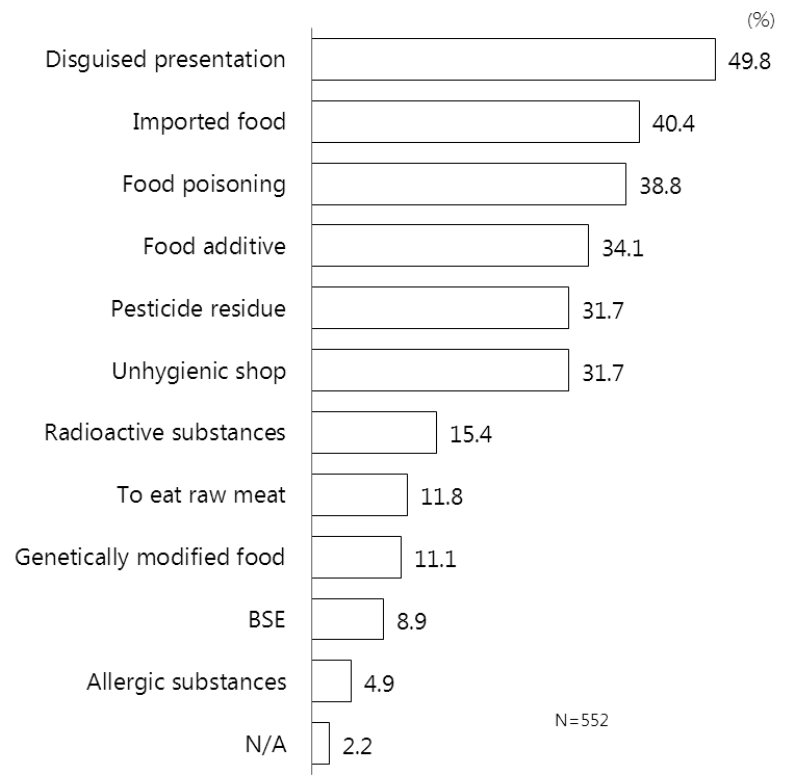
The Japan Revitalization Strategy aims to expand the new potentials of the food related industry by collaboration with agriculture, forestry, fishery, manufacturing, service sectors, and by technical innovation, and also by research and development. Additionally, "food" has been considered to be related to health and medical care since a long time ago, and recently the food companies have more opportunities to get involved in the field of biotechnology than ever before.

The health food market has also grown stronger as the mail order market expands due to the internet usage growth. There are some nationally recognized health food companies and cosmetic companies established in Fukuoka.

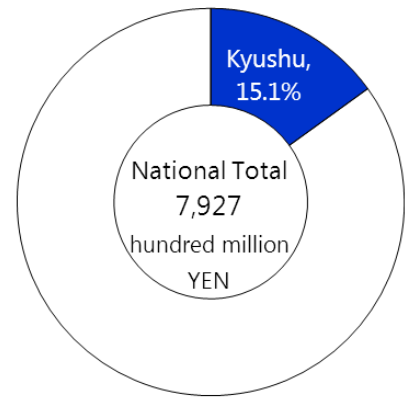


# Rising consumer needs for "Food Safety and Security".

Fukuoka Citizens; What do you feel uneasy on "Food"? (2012)



Domestic Share of Sales at Farmers' Market in Kyushu Region (2011 F.Y.)



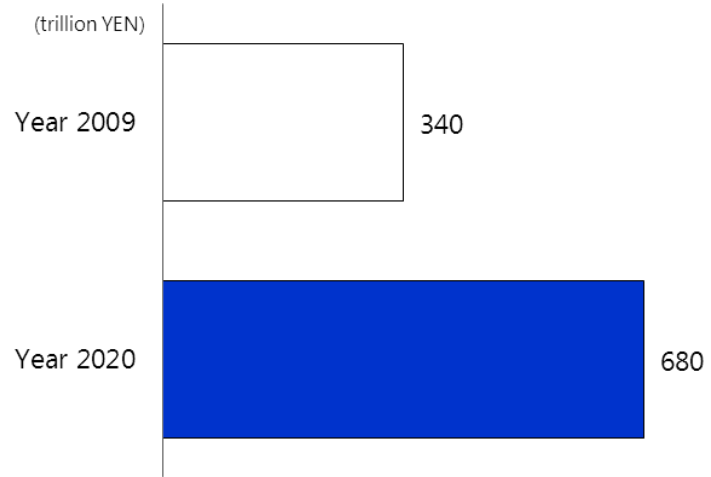
The level of Fukuoka citizen's interest in the safety food is still high, and many of them are worried about the disguised presentation and the imported food.

The value of the domestic food ingredients has risen, and as the phrase "local production for local consumption" has spread out, the "local food"-consciousness has also risen. The concept of farmer's market became popular, and the scale of its market has already become hundreds of billion YEN.

F.Y.=Fiscal Year.  
Sources: Fukuoka City. Citizen's Survey on Food Safety and Security (2012); Ministry of Agriculture, Forestry and Fisheries. Comprehensive Research Report on the 6th Industrialization of Agriculture and Rural District.

# Marketing Fukuoka to the expanding worldwide food market.

Projection of Expanding Food Market in the World



In Japan, the consumer needs for the safety food and the “local production for local consumption” are increasing, but how about in the global food market? “Food market” in the world is expected to grow twice as large as the current scale by 2020, due to the population growth and the expenditure increase. The multi-national food companies have already focused on the worldwide growth markets by providing borderless products and services, with more than \$30 billion of sales and profits, such as Nestlé S.A.

While, in contrast, specialization of wholesale and retail has already established for a long time in Japan. The domestic share of Japanese top-ranked retail companies is low, and there are many local food companies and retail shops.

In Fukuoka City, there are many industries related to “food”, including production, processing, distribution, service, and research & development. Unlike the standardized food in the world market, the needs for the “food” with safety and added value are expected to grow globally. It is important to promote the value of Kyushu Region “food” from Fukuoka to the world.

World’s Top Food Enterprises with Sales (2008 F.Y.)

順位	企業名	国名	売上高		営業利益		主製品
			金額	伸率	金額	伸率	
1	Nestle S.A.	Switzerland	103,313	1.2	14,735	4.3	総合、飲料
2	Procter & Gamble Co.	USA	79,029	▲3.4	16,123	▲3.1	総合、洗剤
3	Japan Tobacco Inc.	Japan	75,914	6.5	4,042	▲15.6	総合、タバコ
4	Archer Daniels Midland, NYSE	USA	69,207	▲0.9	2,453	▲28.8	穀物加工、グロサリー
5	Unilever N.V./Unilever PLC	UK/Nederland	55,353	▲1.7	6,977	▲30.0	総合、洗剤
6	British American Tobacco Plc	UK	48,846	29.3	5,352	84.2	タバコ
7	Pepsico Inc.	USA	43,251	9.5	8,475	5.6	総合、飲料
8	Kraft Foods Inc.	USA	42,201	16.7	3,817	▲3.8	総合、乳製品
9	Anheuser-Busch InBev	Belgium	39,000	na	na	na	ビール
10	Coca-Cola Co.	USA	31,944	10.7	8,446	26.4	飲料
14	Kirin Holdings	Japan	25,595	27.8	1,622	21.0	ビール
20	Suntory Ltd.	Japan	16,811	1.2	903	8.0	酒類
21	Asahi Breweries, Ltd.	Japan	16,253	▲0.1	1,050	8.6	ビール
25	Ajinomoto Co., Inc.	Japan	13,226	▲2.2	454	▲32.6	総合
30	Nippon Meat Packers, Inc.	Japan	11,427	▲0.4	238	22.4	食肉加工
35	Maruha Nichiro Holdings	Japan	9,971	6.2	173	19.4	水産物ほか
37	Yamazaki Baking Co., Ltd.	Japan	9,019	4.9	287	25.1	パン、菓子
39	Meiji Holdings	Japan	7,904	0.6	156	na	乳製品、菓子
45	Morinaga Milk Industry Co., Ltd	Japan	6,488	▲0.6	128	47.5	乳製品
46	Nippon Suisan Kaisha, Ltd.	Japan	5,613	▲5.4	35	▲56.4	水産物ほか
47	Itoham Foods, Inc.	Japan	5,412	▲6.0	▲27	nc	食肉加工

注：\*は推定、naは不明、ncは前期または今期が赤字で算出不能。

Source: Ministry of Agriculture, Forestry and Fisheries. “Future Vision of Food Industry”(tentative title) reference paper.

## Domestic Share of Top 3 Retail Companies, by Country

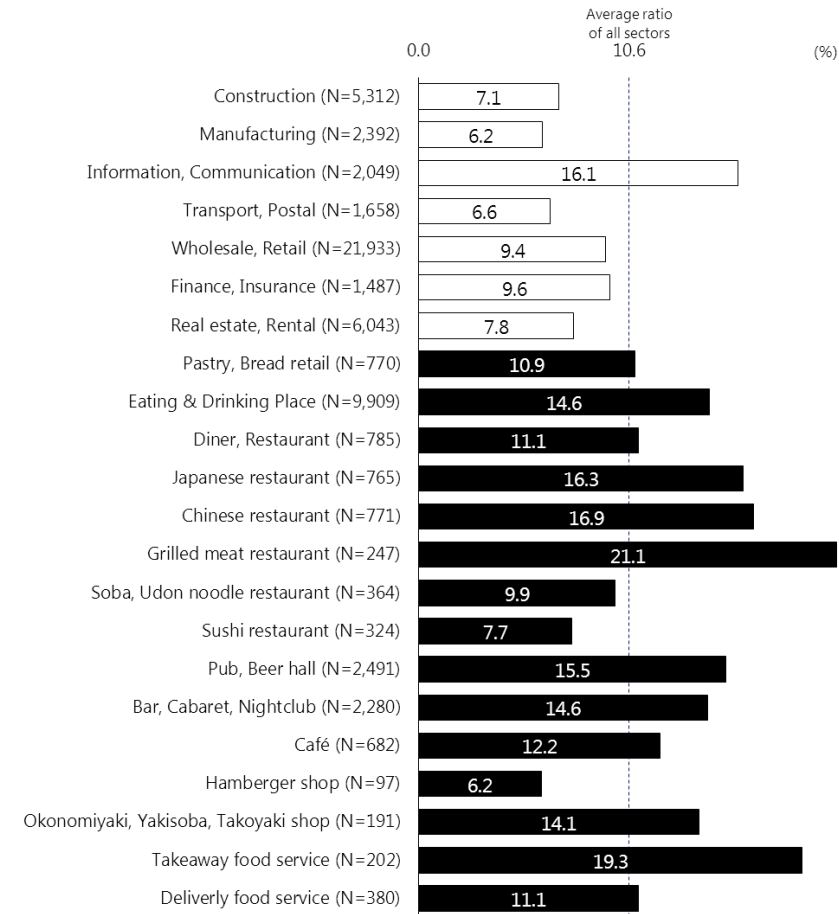
- USA ... 20-30%
- UK・Germany ... 50-60%
- France ... more than 60%
- Japan ... approx. 10%

Source for figure on top left: Ministry of Agriculture, Forestry and Fisheries. Worldwide Food Market Projection.

Source for figure on bottom right: Mizuho Corporate Bank, Ltd. “国際的に見たわが国食品産業の実態と今後の戦略(True Facts and Strategy of Food Industry from International Point of View)” (2010).

# Increasing startups with "food" to develop the next generation of food culture.

Ratio of Newly Established Food Business in Fukuoka City, by sectors (2009)



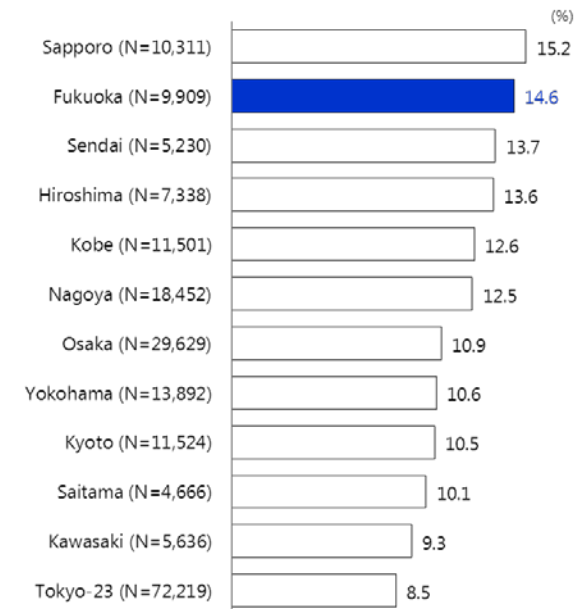
In the "food" related industry, especially in the eating & drinking place business, the ratio of newly established business is higher, compared to other industries. It shows that the industry has many new challenges. The ratio of newly established restaurants in Fukuoka City is domestically high.

In the industry of "food" which is an essential to people from a long time ago, new businesses continue to be established.

It indicates that the food business in Fukuoka City continues to generate new value constantly in order to adjust the change of people's preference on "food" and lifestyle.

Fukuoka City has a "historical culture to enjoy food", and the larger number of people with entrepreneurship in the food industry more than the IT industry. The challenges of these entrepreneurs are raising the level of citizen's satisfaction on "food".

Ratio of Newly Established Restaurants, Major large cities (2009)



Tokyo-23=Tokyo 23 wards.

Note: Major large cities are the cities with more than 1 million population.

Source: Statistic Bureau, Ministry of Internal Affairs and Communications. Economic Census for Business Frame (2009).