Transition Analyses on Landuse and Land-price in Nagoya CBD during the deregulation decade

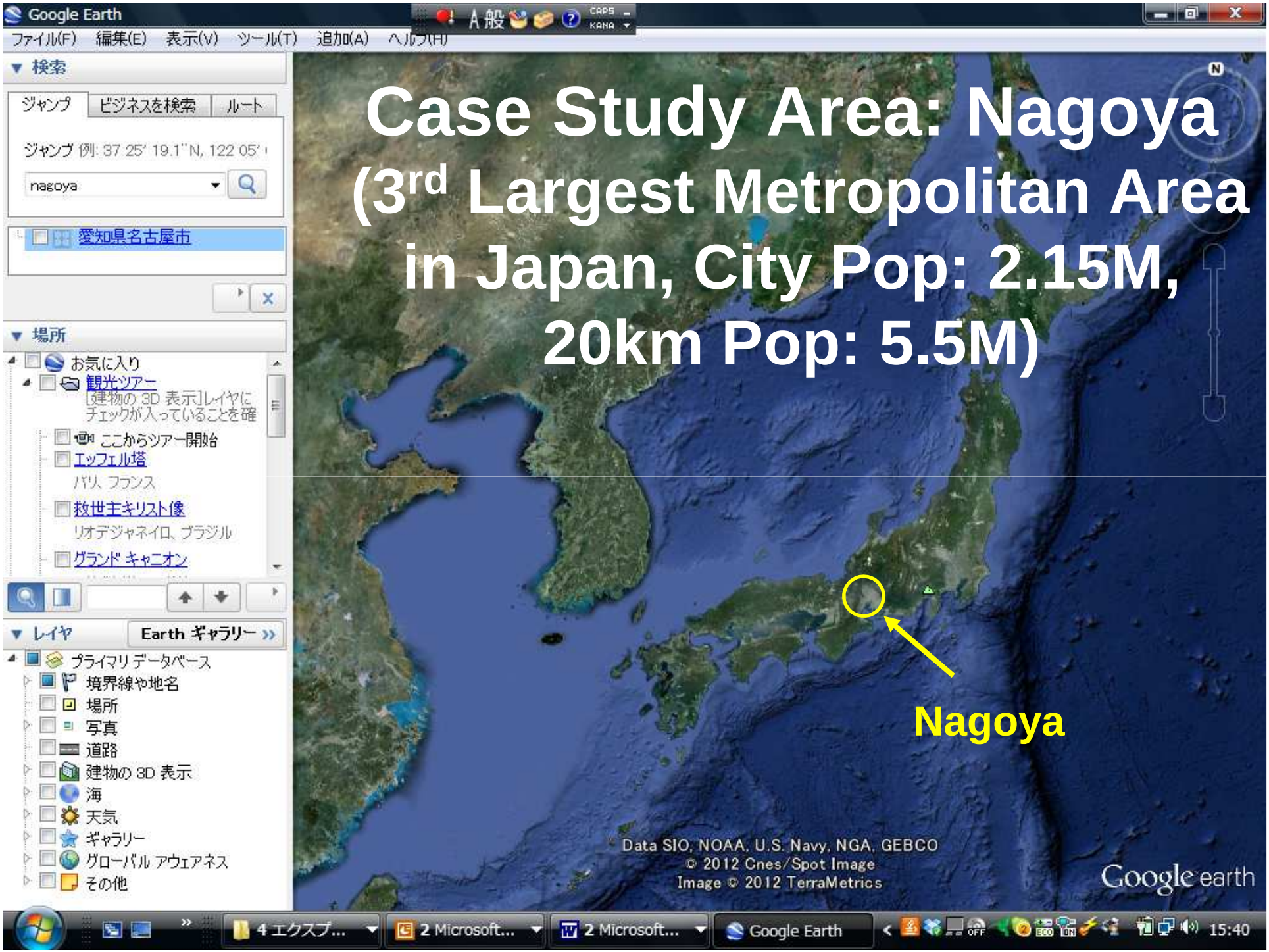
Toshiyuki KANEDA Dr.Eng.
(Nagoya Institute of Technology),
Tomohiko MISAKA, Dr.Eng.
(Misaka Achitect Office)
Tatsunori SAKAI,
(Nagoya CIty Office)

Deregulation Policies in CBD

- United States: From the 80’s
- United Kingdom: From the 80’s
- Japan: From the 00’s

⇒ Introducing much more ‘market mechanism’ inside CBD

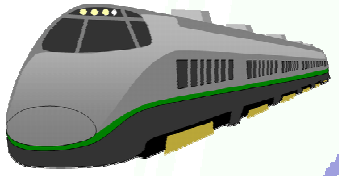
⇒ Retrospective Analyses are required by ‘decade-scale’ changes of land use and prices

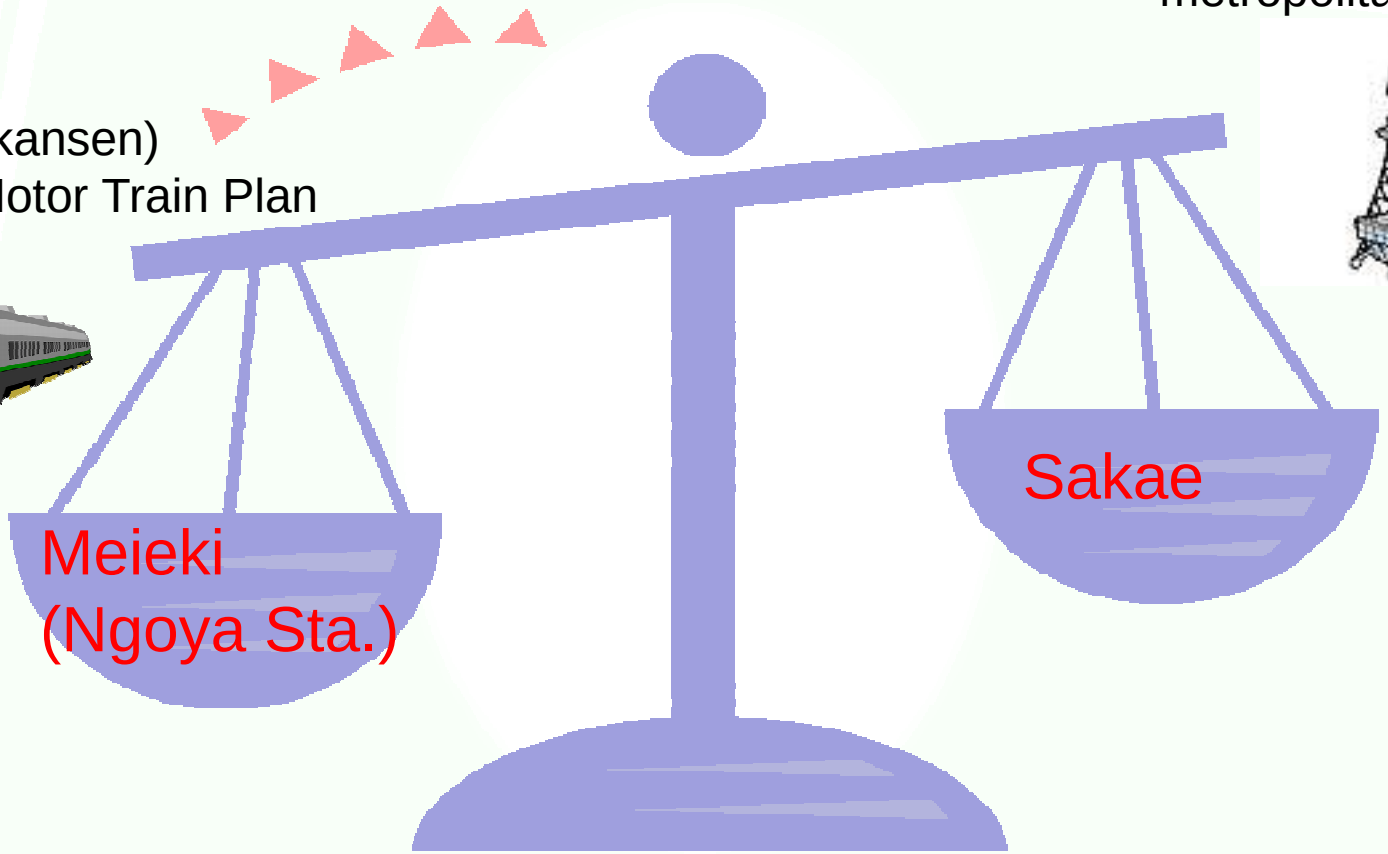

Google Earth
ファイル(F) 編集(E) 表示(V) ツール(T) 追加(A) ヘルプ(H)
検索
ジャンプ
ビジネスを検索
ルート
ジャンプ 例: 37 25' 19.1" N, 122 05'
nagoya
愛知県名古屋市
場所
お気に入り
観光ツアー
[建物の 3D 表示]レイヤにチェックが入っていることを確
ここからツアー開始
エッフェル塔
パリ、フランス
救世主キリスト像
リオデジャネイロ、ブラジル
グランド キャニオン
レイヤ
Earth ギャラリー
プライマリ データベース
境界線や地名
場所
写真
道路
建物の 3D 表示
海
天気
ギャラリー
グローバル アウェアネス
その他
Case Study Area: Nagoya
(3rd Largest Metropolitan Area
in Japan, City Pop: 2.15M,
20km Pop: 5.5M)
Nagoya
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2012 Cnes/Spot Image
Image © 2012 TerraMetrics
Google earth
4 エクスプ...
2 Microsoft...
2 Microsoft...
Google Earth
15:40

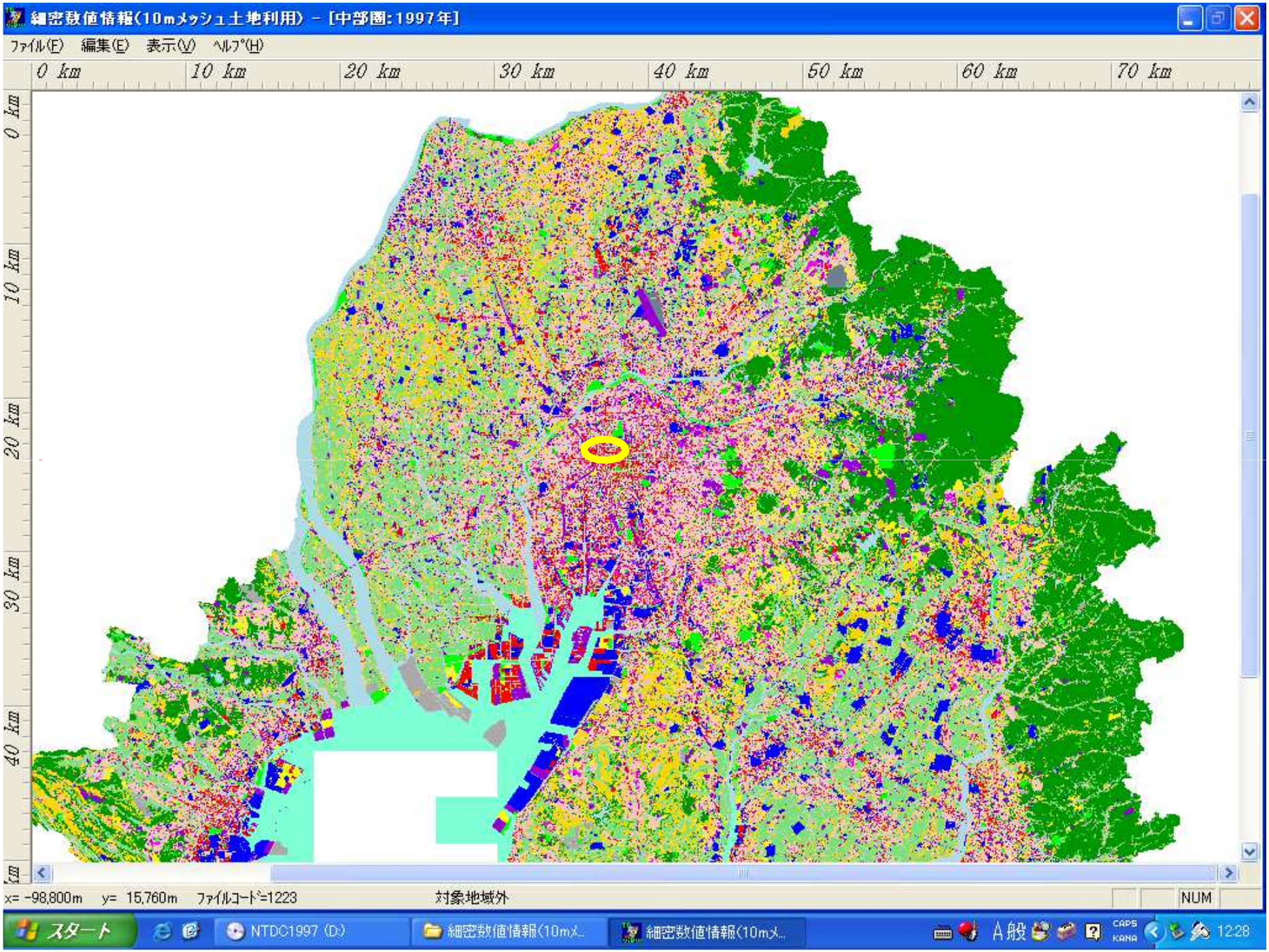
Typical Issue: A Seesaw Game between “Duel Cores” in Nagoya CBD

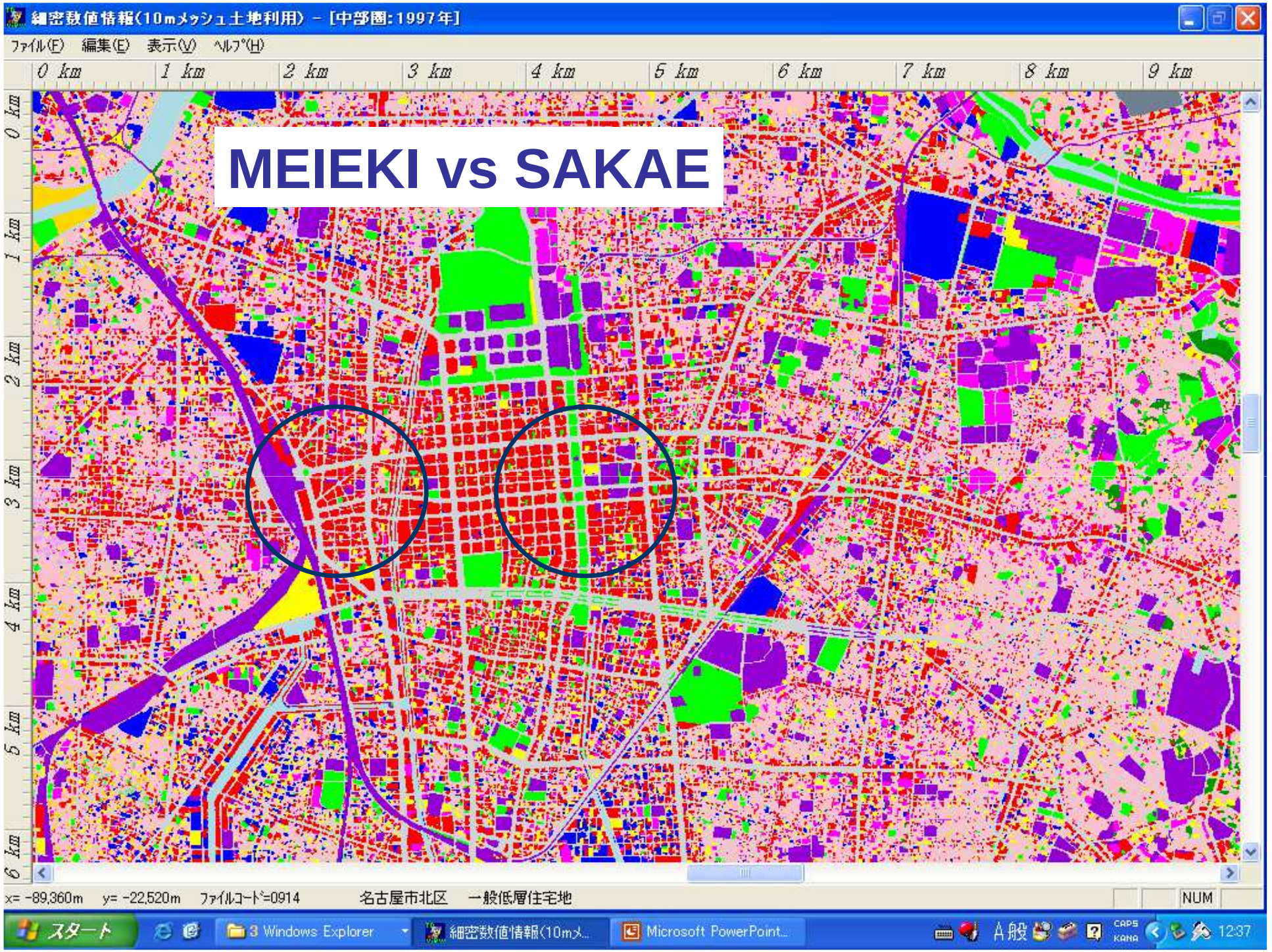
TV Tower
Is symbolized
as the center of
metropolitan area

TGV(Shinkansen)
+ Linear Motor Train Plan






細密数値情報(10mメッシュ土地利用) - [中部圏:1997年]
ファイル(F) 編集(E) 表示(V) ヘルプ(H)
0 km
10 km
20 km
30 km
40 km
50 km
60 km
70 km
x= -98,800m y= 15,760m ファイルコード=1223
対象地域外
NUM
スタート
NTDC1997 (D:)
細密数値情報(10mメ...
細密数値情報(10mメ...
A 般
CAPS KANA
12:28


細密数値情報(10mメッシュ土地利用) - [中部圏:1997年]
ファイル(F) 編集(E) 表示(V) ヘルプ(H)
0 km
1 km
2 km
3 km
4 km
5 km
6 km
7 km
8 km
9 km
MEIEKI vs SAKAE
x= -89,360m y= -22,520m ファイルコード=0914 名古屋市北区 一般低層住宅地
NUM
スタート
3 Windows Explorer
細密数値情報(10mメ...
Microsoft PowerPoint...
A般
CAPS KANA
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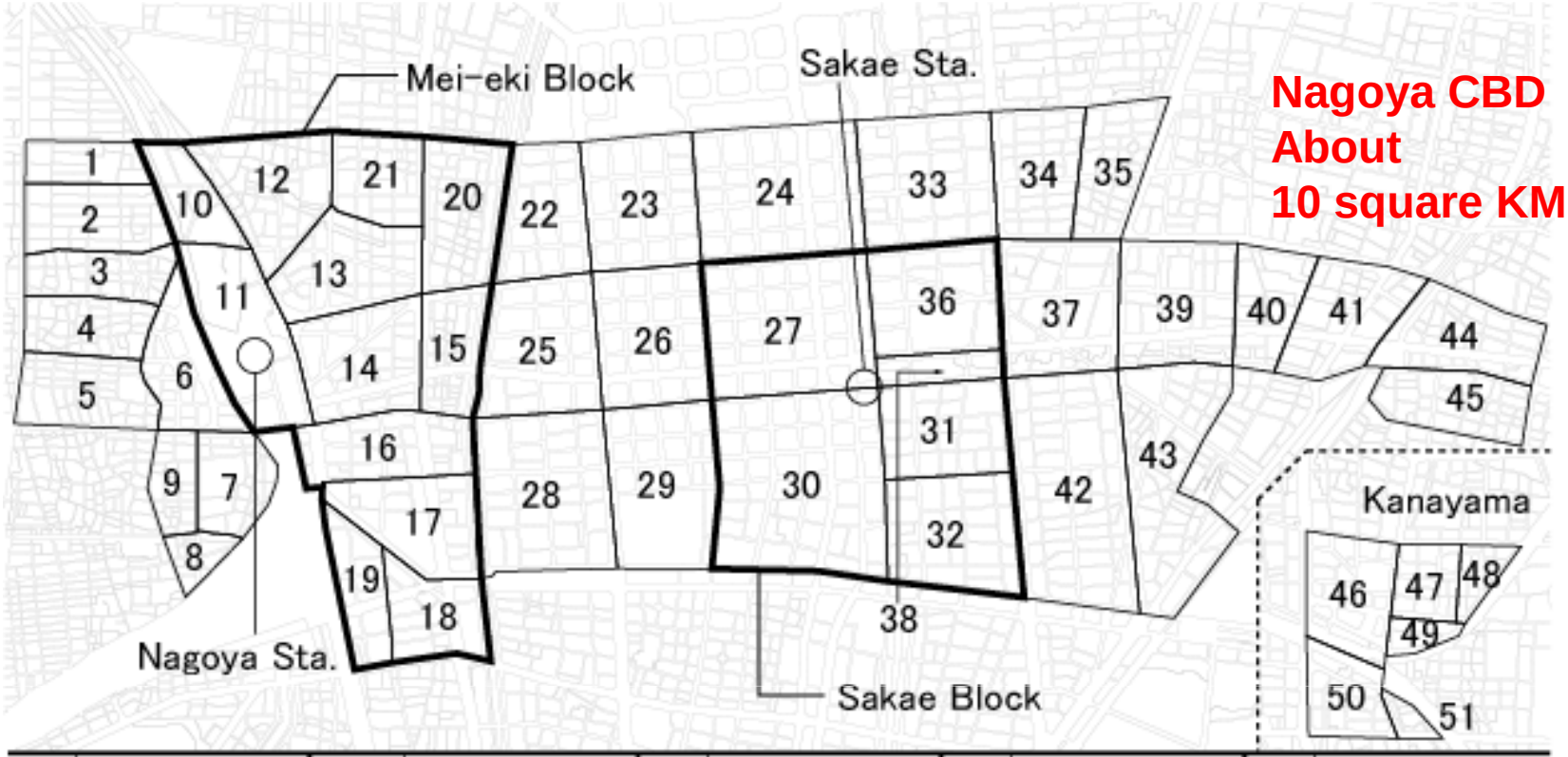
Meieki vs Sakae

High-Rise Buildings near Station
Emerged in the 00’s

TV Tower, Open-Space
and A Fleet of Dep’t Stores…But…



1	Kamejima 1	2	Kamejima 2	3	Noritake 1	4	Naoritake2	5	Takebashi-cho
6	Tsubaki-cho	7	Taikou 1	8	Taikou 2	9	Taikou3	10	Ushijima-cho
11	Meieki 1	12	Meieki 2	13	Meieki 3	14	Meieki4	15	Meieki5
16	Meiekiminami 1	17	Meiekiminami 2	18	Meiekiminami 3	19	Meieki-minami4	20	Nagono1
21	Nagono 2	22	Marunouchi 1	23	Marunouchi 2	24	Marunouchi3	25	Nishiki1
26	Nishiki2	27	Nishiki3	28	Sakae1	29	Sakae2	30	Sakae3
31	Sakae4	32	Sakae5	33	Izumi1	34	Izumi2	35	Izumi3
36	Higashisakura1	37	Higashisalura2	38	*see bellow	39	Aoi1	40	Aoi2
41	Aoi3	42	Shinsakae1	43	Shinsakae2	44	Uchiyama3	45	Imaike1
46	Kanayama1	47	Kanayama2	48	Kanayama3	49	Kanayama4	50	Kanayama-cho1
51	Kanayama-cho2	No.	area Name	38 is include Hisaya-cho、Buhei-cho、Shinsakaemachi、Toushin-cho					

Fig 1. Precincts (cho-me) in Nagoya CBD

(National Census Units)

Basically the whole grew, some of them are urban Renewal Effects

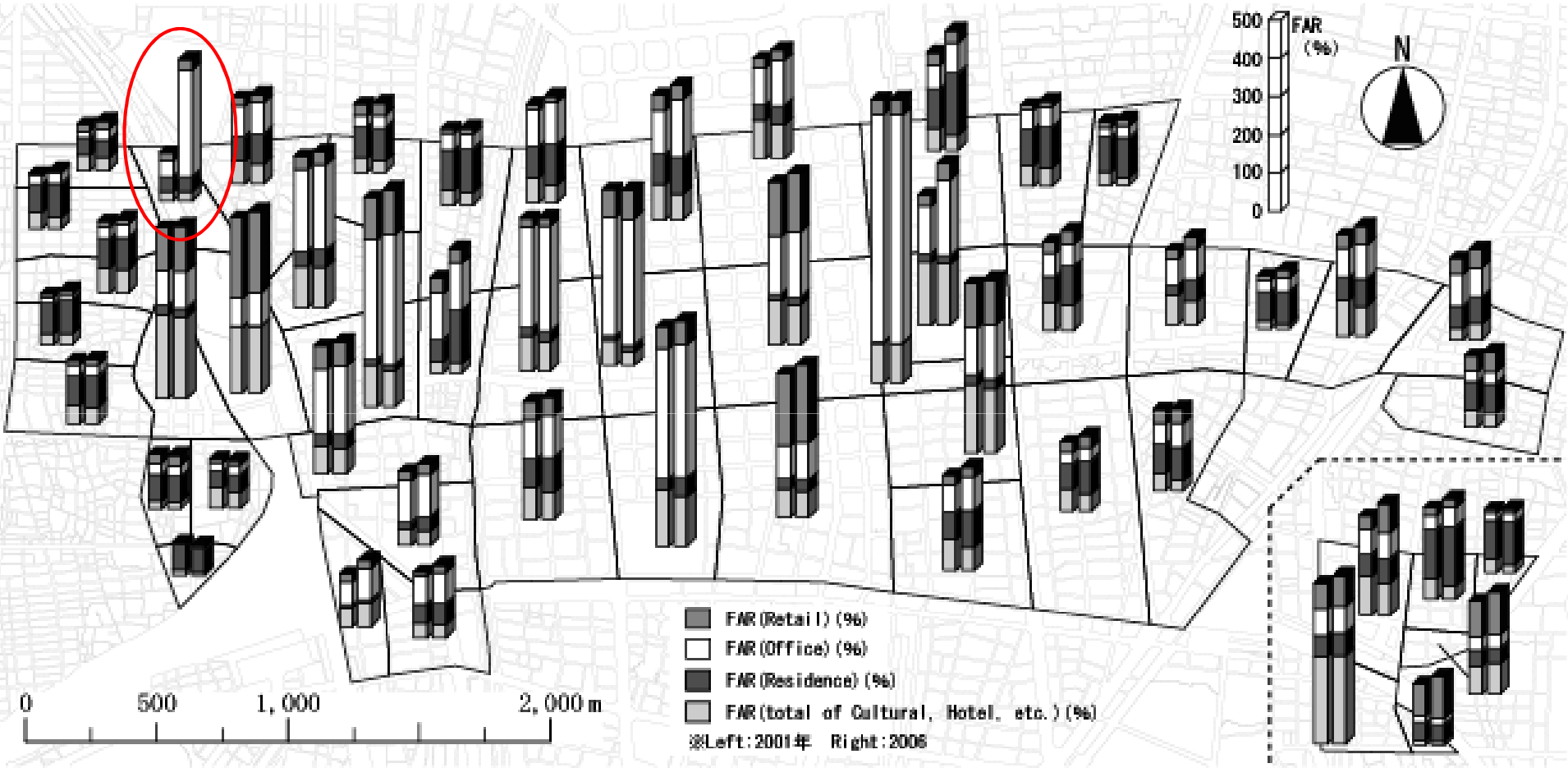


Fig 2.Comparison between floor area ratios from 2001 to 2006, Nagoya CBD

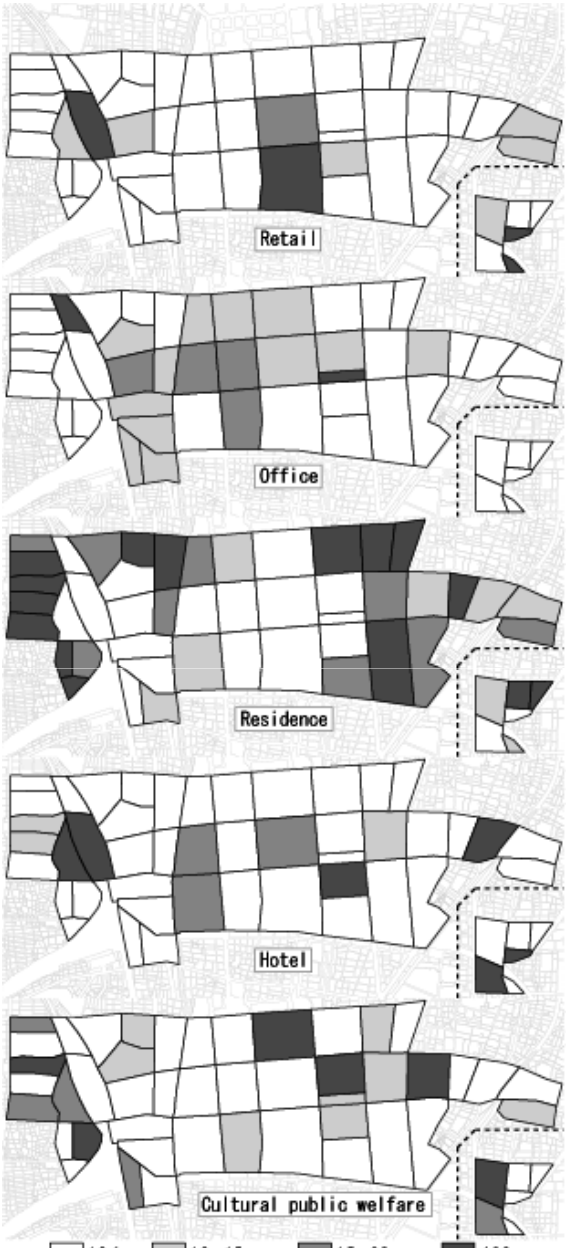
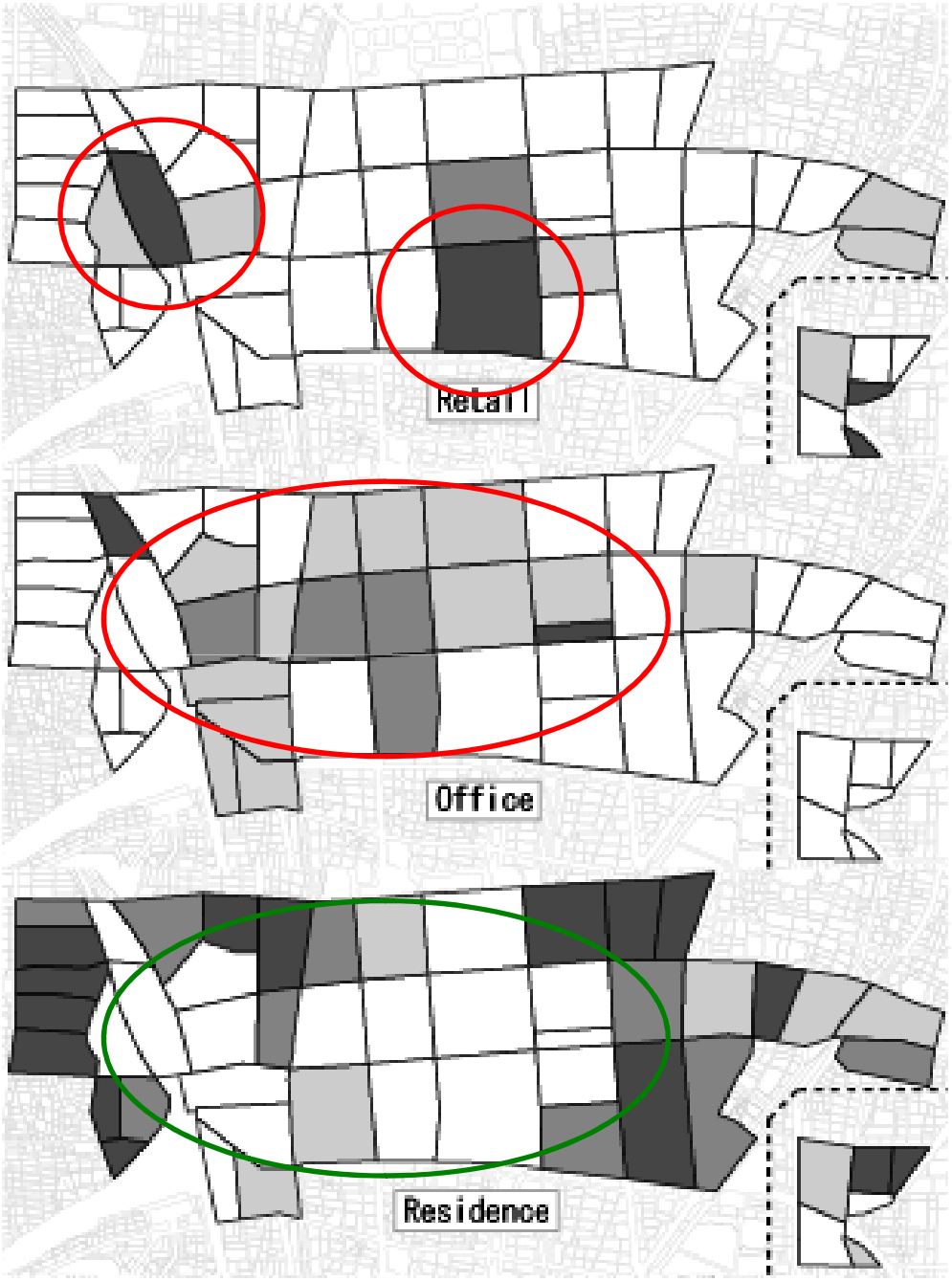


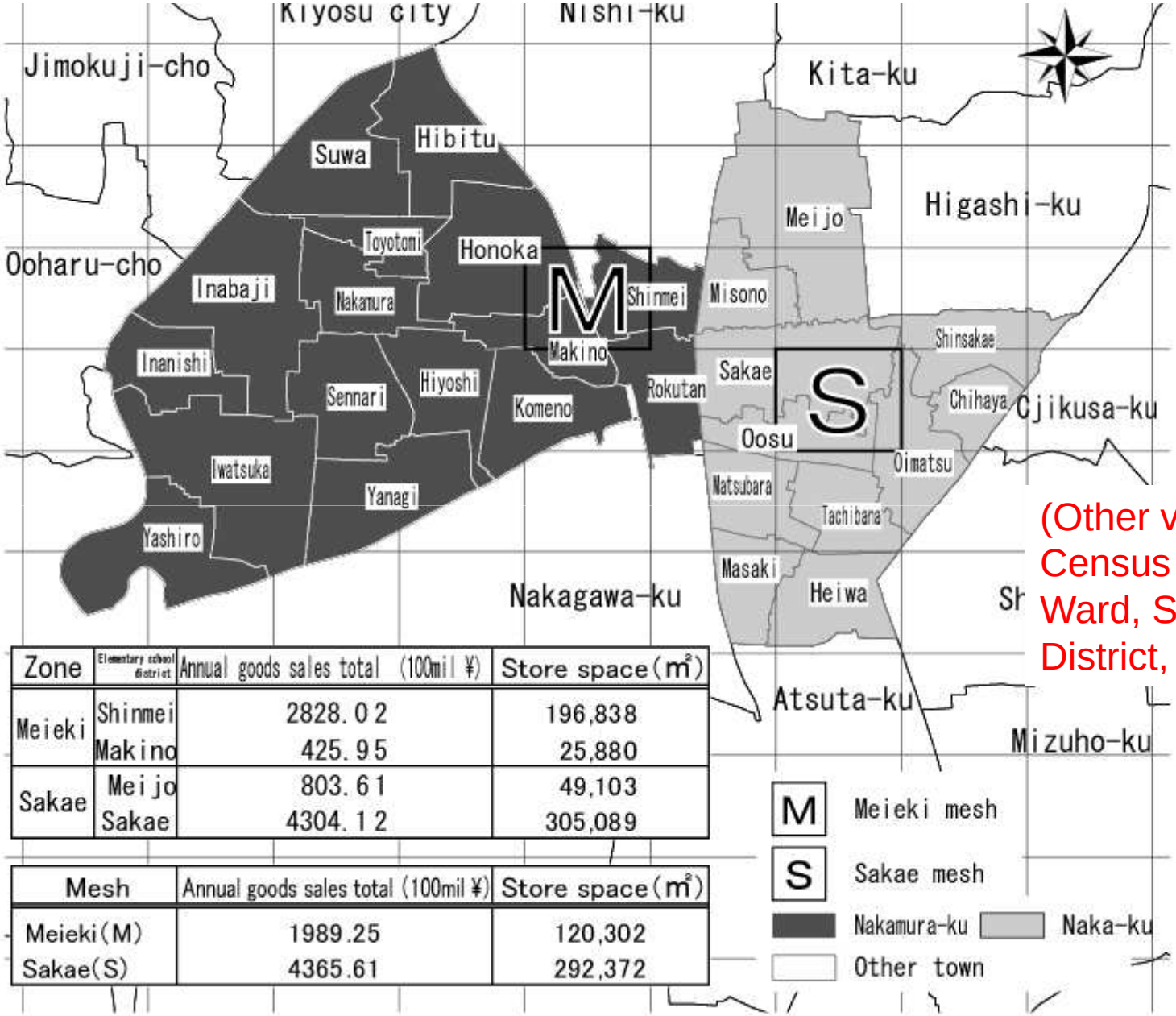
Fig 3. Distribution of the specialization coefficient in 2006



Specialized Coefficients

$$\frac{\text{floor use ratio of the precinct (cho-me)}}{\text{the average of floor use ratio}}$$

In Store Mass, Sakae is stronger than Meieki



Zone	Elementary school district	Annual goods sales total (100mil ¥)	Store space (m²)
Meieki	Shinmei	2828.02	196,838
	Makino	425.95	25,880
Sakae	Meijo	803.61	49,103
	Sakae	4304.12	305,089

Mesh	Annual goods sales total (100mil ¥)	Store space (m²)
Meieki(M)	1989.25	120,302
Sakae(S)	4365.61	292,372

(Other various Census Data: Ward, School District, 1km Mesh)

Fig 1. Outline analysis of retail structure in Nagoya CBD

GIS Aggregation Results suggests the balanced escalation

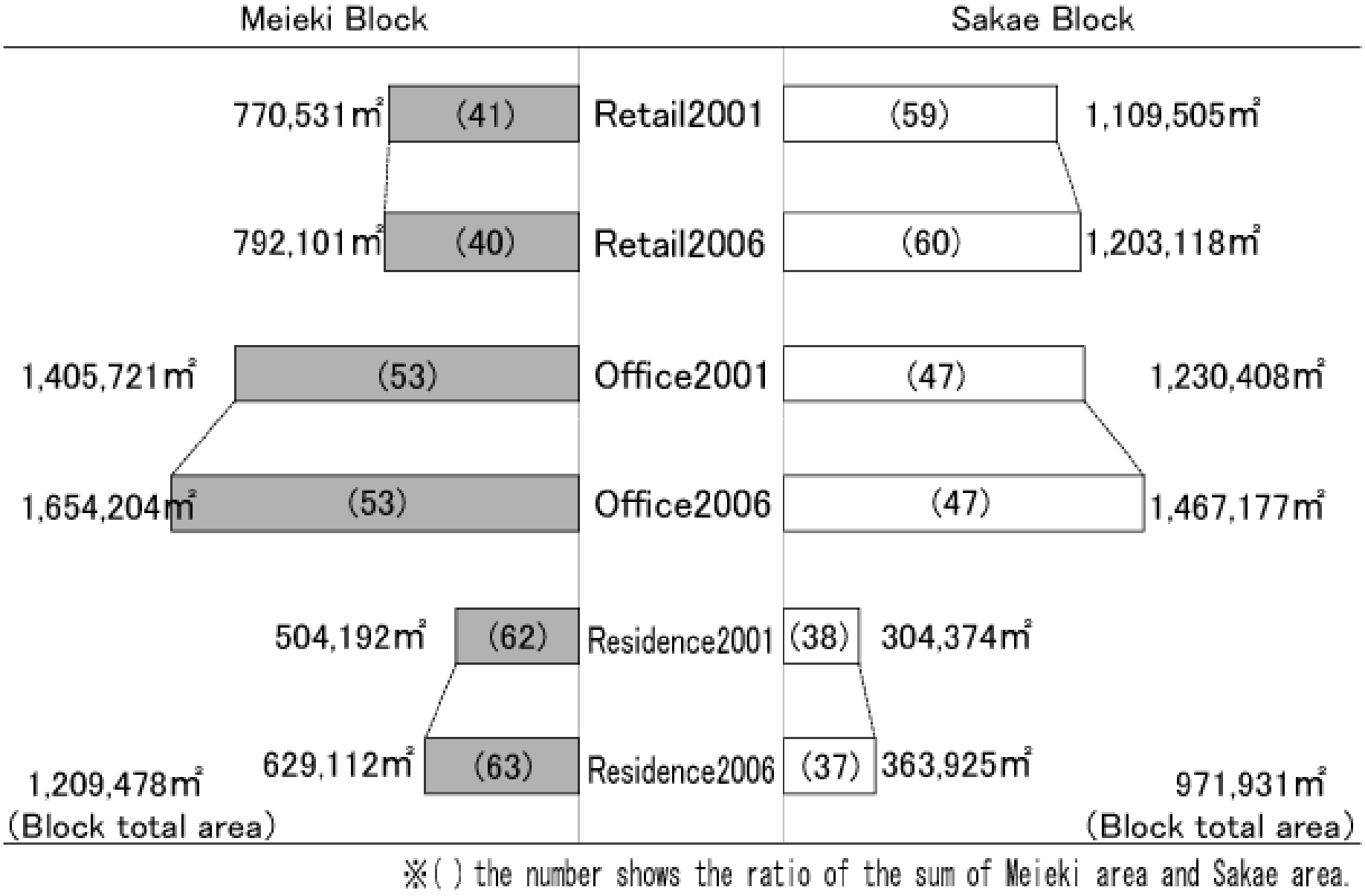


Fig 4. Comparison of floor amounts between Meieki block and Sakae block

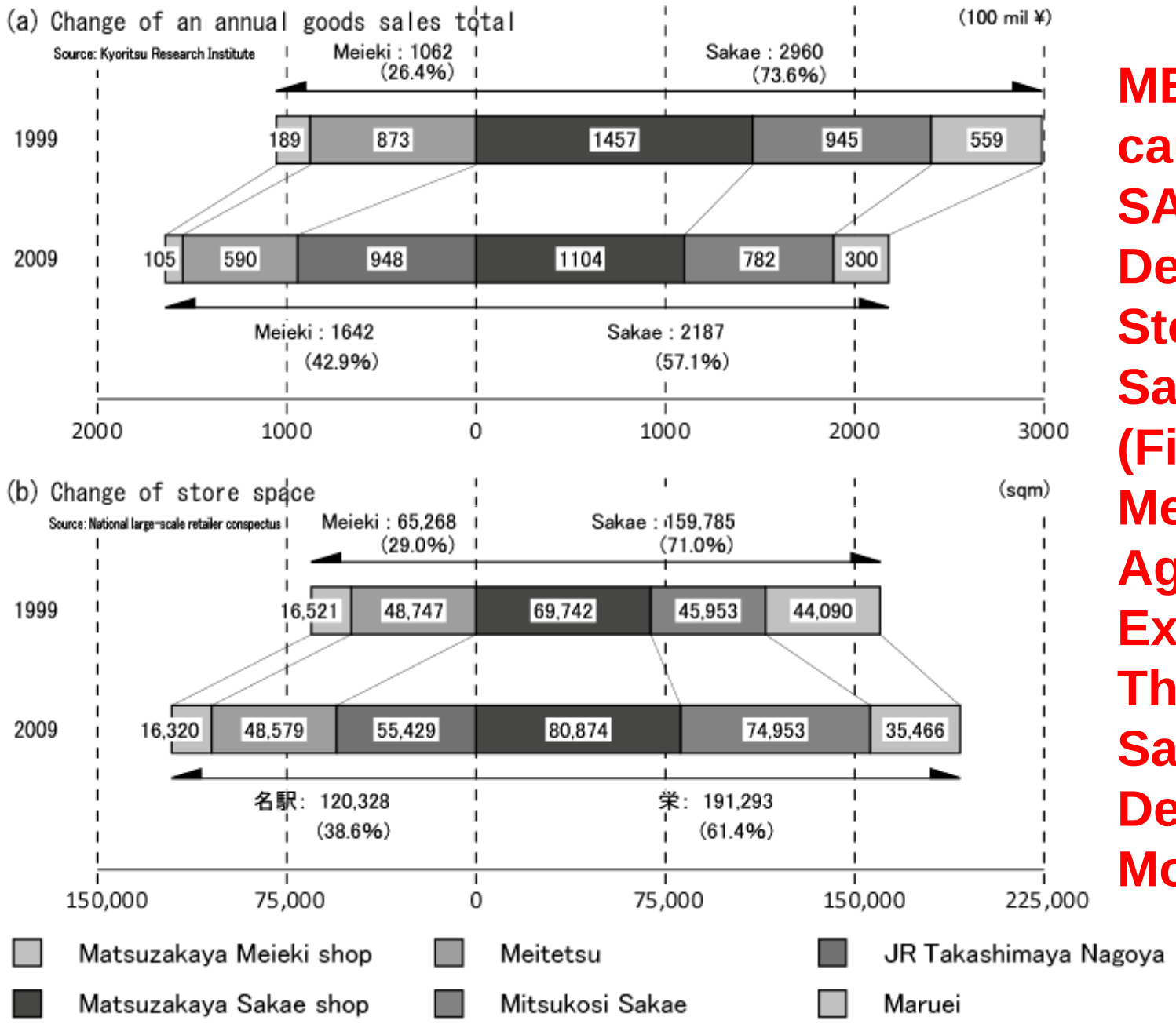
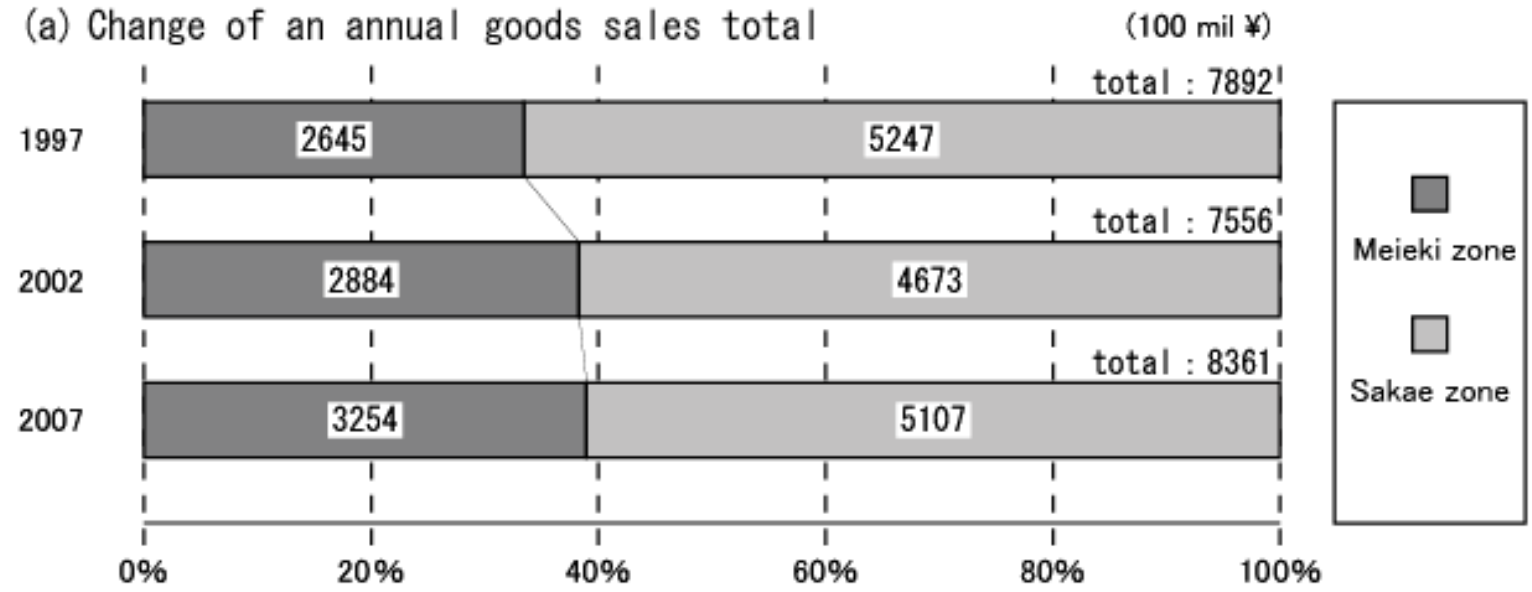


Fig 4. Change of the depaartment stores in Meieki and Sakae zone

MEIEKI had caught up to SAKAE in Department Stores, esp. Sales. (First, Meieki's Aggressive Expansion, Then, Sakae's Deffensive Move)



But, Sales-Space Efficiency were down at the both

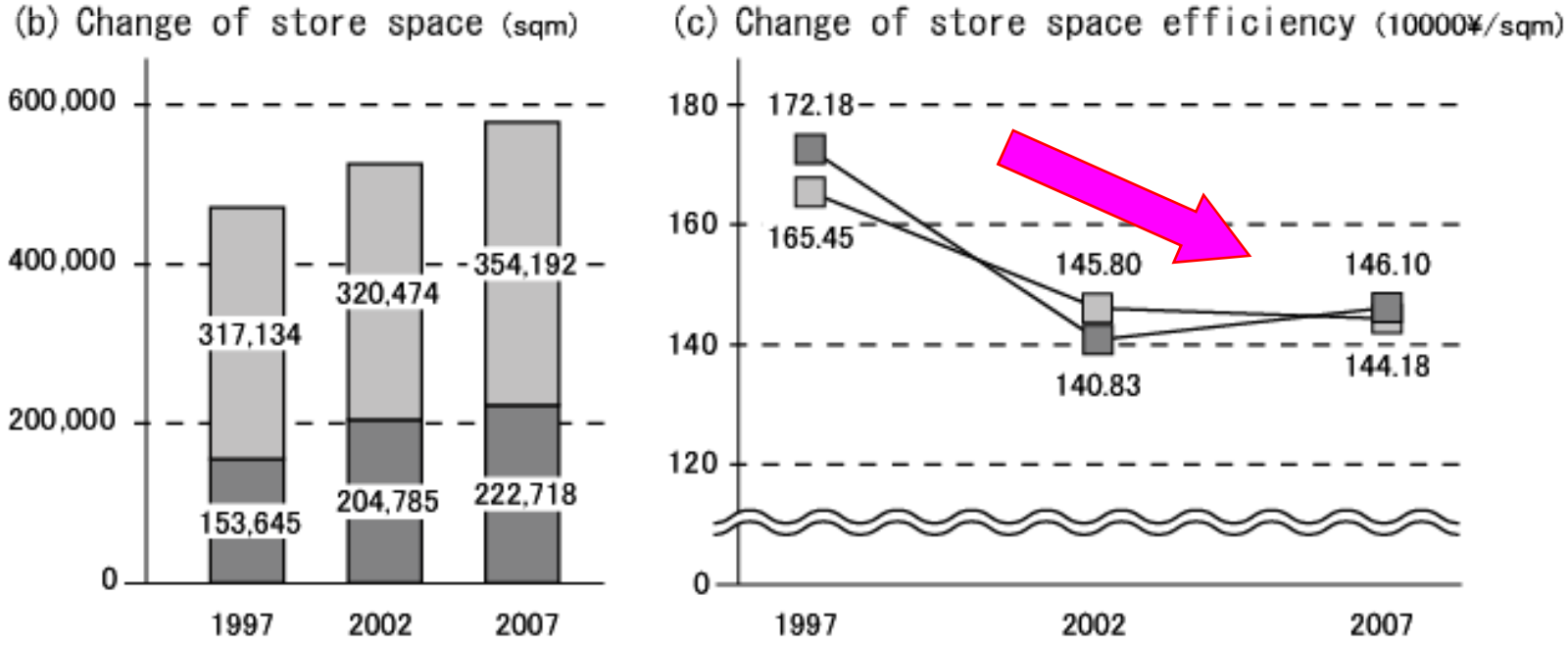


Fig 3. Change of the retail structure in Meieki and Sakae zone

Land price bipolarization in the whole CBD
Meieki Got High Point, but Sakae Kept Aerial Advantage

Fig 5. Spatial pattern of land prices in Nagoya CBD

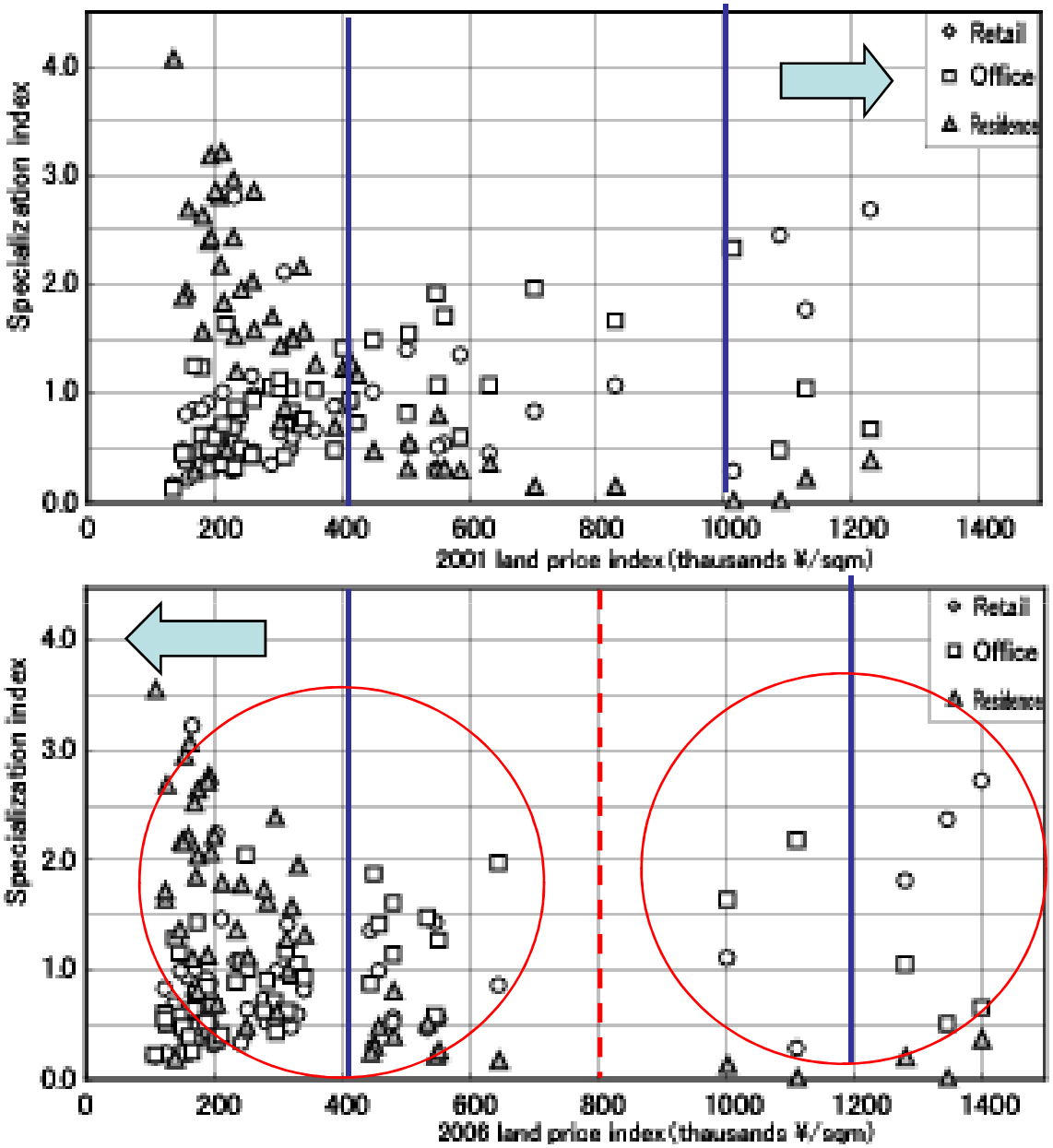


Fig 6. Relation between Land price index and Specialization index

Table 1. Variable list

	Category	Variable	
Explained variables	FAR	Y1	FAR 2006(%)
		Y2	FAR 2006(Retail)(%)
		Y3	FAR 2006(Office)(%)
		Y4	FAR 2006(Residence)(%)
	A fluctuated range of FAR	Y5	Change of FAR 2001-2006(%)
		Y6	Change of FAR 2001-2006(Retail)(%)
		Y7	Change of FAR 2001-2006(Office)(%)
		Y8	Change of FAR 2001-2006(Residence)(%)
Candidate variables	Precinct (cho-me) situations	X1	FAR 2001(%)
		X2	FAR 2001(Retail)(%)
		X3	FAR 2001(Office)(%)
		X4	FAR 2001(Residence)(%)
		X5	FAR 2001(Hotel)(%)
		X6	FAR 2001(Cultural public welfare)(%)
		X7	FAR 2001(Factory)(%)
		X8	The density of buildings 2001(number of build./ha)
	Precinct (cho-me) characteristics	X9	Specialization index 2001(Retail)
		X10	Specialization index 2001(Office)
		X11	Specialization index 2001(Residence)
	Land price index	X12	Land price index 2001(thausands ¥/sqm)
		X13	The rate of change of the land price index for five years(%)
	Accessibilities	X14	Dummy variable(Meieki)
		X15	Dummy variable(Sakae)

Dummy variable: "1"Meieki(or Sakae) and adjoining town area(is A),
"1/2" The town which adjoins A(is B), "1/3" The town which adjoins B.

Factor Analysis (by Multi-Regression Method)

FAR Increase in five years
Y5(Tot),F6(Com),F7(Ofc),F8(Rsd)

Table 2. Extracted candidate variables wit
coefficient values(by stepwise multiple regression method)

	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8
X1								
X2								
X3								
X4	0.285			1.030				0.624
X5	0.266	0.176						
X6	0.325		0.168			0.356		
X7		0.103	−0.100					
X8					−0.482		−0.323	
X9	0.159	0.576				0.561		
X10	0.610	−0.091	0.748	0.179				0.448
X11								
X12	0.379	0.509	0.214		−0.267			
X13								
X14						−0.462		
X15		−0.088				−0.270		
Multiple correlation coefficient	0.953	0.981	0.908	0.940	0.396	0.713	0.323	0.522

Rsd Coef.

Com Coef.

Ofc Coef.

Meieki Acs

?

Factor Analysis (by Discrimination Analysis) on Change of Office FAR (Y7)

Table 3. About the classification of three groups, and the number of the cho-mes

	Group Ⅰ	Group Ⅱ	Group Ⅲ
Category	<0%(minus)	0%–10%	<10%
The number of the cho-mes	8	22	21

Table 4. The factor of the FAR(Office) change by discriminal coefficient

	Discrimination coefficient (Group Ⅰ)	Discrimination coefficient (Group Ⅱ)	Discrimination coefficient (Group Ⅲ)	Partial F value	Lamda statistics	F value
X7	−2.332	−0.400	1.307	13.106	0.374	7.153
X9	0.996	−0.066	−0.310	1.771		
X11	−0.002	0.406	−0.424	1.425		
X13	−1.725	−0.004	0.662	5.448		
constant term	−2.274	−0.137	−0.712			

Group 1 (Decrease) caused by Ofc FAR (X7) and Price Chg (X13) negatively.
Group 2 (Slight Increase) caused by Rsd Coef. (X11) positively.
Group 3 (Large Increase) caused by Ofc FAR (X7) and Price Chg (X13) positively.

Findings from Nagoya CBD study

- Floor masses of the both cores grew, and the balance is not changed basically in this period.
- Land prices had the bipolarization in the whole CBD. Meiki had got the highest point, but Sakae had kept an aerial advantage.
- Location of each floor use show a tendency to make agglomerations, the reverse direction to “Re-Mixing”

My Complementary to these results

- What we should be considered
  - Japan Proper Reasons

- Aftermath of Drastically Change of Japan's Real-Estate Appraise Method in 1997:
  - From 'Sales Comparison Approach'
  - to 'Income Approach'
  - This is the reason of the 'bipolarization' phenomena
  - (In the early 00's, the whole Japan had influenced aftermath)

- Low Demand Pressure under the given maximum volume except Tokyo and few cases
  - Fortunately Meieki faced this pressure, but the whole CBD was not
  - (It means that Many office tenants moved from Sakae to Meieki.)