

最近の研究テーマ

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0. 最近の研究テーマ

1. Aging and Real Estate Market.

-Local market: K.Nishimura, Y.Deng and Y.Kawamura

-Housing Demand: Man Cho, Y.Deng, & MOF

2. Residential Property Price Indexes.

-Decomposition Land, Structure and Height: E. Diewert

-Spatial Relation in Rent / Price Ratio: R.Hill.

-Price Distribution & Global RPPI: X.Guo, D. McMillan, Y.Deng

-Housing Bubbles and Price Distribution: D. Cheong and B.We, and MLIT(Shiraki)

3. Sticky Prices in Property Market.

-Housing Rent: T. Watanabe, S.Imai

-Office Rent: E. Diewert, Y.Saita & BOJ

4. Capital Flow and Local Bubbles.

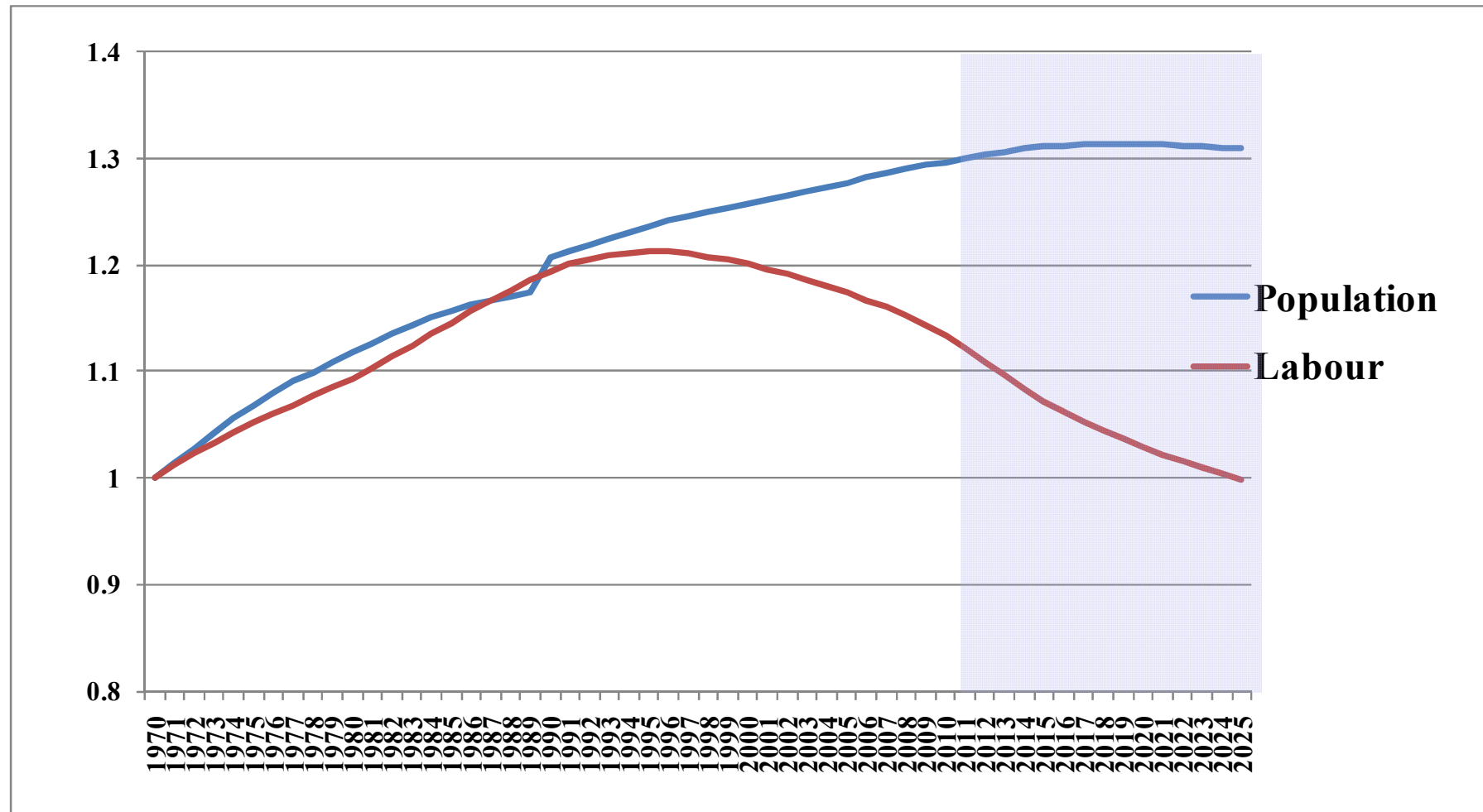
5. Others (Labor Market, Amenity and Housing Rent, Green Building, Super Star and Zombie)

1. Aging and Real Estate Market

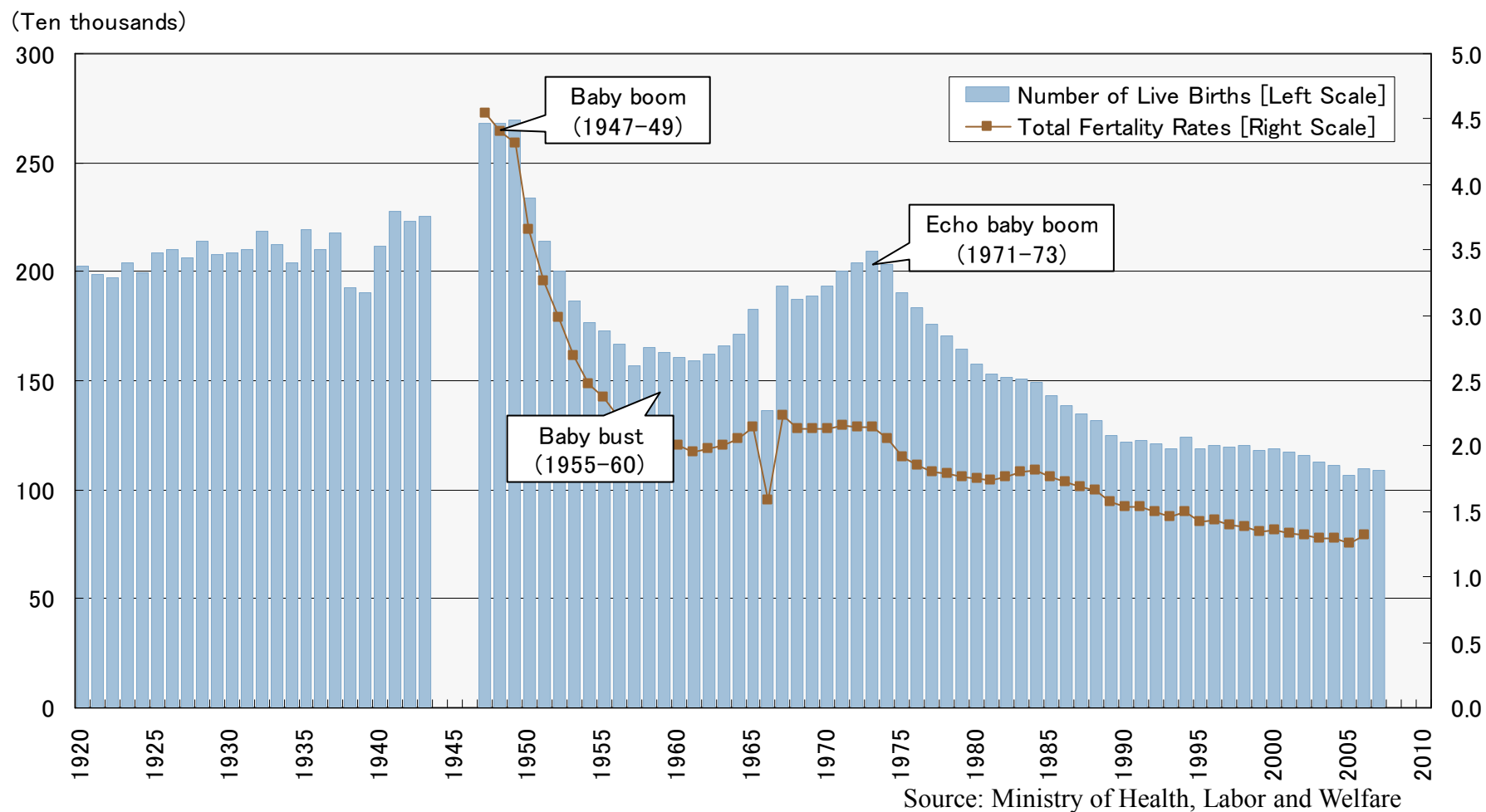
I . Aging and Real Estate Market.

- 人口減少は、何をもたらすのか？
- **Into the Unknown:** 未知の世界へ
- Japan is aging faster than any country **in history**, with vast consequences for its economy.
- **2050 All Japan =2010 Yubari-city**
- Mankiw, N. G., and D. N. Weil (1989), "The baby boom, the baby bust, and the housing market," *Regional Science and Urban Economics*, Vol. 19, 235-258.
- 米国の住宅価格は、25年間で47%下落する
- →移民政策の強化→サブプライム問題

高齢化 Aging



Demand: Number of live births (JPN)



Shimizu,C and T.Watanabe(2010), "Housing Bubble in Japan and the United States," Public Policy Review Vol.6, No.2,pp.431-472

人口の変化と高齢化:

- Nishimura (西村清彦)(2011)

- 依存人口比率=

$$\frac{0-19\text{人口 and } 65\text{以上人口,}}{20-64\text{歳人口}}$$

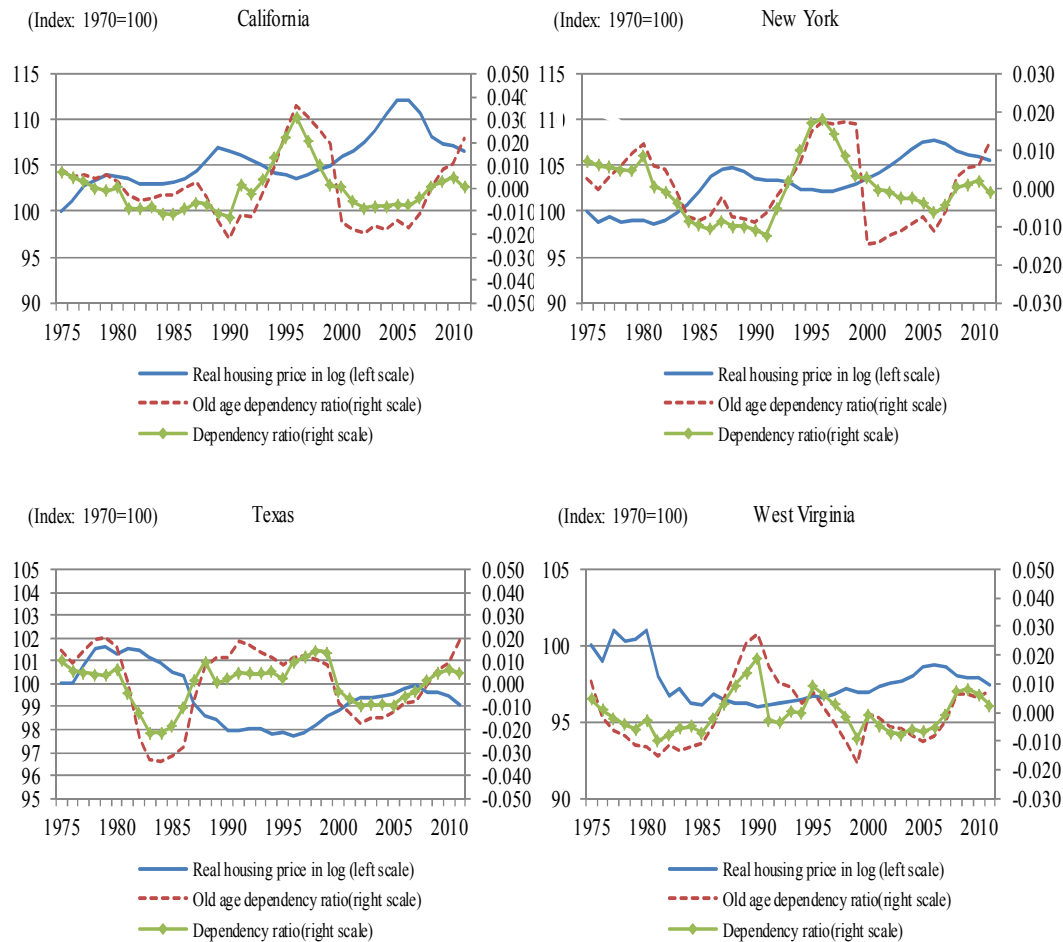
- Takáts (2012)
- 老齡人口依存比率

$$= \frac{65\text{歳人口,}}{20-64\text{歳人口}}$$

Saita, Y., C. Shimizu and T. Watanabe (2013), "Aging and Real Estate Prices: Evidence from Japanese and US Regional Data," International Journal of Housing Market and Analysis.
Shimizu, C., Y. Deng, Y. Kawamura and K. G. Nishimura (2015), "Analysis of policy options to address Japan's declining population, shrinking birthrate, and aging society" IRES Working Paper (National University of Singapore), 2015-015.

Empirical Method and Data

Relationship between Real Estate Prices and demographic factors



Empirical Results

Error Correction Model

$$\Delta \ln P_{it} = \alpha_{mi} + b_{1m} \Delta \ln \text{GDPPC}_{it} + b_{2m} \Delta \ln \text{OLDDEP}_{it} \\ + b_3 \Delta \ln \text{TPOP}_{it} + b_4 \text{ECT}_{it-1} + v_{it}$$

$$\text{ECT}_{it} \equiv \ln P_{it} - \\ (\alpha_{mi} + \beta_{1m} \ln \text{GDPPC}_{it} + \beta_{2m} \ln \text{OLDDEP}_{it} + \beta_{3m} \ln \text{TPOP}_{it})$$

Empirical Results

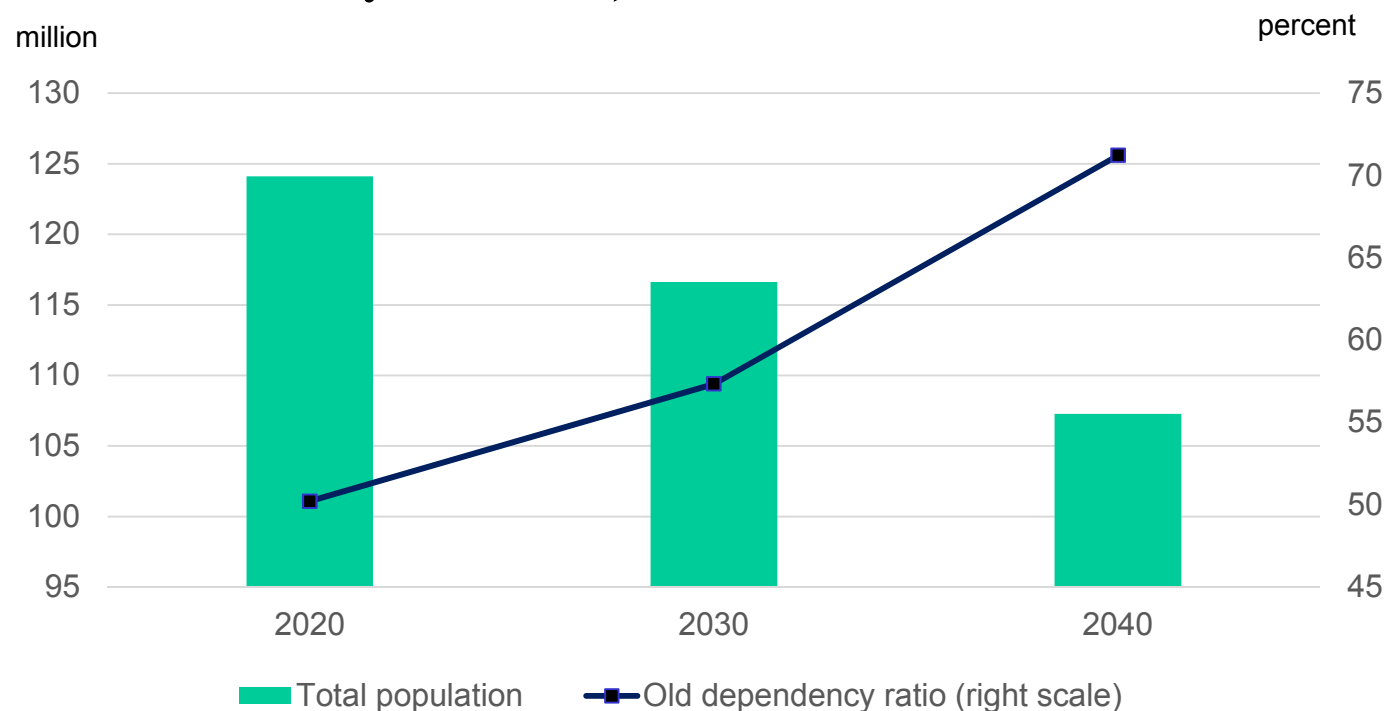
ECM Estimation Results

		GDP per capita	Old age dependency ratio	Total population	EC term	Obs.	Adj. R2
Japan	Coefficient	0.2188	-1.3167	0.9177	-0.1033		
	S.E.	0.067	0.202	0.341	0.011	1645	0.629
	t-stat	3.25	-6.5	2.69	-9.66		
U.S.	Coefficient	0.4515	-0.9067	0.7514	-0.1272		
	S.E.	0.0111	0.142	0.141	0.013	1836	0.439
	t-stat	4.06	-6.4	5.32	-9.54		
Takáts (2012)							
22 advanced economies		0.8842	-0.6818	1.0547		855	0.31

- Comparing with Takáts (2012),
 - The coefficient on the per capita GDP is much smaller
 - The coefficient on the old age dependency ratio is larger
 - The coefficient on total population is almost identical

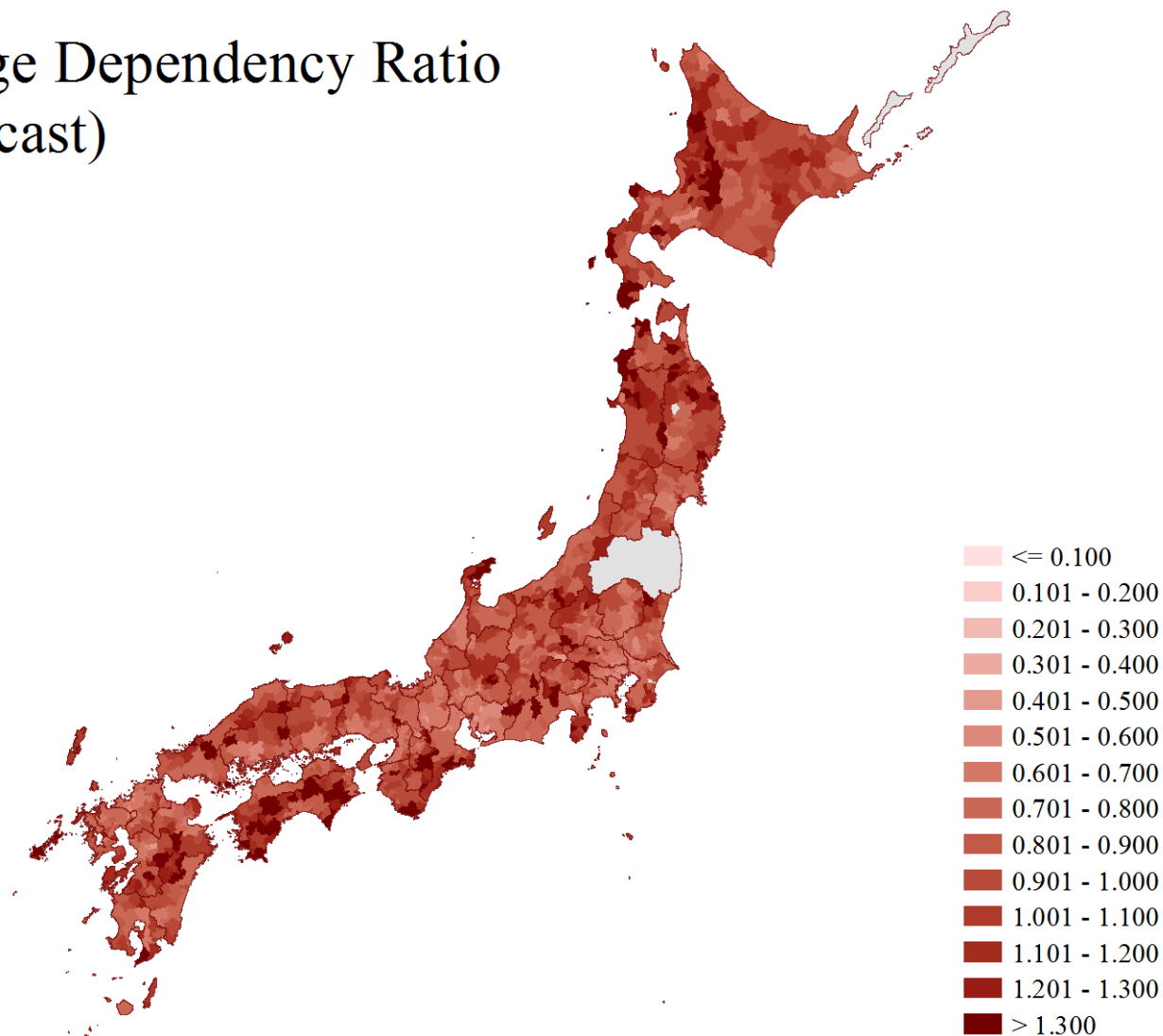
人口のインパクト

- Assumption on future population
 - The **medium variant projection** on demographic changes calculated by IPSS(National Institute of Population and Social Security Research)



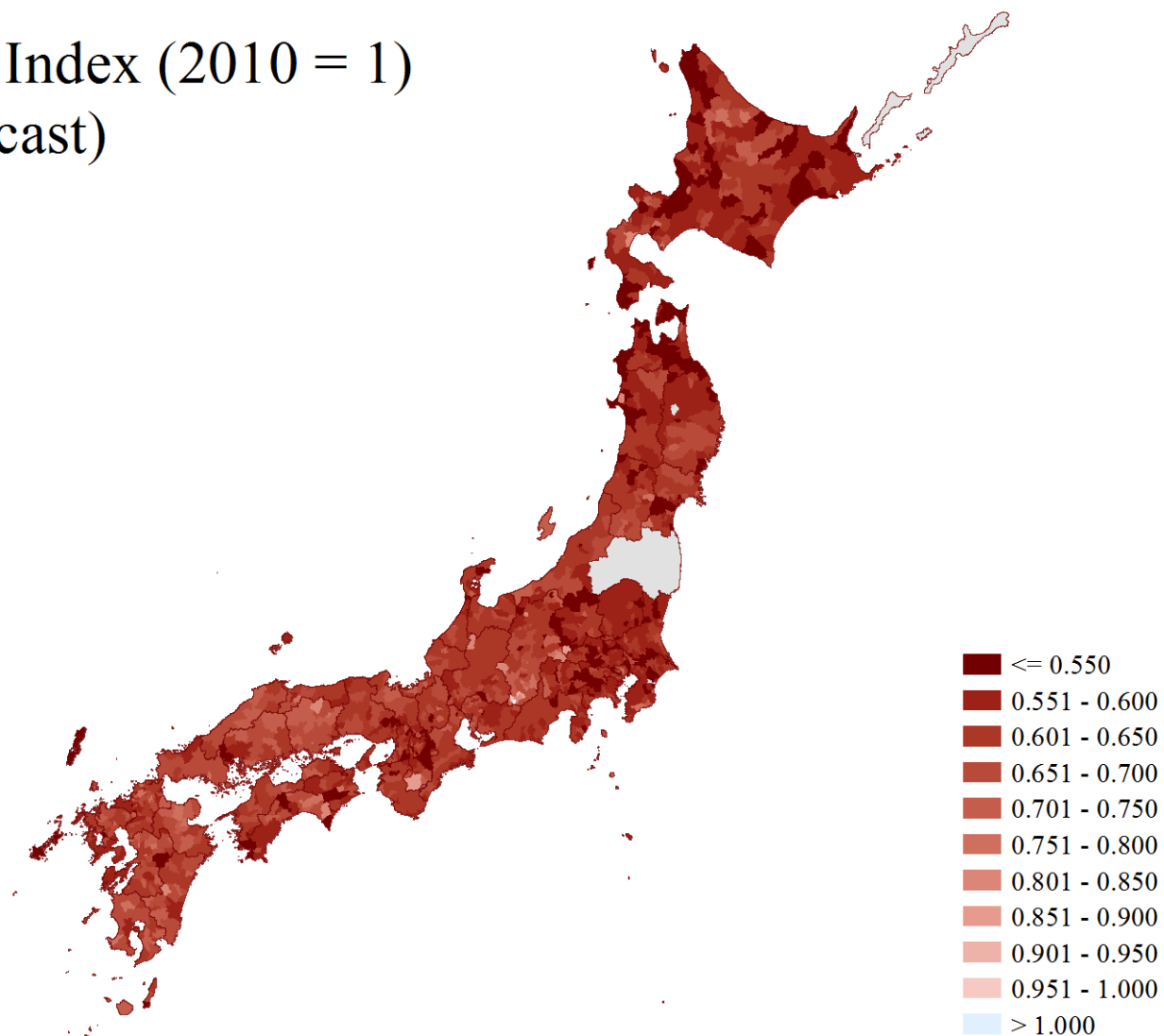
Note : IPSS projection is based on natural increases/decreases calculated from the survival probability and the number of births by cohort and social increases/decreases due to movement between regions. .

The Old Age Dependency Ratio 2040 (Forecast)



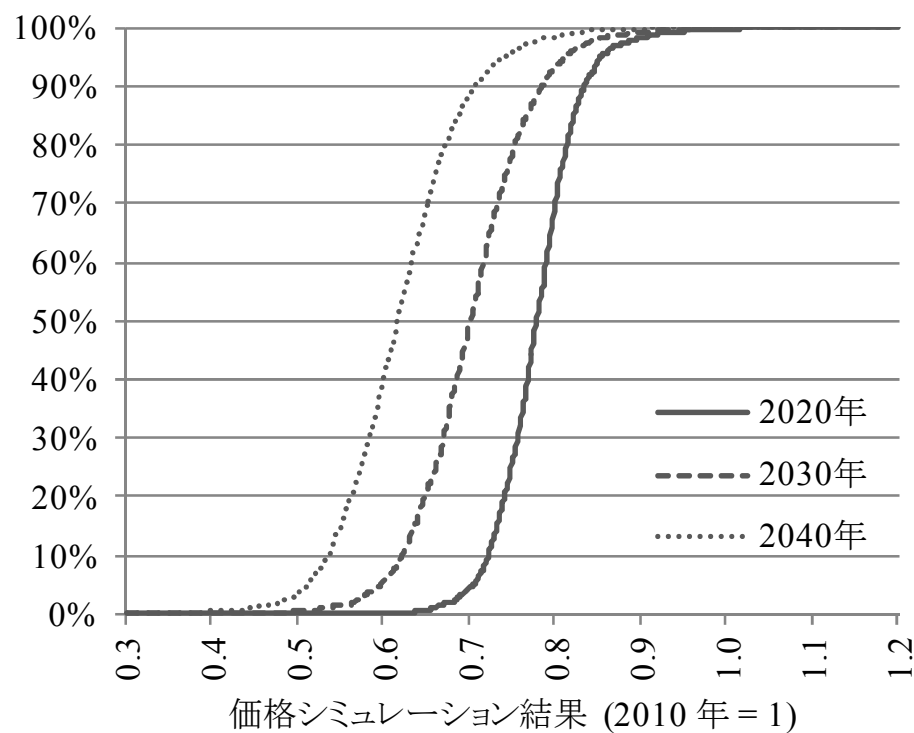
Source: Authors' calculation. The map is provided by Ministry of Land, Infrastructure, Transport and Tourism, "National Land Numerical Information: Administrative Zones Data."

Land Price Index (2010 = 1) 2040 (Forecast)

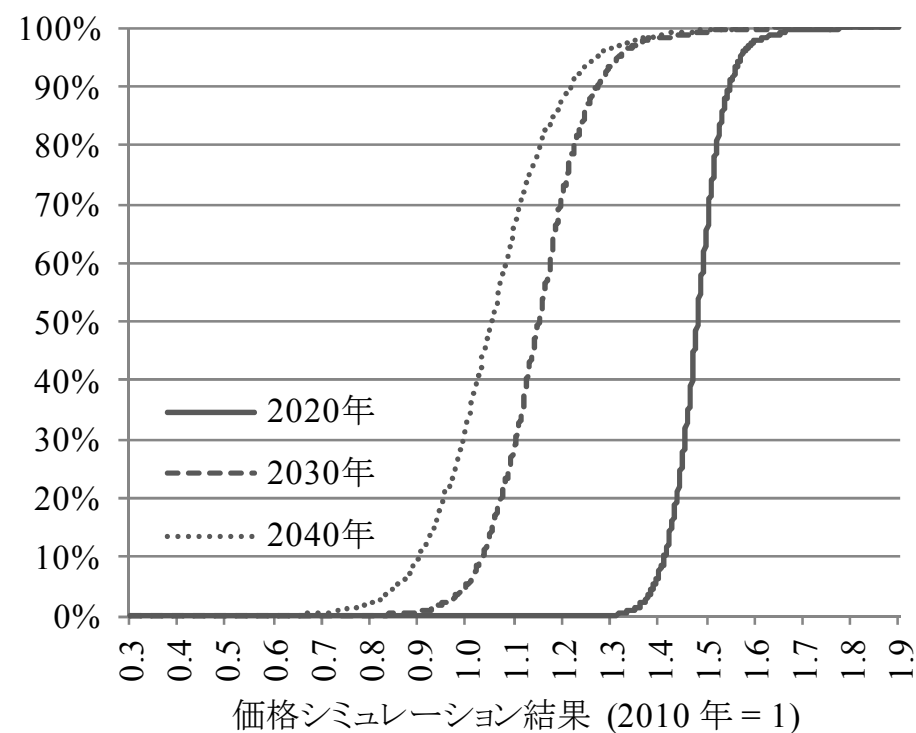


Source: Authors' calculation. The map is provided by Ministry of Land, Infrastructure, Transport and Tourism, "National Land Numerical Information: Administrative Zones Data."

Open the door 1-定年引き上げ

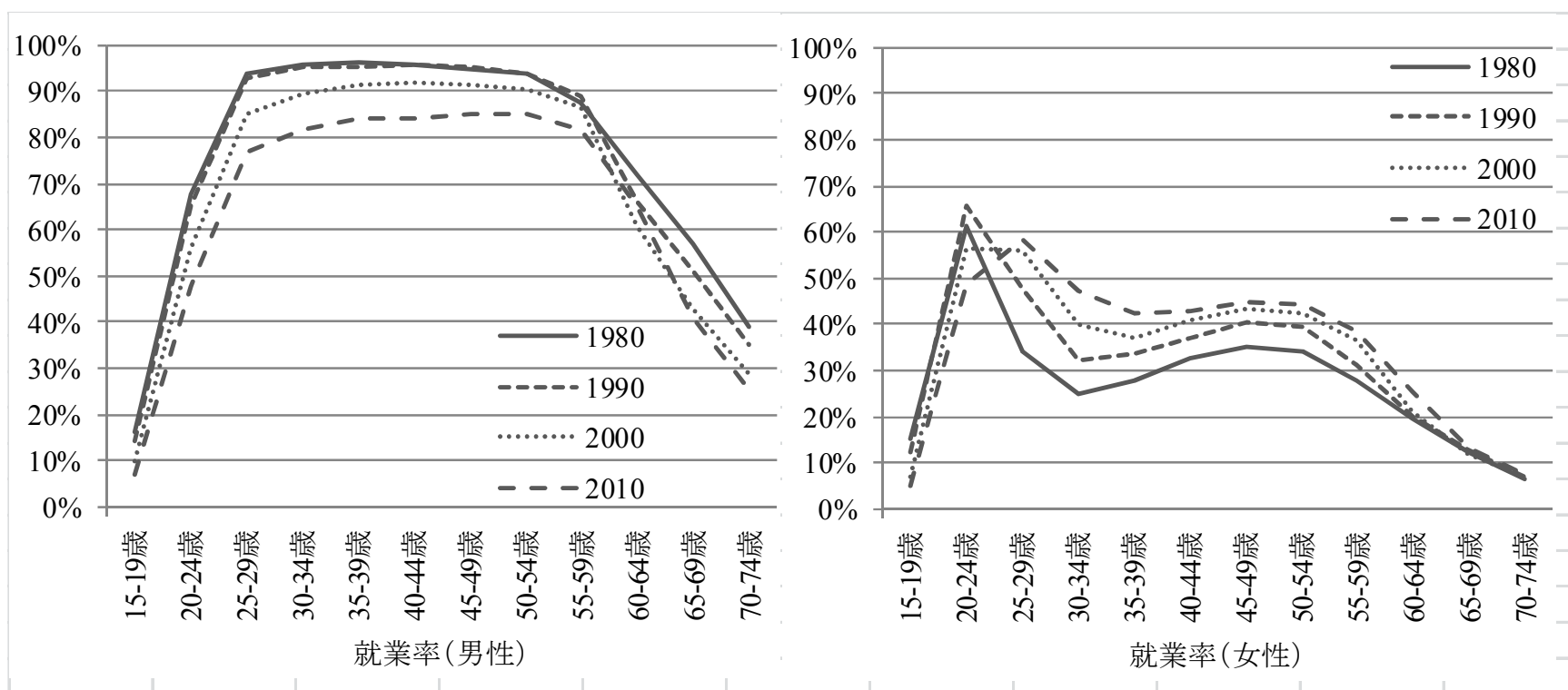


a) 予測結果

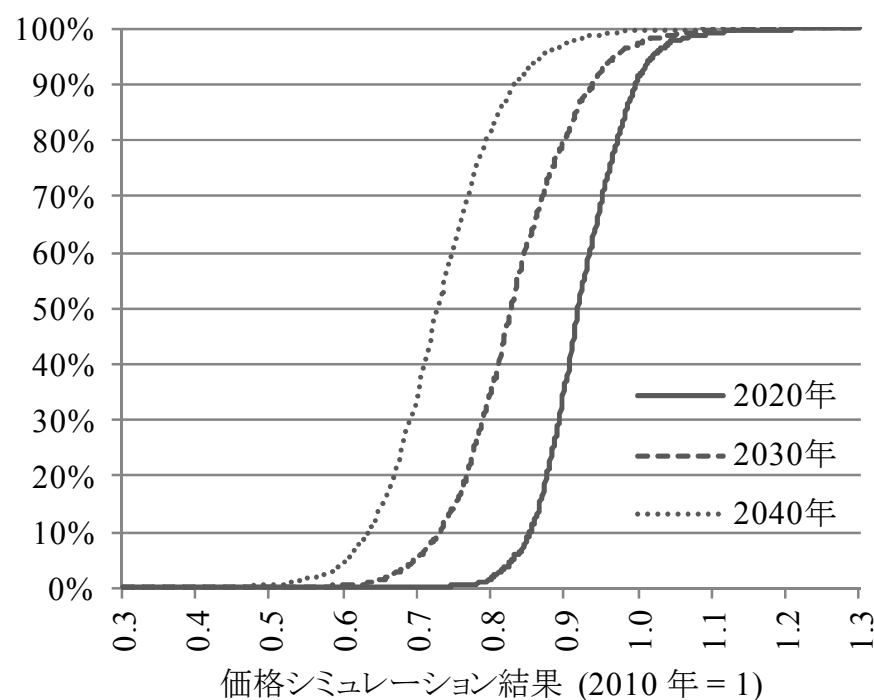


b) 75歳まで定年引き上げ効果

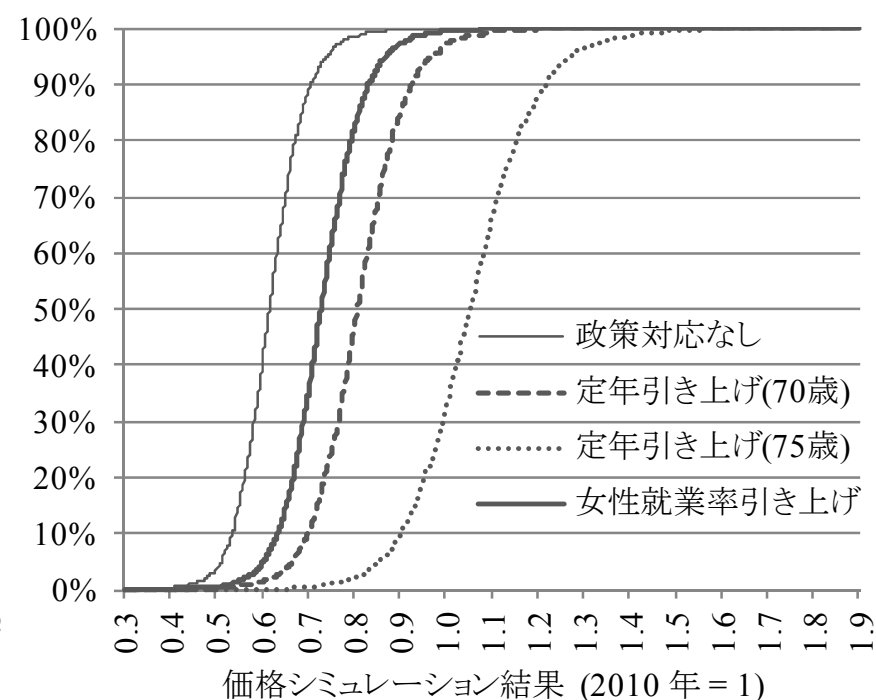
Open the door 2-女性社会進出



政策シミュレーション:政策効果比較



a)女性の就業率上昇効果



b)政策効果の比較

Open the door 3: 外国人労働者

全国合計	総人口 (移民受け入れなし)		総人口 (移民受け入れあり)		受け入れ移 民数(累積)	総人口に 占める割合
	(人)	(2010=100)	(人)	(2010=100)		
2010	126,094,834	100	126,094,834	100	-	-
2020	124,099,926	98	145,900,594	116	21,800,668	15%
2030	116,617,659	92	146,216,891	116	29,599,232	20%
2040	107,275,851	85	150,657,796	119	43,381,945	29%

＊年間140万人の移民が必要

2. Measures of RPPI

Measures:

- I. Standard time dummy Hedonic index
- II. Case-Shiller Repeat Sales index
- III. Hybrid Model
- IV. Matching index
- V. Builders Model

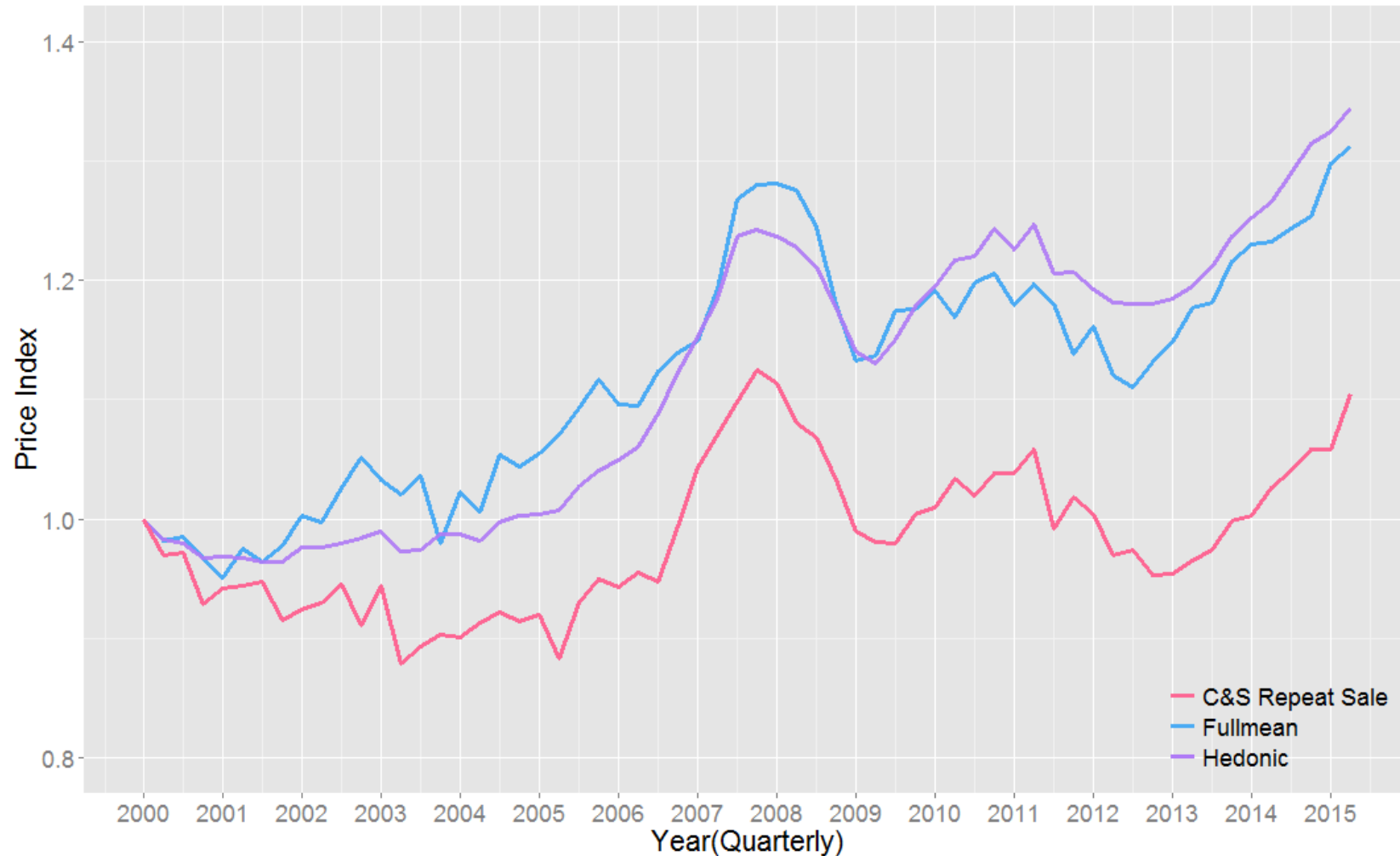
House Price Transaction Samples

Time										
$i \backslash t$	1	2	3	4	5	6	7	8	9	10
A*	$P_{A,1}$			$P_{A,4}$					$P_{A,9}$	
B								$P_{B,8}$		
C*		$P_{C,2}$		$P_{C,4}$			$P_{C,7}$			$P_{C,10}$
D						$P_{D,6}$				
E		$P_{E,2}$								
F					$P_{F,5}$					
G*			$P_{G,3}$				$P_{G,7}$			
H				$P_{H,4}$						
$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$	$\vdots$
Z*								$P_{Z,8}$		$P_{Z,10}$

$P_{i,t}$: property i , transaction time t , *Repeat Sales Samples

Indexes Comparison: Repeat Sale

Figure 6b. Compare Indexes: Case-Shiller Repeat Sale



Data sources and quality adjustments of commercial property price indexes

Table 1: Commercial property price indexes

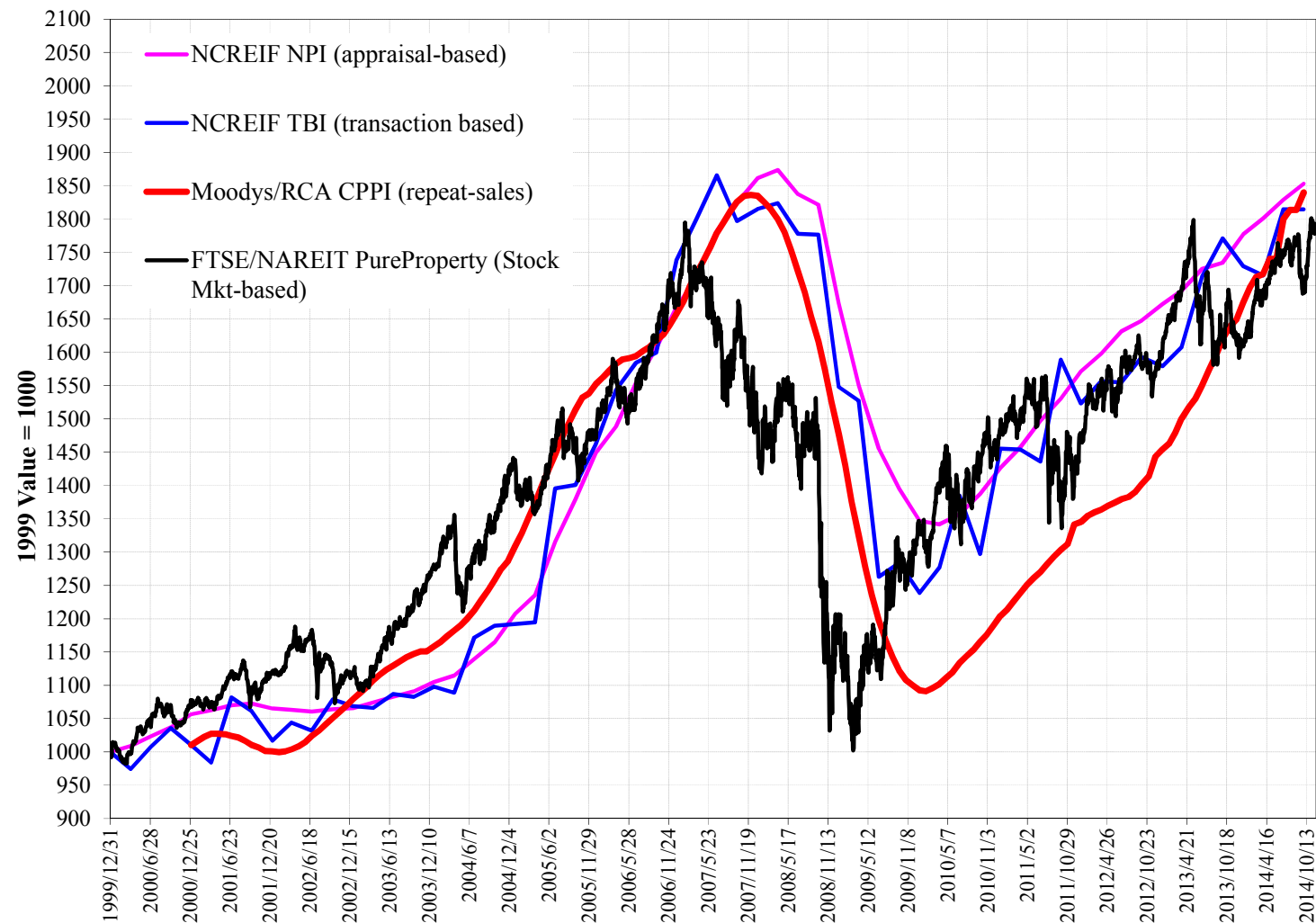
Name	Price data	Estimation method	Frequency	Coverage
Urban Land Price Index	Appraisal prices	Mean	Bi-annually	Japan
IPD Property Index	Appraisal prices	Mean	Monthly	25 contries
NCRIEF Property Index	Appraisal prices	Mean	Quarterly	U.S.
MIT/CRE TBI	Transaction prices	Hedonic	Quarterly	U.S.
Moody's/RCA CPPI	Transaction prices	Repeat sales	Monthly	U.S.
FTSE NAREIT PureProperty Index	REIT returns	De-levered regression	Daily	U.S.

どうして、不動産価格指数は機能しなかったのか？

Why J-CPPI were not effective in policy management?

- どうして、不動産価格指数は、バブル期および崩壊過程で機能しなかったのか
- → 主要国の動産価格指数は鑑定価格指数であった。
- 鑑定価格指数には、多くの問題が指摘されている。
- スムージング問題、鑑定誤差問題、ラグ問題、クライアントプレッシャー問題
- (Nishimura and Shimizu (2003), Shimizu and Nishimura (2006), (2007)
- 鑑定評価を批判するものではなく、政策指標としての限界が指摘されているに過ぎない
- → 国際商業不動産価格指数ハンドブック(2015)

米国における商業不動産価格指数

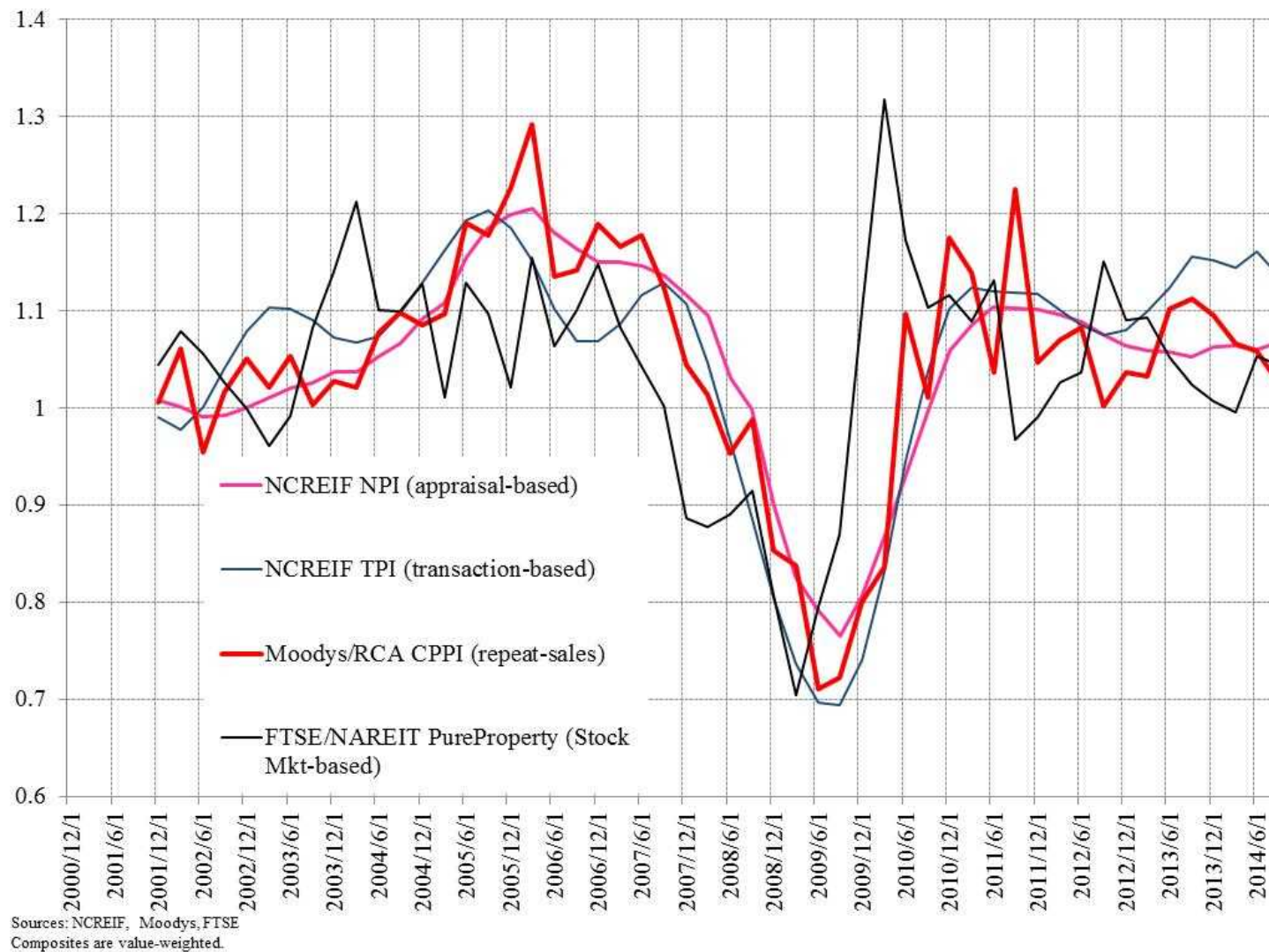


Sources: NCREIF, Moodys, FTSE
Composites are value-weighted.

Stock Mkt Based Daily, Repeat-Sales Monthly, Others Quarterly

デイビッド・ゲルトナー, 清水千弘(2015), 「商業不動産価格はどのように測定すればいいのか?」『経済研究』第66巻第3号

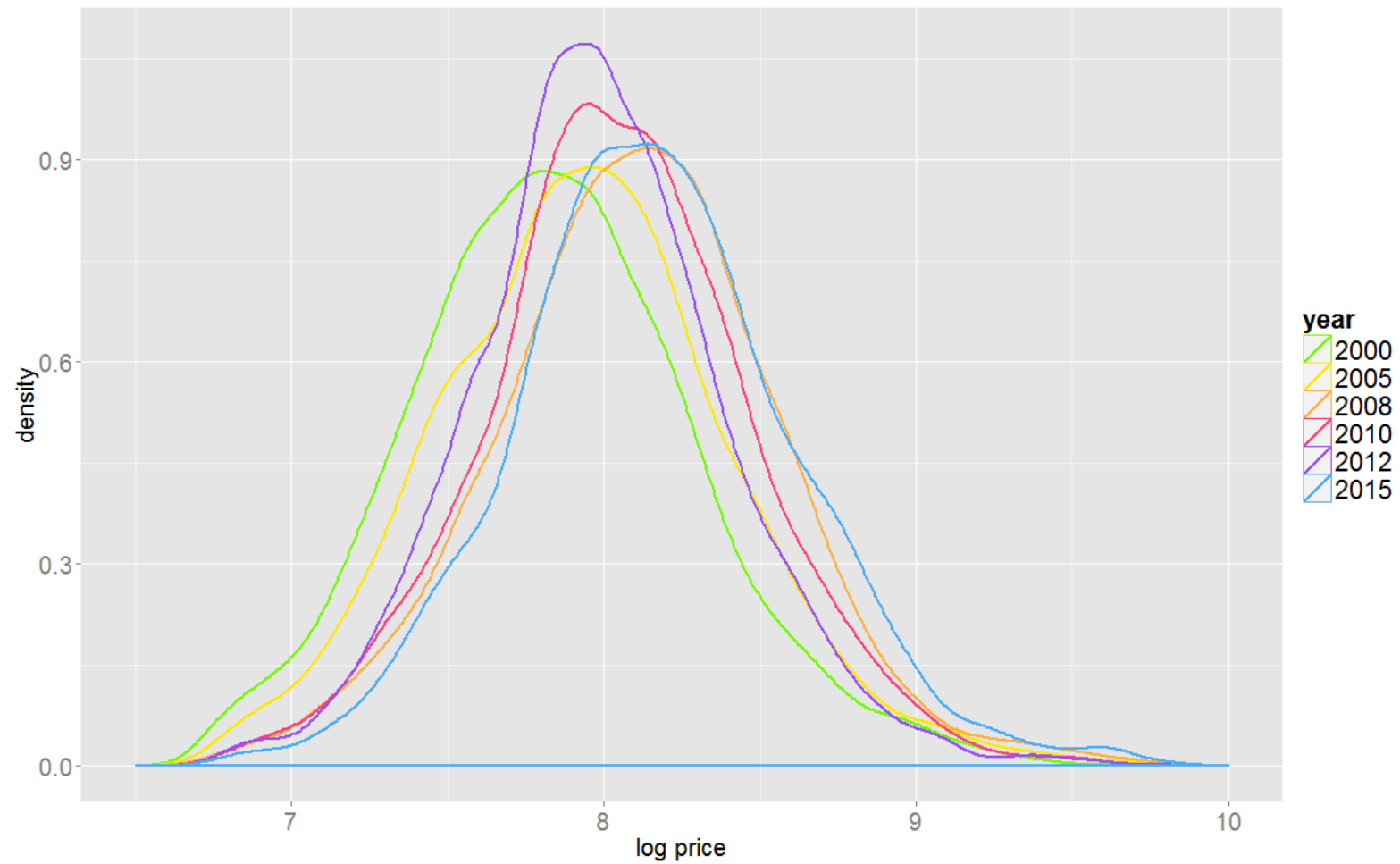
商業不動産価格指数の転換点:対前年変動率



デイビッド・ゲルトナー, 清水千弘(2015), 「商業不動産価格はどのように測定すればいいのか?」『経済研究』第66巻第3号(近刊)

Price distribution

Figure 1. Price distribution: Full Sample



Decomposition of Distributions Indexes

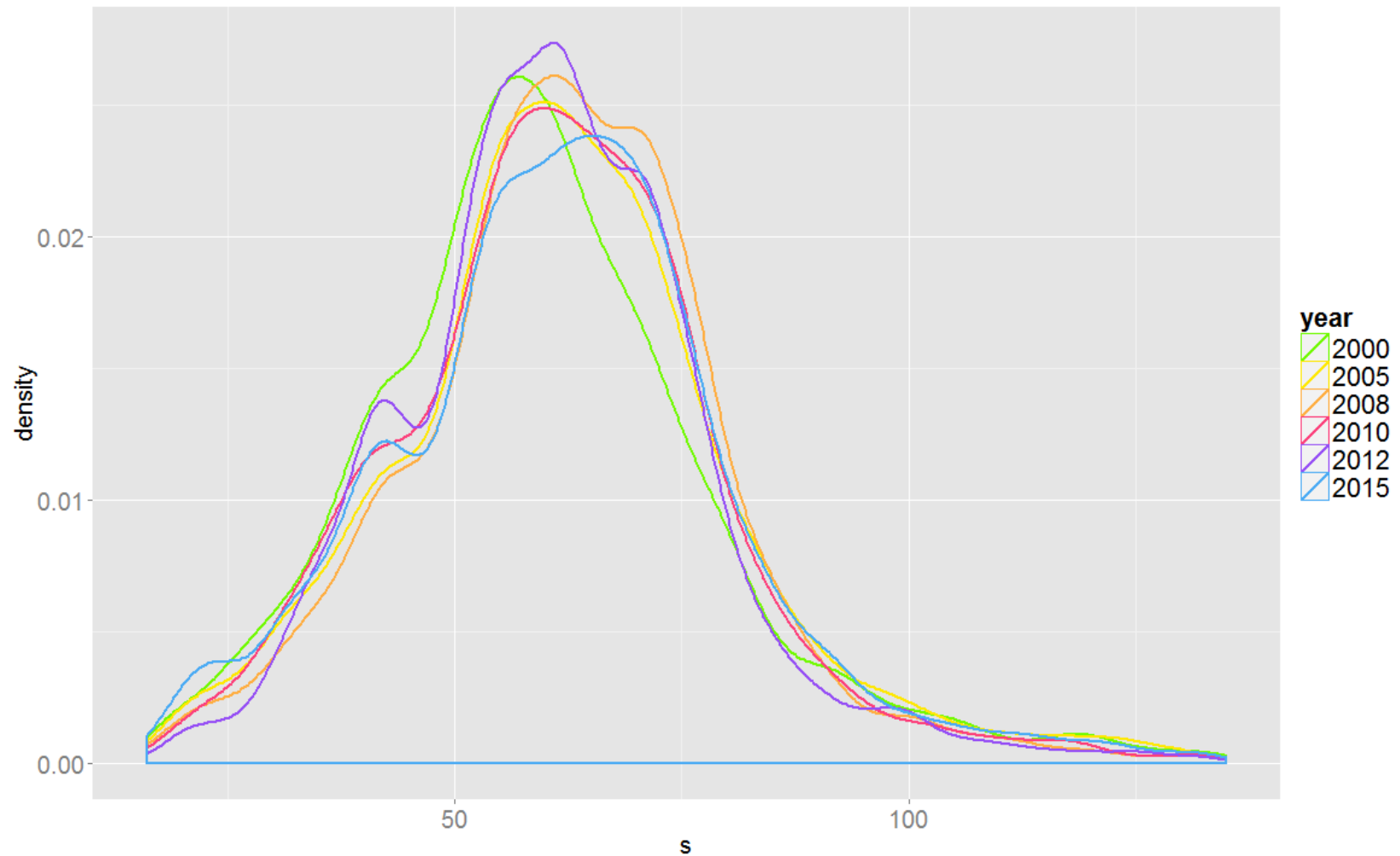
- Resampling Method by Machado and Mata (M-M 2005)
 - **Step 1.** Estimate QR for denoted set of $\theta \in (0,1)$. The estimates are $\hat{\beta}_0(\theta)$ and $\hat{\beta}_1(\theta)$, i.e. $\hat{\beta}_t(\theta)$ $t=0,1$
 - **Step 2.** For QR coefficients set of $\hat{\beta}_t(\theta)$, yield m estimates from QR coefficients
 - **Step 3.** Generate a random sample of size m with replacement from z_0 and z_1
 - **Step 4.** Multiple set of $\hat{\beta}_t(\theta)$ with z_0 and z_1 . We get estimated samples of house prices with size m . $z_0\hat{\beta}_0(\theta)$, $z_1\hat{\beta}_1(\theta)$ and $z_0\hat{\beta}_1(\theta)$.

Decomposition of Distributions Indexes

- Decomposition of Distributions Indexes
 - We set 2000 year as t_0 . For each quarter q , we set $t_1 = [q - 4, q]$
 - After following M-M approach, we have:
 1. $z_t \hat{\beta}_t(\theta)$: Non-quality controlled sample with size m
 2. $z_0 \hat{\beta}_t(\theta)$: Quality controlled sample with size m
- Difference analysis (two periods):
 - Total Change(a): $z_1 \hat{\beta}_1(\theta) - z_0 \hat{\beta}_0(\theta)$
 - Coefficient Change(b): $z_0 \hat{\beta}_1(\theta) - z_0 \hat{\beta}_0(\theta)$
 - Attributes Change(a)-(b): $(z_1 - z_0) \hat{\beta}_1(\theta)$

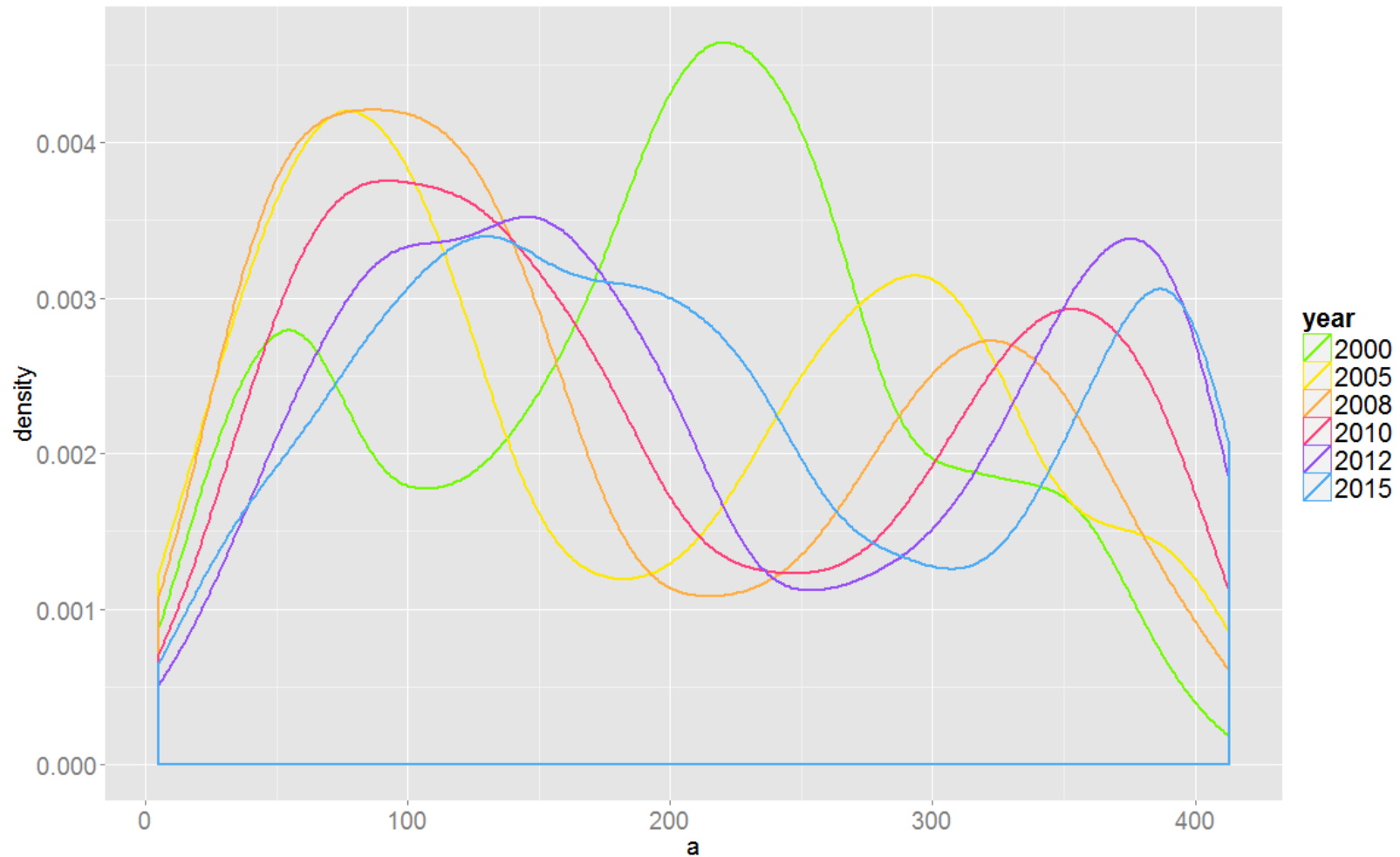
Attributes distribution: floor space

Figure 2a. Attributes distribution: Floor Space



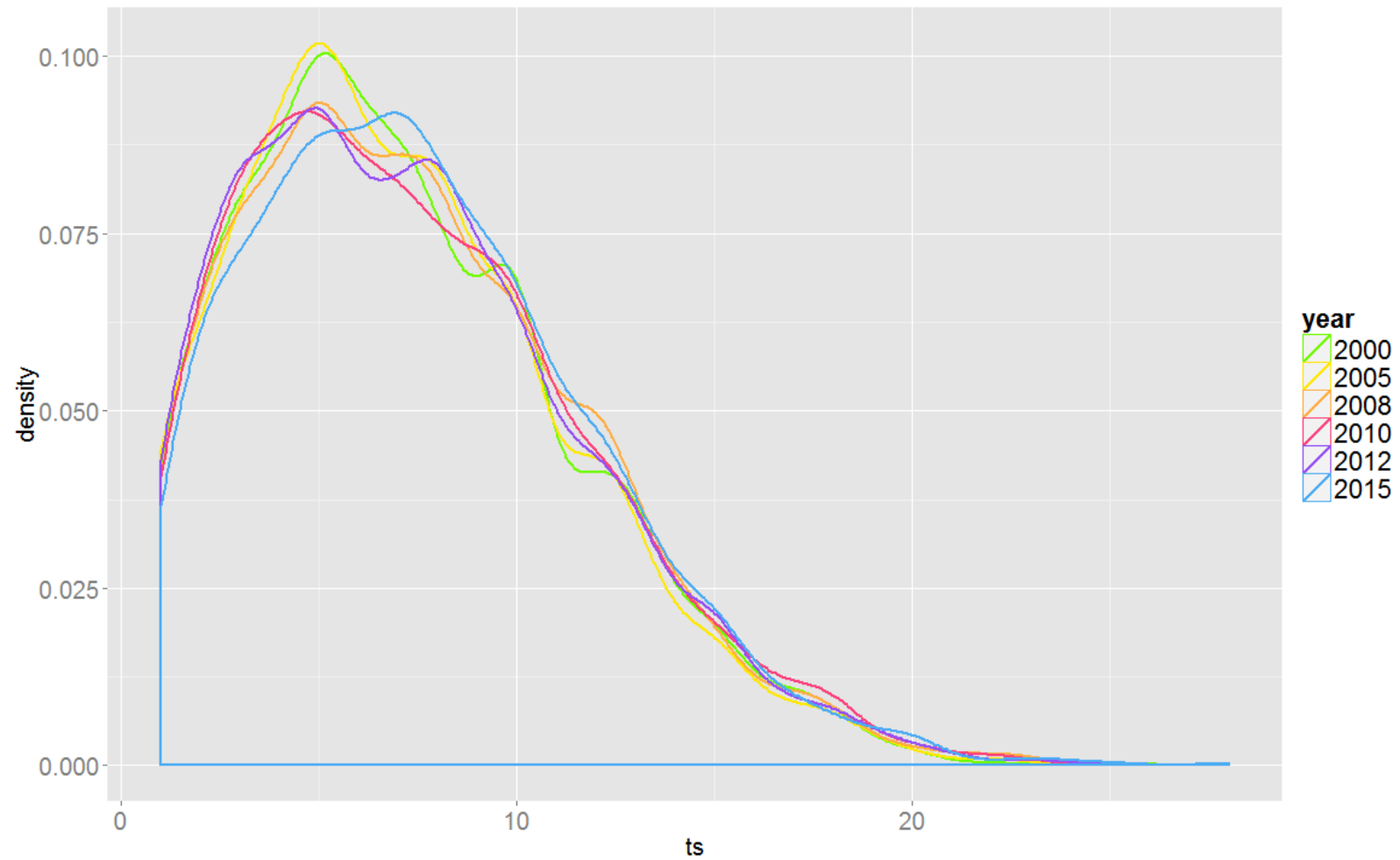
Attributes distribution: age of building

Figure 2b. Attributes distribution: Age



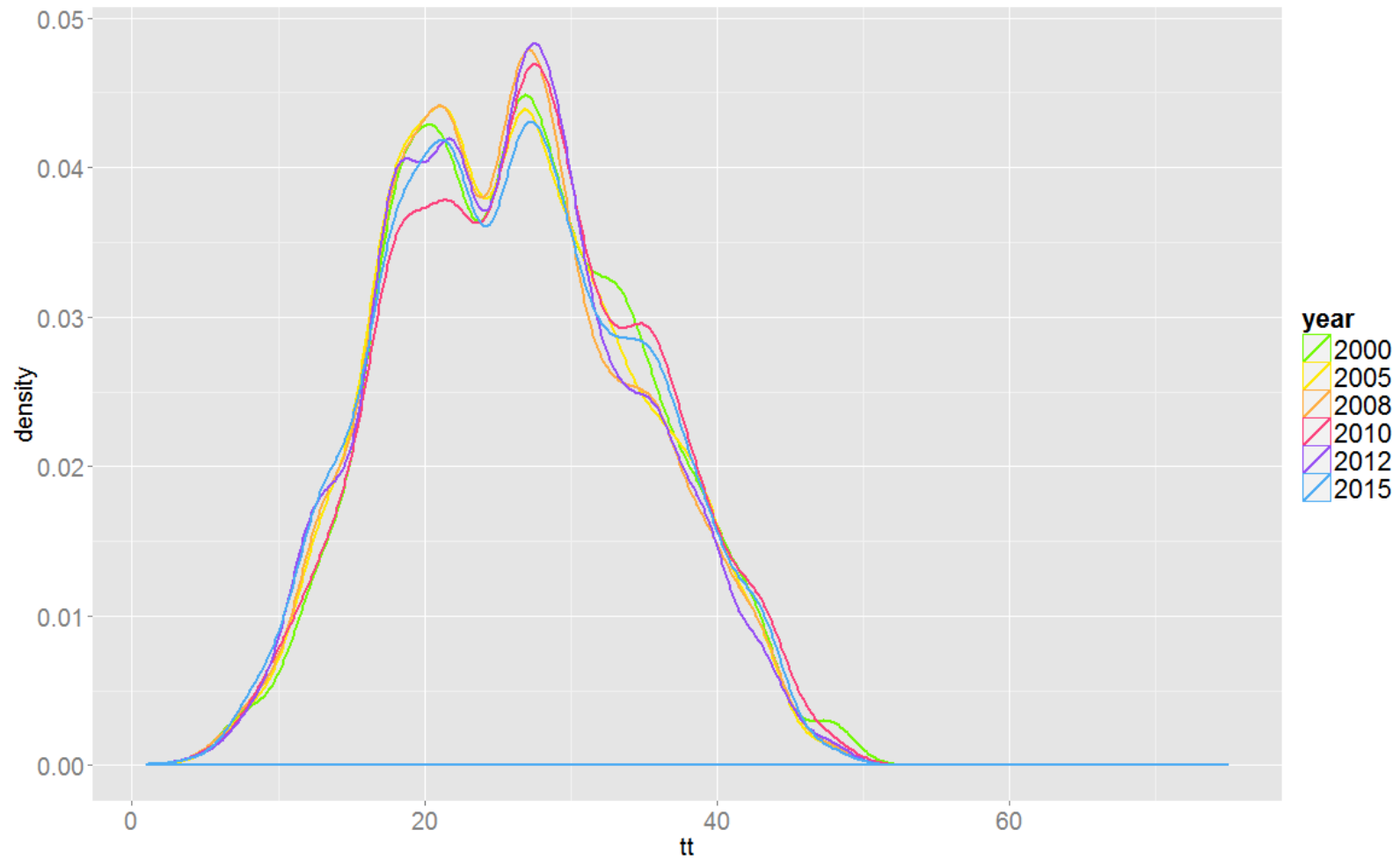
Attributes distribution: time to nearest station

Figure 2c. Attributes distribution: time to nearest station



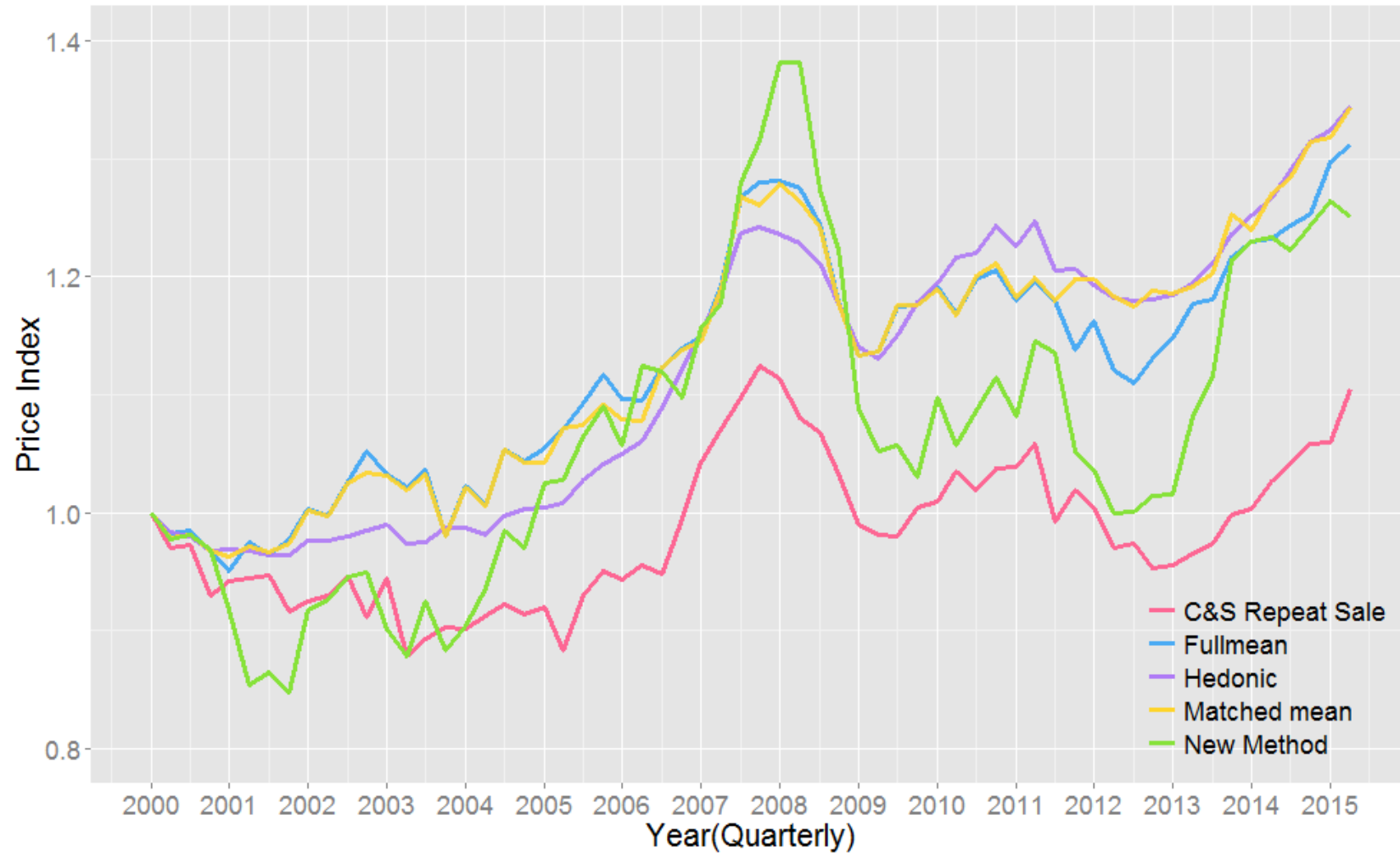
Attributes distribution: time to Tokyo station

Figure 2d. Attributes distribution: time to Tokyo station



Indexes Comparison: All

Figure 6e. Compare Indexes: All



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