

# Research Methodology 01

## -Introduction and Syllabus-

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Chihiro Shimizu(清水千弘)

Professor, Institute of Real Estate Studies  
National University of Singapore



## 0. Outline of Today's Lecture

1. What is Research Methodology for Real Estate (Studies)?
2. Purpose of Real Estate Studies?
3. Utility of Science or Real Estate Research
4. Difficulties in Real Estate Studies
5. Qualities of a good researcher

### **Today's Case:**

**What is “Property” or “Real Estate”?**

# 1. What is *Research Methodology* for Real Estate( Studies)?

- What is *Research*?
- What is *Methodology*?
- What is *Real Estate Studies*?
- In the modern complex world every society today is faced with serious social, economic and political problems.
- Real Estate Market plays an important role in real world.
- -Economic Growth.
- -Financial Crisis.
- -Consumption in household.
- -Social problems in the city.

## Serious social, economic and political problems.

- Serious social, economic and political problems need systematic intelligent and practical solution.
- Problem solving is a technical process.
- →It requires among all other things accumulation of new knowledge.
- Research provides the means for accumulating such a fund of knowledge and wisdom.

## Research or activities to repeat a search

- **Research** helps to push the frontiers of knowledge beyond the horizon.
- It is an indepth analysis based on reflective thinking of the various phenomena or observed units to make a generalisation.
- **Research** is essential for building up of the knowledge base in social science.
- →Develops **concepts**, **theories** and **tools of measurement**.

# Methodology

- It also provides the research investigator necessary skills to analyse problems scientifically and find solutions.
- (1) Conceptual or Theoretical Studies
- (2) Case study
- →
- Data analysis
- Interview
- Literature survey
- etc

## 2. Purpose of Real Estate Studies?

- *Real Estate Studies* is a part of *Social Science*.
- The purpose of *Real Estate Studies* may be classified into two parts viz. academic and utilitarian.
- The academic purpose of *Real Estate Studies* is to acquire first hand knowledge about the “Real Estate Market”.
- Thus the primary object of *Real Estate Studies* is to get true and intimate knowledge of *Real Estate Market* in cities and its functioning, to know and understand the laws that are operating behind various activities of man or industries.
- The other purpose of *Real Estate Studies* is **utilitarian** in nature.

## Why did you come to “*Department of Real Estate*”?

- *Motivating Forces of Real Estate Studies.*
- 1. **Curiosity** and **desire** of the person to know about the **unknown**.
- 2. Find out cause effect relationship so as to avoid **uncertainties** in real estate market to the extent possible.
- 3. To study unusual **happenings** of real estate market.
- 4. To **discover new** and **test old scientific procedure** as an efficient way to gain useful and fundamental knowledge.



## How do we set assumptions for Real Estate Studies?

- The basis of real estate studies is based on the existence of cause and effect relationship between various real estate market or social activities.
- Aging and Real Estate Prices.
- Property Bubbles and Housing Market
- Inflation, Unemployment rate and Housing Prices, etc
- Real Estate Market or human society is *very vast*.
- →The researcher has to rely upon the sampling technique.
- →It is generally assumed that a sample representative of the group may be drawn and the deduction from the study of the sample may be made applicable to the whole group.

## Heterogeneity in Real Estate Market

- Real Estate has strong heterogeneity.
- *Human society suffers from a number of social evils like murders, suicides, thefts, robberies, quarrels and wars.*
- Most of these evils have their root in the organisation of human society and its working.
- Real Estate Studies or Social research is not concerned with practical and immediate social planning or social engineering nor with ameliorative and therapeutic measure.
- Social disorganisation is the outcome of causes which may be classified into two. **Firstly**, those which are influenced by human nature and **secondly** those that are caused by faulty social planning or defective administration.

## Subject Matter of Real Estate Studies.

- The subject matter may be classified into three parts;
- 
- **-Fundamental research,**
- **-Applied research and**
- →The main difference between fundamental research and applied research is that while the former deals with the fundamental principles guiding human society, the latter pertains to immediate problems.
- **-Quasi social research.**
- →Socio-economic, Socio-psychological and Socioanthropological researches

### 3. Utility of Science or Real Estate Studies

- **1. Social control :** It is with the help of social research, social planning can become possible. Unless social resources and liabilities of the people are available, no social planning can be possible.
- **2. Social cohesion :** The study of society creates better understanding and social cohesion between different social groups.

## Utility of Science Research(2).

- **3. Social welfare :** Social welfare can be achieved through social research, Such research helps us to judge the magnitude of social evils and thus take necessary steps to remove them. Appropriate welfare reforms can be introduced to the society only when social research helps in finding out their needs and necessities.

## Utility of Science Research(3).

- **4. Social prediction :** Social research helps the society in making predictions and goals for the future. It becomes possible because they have necessary data at their disposal. Statistical methods can successfully be used for such prediction.

## Utility of Science Research(4).

- **5. Social growth :** Social research aims at opening new visitors of growth, knowledge and wisdom. It is a step forward towards maturity and wisdom.
- **6. Perfection of tool of research :** Every social research helps in improving old techniques and innovating the new ones. Existing tools of research are modified.

## 4. Difficulties in Real Estate Studies

- **1. Problem of finding good investigators :** In social research it is really very difficult to find a sincere researcher, who can work with missionary zeal. A researcher should not allow his prejudices to enter the research. He should never cook the material and should take the trouble of going to the field to get first hand information.



## Difficulties in Real Estate Studies (2)

- **2. Problem of collecting information :** An investigator is to collect information from human beings. Usually the people are not willing to cooperate with researchers.
- **3. Dependence on others :** A researcher can not do everything by himself. He is required to appoint investigators.

## Difficulties in Real Estate Studies (3)

- **4. Problem of analysing data :** When the data has been collected it should be interpreted; usually data is analysed to suit the convenience and attitude of the researcher.
- **5. Problem of questionnaire :** The researcher is expected to formulate a questionnaire, that the reply is either in the positive or negative. In the questionnaire such phrases should not be used which provide communication gap between what is intended and what is communicated.

## Difficulties in Real Estate Studies (4)

- **6. Temptation for generalisation :** There is a common tendency on the part of the researcher to generalise the findings. They forget that there is vast variation in the habits of the people, social conditions, environments not only from society to society but also from investigator to investigator.

## 5. Qualities of a good researcher

- **(1) General qualities**
- 
- **(2) Particular qualities**
- → Real Estate Studies, Urban Studies, Housing Studies and General topics in Social Science.

## General Qualities (1)

- **1. Scientific attitude :**
- The first essential quality of a successful research worker is that he must possess a scientific frame of mind. He must have the determination and ability to get the naked facts and not to be influenced by one's own wishes.
- **2. Imagination and Insight :**
- The researcher must possess a high degree of imagination.
- **3. Perseverance :**
- The work of scientific research requires unlimited patience and perseverance.

## General Qualities (3)

- **4. Quick grasping power :**
- The researcher should possess the power to grasp the significance of things quickly.
- 
- **5. Clarity of thinking :**
- A good researcher should have clear idea about the terminology that he is going to use.

## Specific Qualities (1)

- **1. Knowledge of the subject :**
  - The researcher should be an expert in the study of the subject which he is going to research.
  -
- **2. Knowledge of the technique of research :**
  - The research worker should also possess an intimate knowledge of the technique that is to be applied to the problem.

## Specific Qualities (2)

- **3. Personal taste in the study :**
  - A personal taste in the study will inspire him and keep his morale high in times of difficulties. A forced work is often monotonous and very tiresome.
  -
- **4. Familiarity about the information :**
  - The researcher should be familiar with the people whom he is studying. Familiarity will help him to get intimate information



## Specific Qualities (3)

- **5. Unbiased attitude :**
- The researcher should have no preconceptions about the subject under study. He should go to his research with absolutely a clean state. He should maintain an open mind and look for data which would substantiate and give his theory a new meaning.

- Find Good Research Topic.
- Make Research Plan.
- Learn Research Methodology.

## Reference:

- R.Cauvery et al (2000), “Research Methodology” Chapter 1 and 2.

## Today's Case:

- What is “Property” or “Real Estate”?

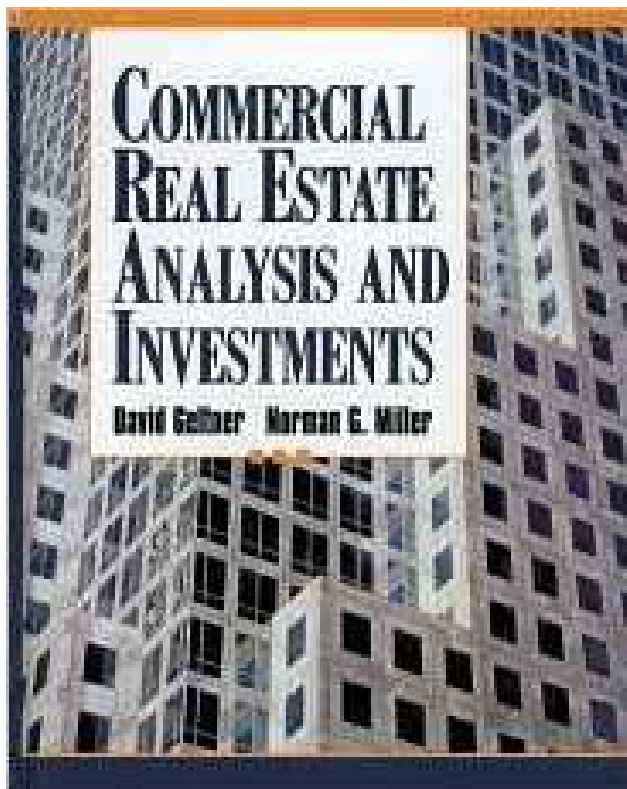
9/29-30, 2014

International Conference on  
Commercial Property Price  
Indicators (by Eurostat, ECB, IMF  
and BIS, OECD)2014

European Central Bank,  
Frankfurt, Germany



# Answer: “Commercial Real Estate Analysis and Investment” By David Geltner



# *Two types of markets relevant to commercial property:*

## *By David Geltner*

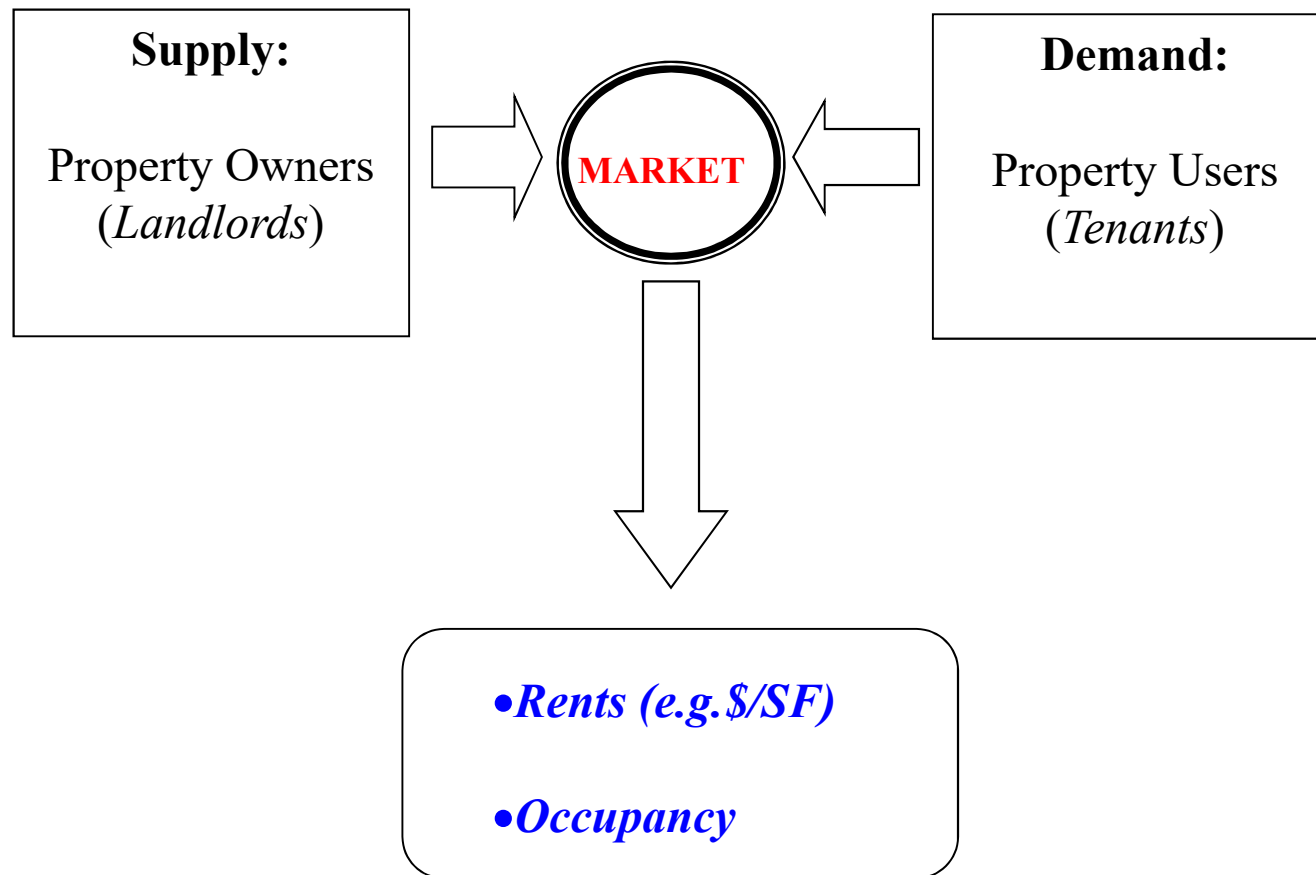
### **The Space Market . . .**

- *For the usage (or right to use) “real property”.*
- *AKA “usage market”, or “rental market”.*
- *(e.g., tenants & landlords exchange money for leases.)*

### **The Asset Market . . .**

- *For the ownership of “real property”.*
- *AKA “property market”.*
- *(e.g., Oh.STRS exchanges my pension \$ for an office bldg.)*

# The Space Market...



## **“Segmentation” in the Space Market...**

- Microscopic(not general) is important in research.
- A market is “*segmented*” if it breaks up into sub-markets, or market segments.
- Within each sub-market or segment, the same good may have a *different* equilibrium *price*.
- **The real estate space market is highly segmented.**
- *Why?...*



## **Demand side:**

- Users require specific types of space... A lawyer can't use a warehouse. A trucking firm can't use a high-rise office bldg.
- Users require specific locations (or types of locations)... A lawyer won't get much business at the.
- A trucking firm's trucks would spend all their time stuck in traffic if their warehouse were located in downtown.

## Supply side:

- Buildings are of specific physical types (warehouses  $\neq$  high-rise offices).
- Buildings are in specific locations (and they can't move!).

## *Two major dimensions of space mkt segmentation:*

- **Geographic location.**
  - Basic unit is the “metropolitan area” (“MSA”).
  - Sub-markets (e.g., CBD, Suburban, neighborhoods) also important.
- **Property type.**
  - Residential (apartment)
  - Office
  - Industrial (warehouse)
  - Retail
  - Other (hotels, health-care, etc...)

## Discussion at ECB:

### What is “Property” or “Real Estate”?

Discussed with ECB, IMF and BIS with Prof. David Geltner @ MIT

- 9/29-30, 2014 International Conference on Commercial Property Price Indicators(Eurostat, ECB, IMF and BIS, OECD)2014(European Central Bank, Frankfurt, Germany)
- Before considering property price indexes, let us first define "What Property is".
- Property is one of the most significant **non-financial assets**.
- What's more, its economic role changes depending on the entity that *owns* and *uses* it.
- Entities that “*own*” property are *households*, *firms*, and *governments*, and “*use*” differs for each one.

## property: Who “Own” and How “Use”.

- What is Property?
- With regard to **households**, use centers on **residential** use. Households are an entity that consumes housing services. → One may assume that households change the usage method and amount owned in order to maximize utility.
- Property owned by **firms** is one of the factors in producing goods and services. → Depending on the goods and services produced by the company, property may be used for various purposes, such as **offices, commercial facilities, factories, medical facilities, warehouses, or hotels**. Companies change the usage method and amount used in order to maximize their profit.
- **Governments** use property that is required in order to produce public services. → The amount is determined in order to maximize utility for citizens of the state or local residents.

## Towards a national accounts based delineation of commercial property

- What is Property? SNA perspective.
  - Dwellings (AN111)
  - Other buildings and structures (AN112)
  - Buildings other than dwellings (AN1121)
  - Other structures (AN1122)
  - Land improvements (AN1123)
  - Land (AN211)
- **Reproduced or not**: Land(non-reproduced tangible assets) and Building (reproduced tangible assets).
- **Activity** : Market/non-market output and output for own final use.
- **Use** (residential, office, retail, industrial, etc.)

<b>National Accounts Concepts</b>		<b>Market Output</b>	<b>Non-Market Output</b>	<b>Own-Use</b>
	RPPI and CPPI concepts	Commercial	Non Commercial	Owner Occupied Housing
<b>Dwelling + land underlying dwelling</b>	Residential Property	<b>Commercial Residential Property</b>	—	<b>Owner Occupied Housing</b>
	Social Housing	—	<b>Social Housing</b>	—
<b>Building other than dwelling, land underlying</b>	Office Property	<b>Commercial Real Estate</b>	<b>Non-Market Real Estate</b>	—
	Retail Property	<b>Commercial Real Estate</b>	<b>Non-Market Real Estate</b>	—
	Industrial Property	<b>Commercial Real Estate</b>	<b>Non-Market Real Estate</b>	—
<b>Other Structure</b>	—	—	—	—

## Delineation of Commercial property in Business sector.

- The business sector classifies “*income-producing properties*” and “*own-use properties*”
- The business sector has a greater wealth of experience than the official statistics sector. For example, in the *property appraisal business*, appraisers determine prices based on three methods:
  - a) transaction comparison or comparable method,
  - b) cost method, (Land + Building).
  - c) capitalization method. (*income-producing properties*).
- Where mkt is strong, *transaction comparison method* will dominate, though capitalization method & cost method may also be used.



## DATA AVAILABLE.

		Urban area		Non-Urban area
			Own use	
<b>Dwelling + land underlying dwelling</b>	Residential Property	<b>A</b>	na.	<b>C</b>
<b>Building other than dwelling, land underlying</b>	Office Property	<b>A</b>	<b>B</b>	<b>C</b>
	Retail Property	<b>A</b>	<b>B</b>	<b>C</b>
	Industrial Property	<b>A</b>	<b>B</b>	<b>C</b>
<b>Agriculture land</b>		na.		<b>D</b>

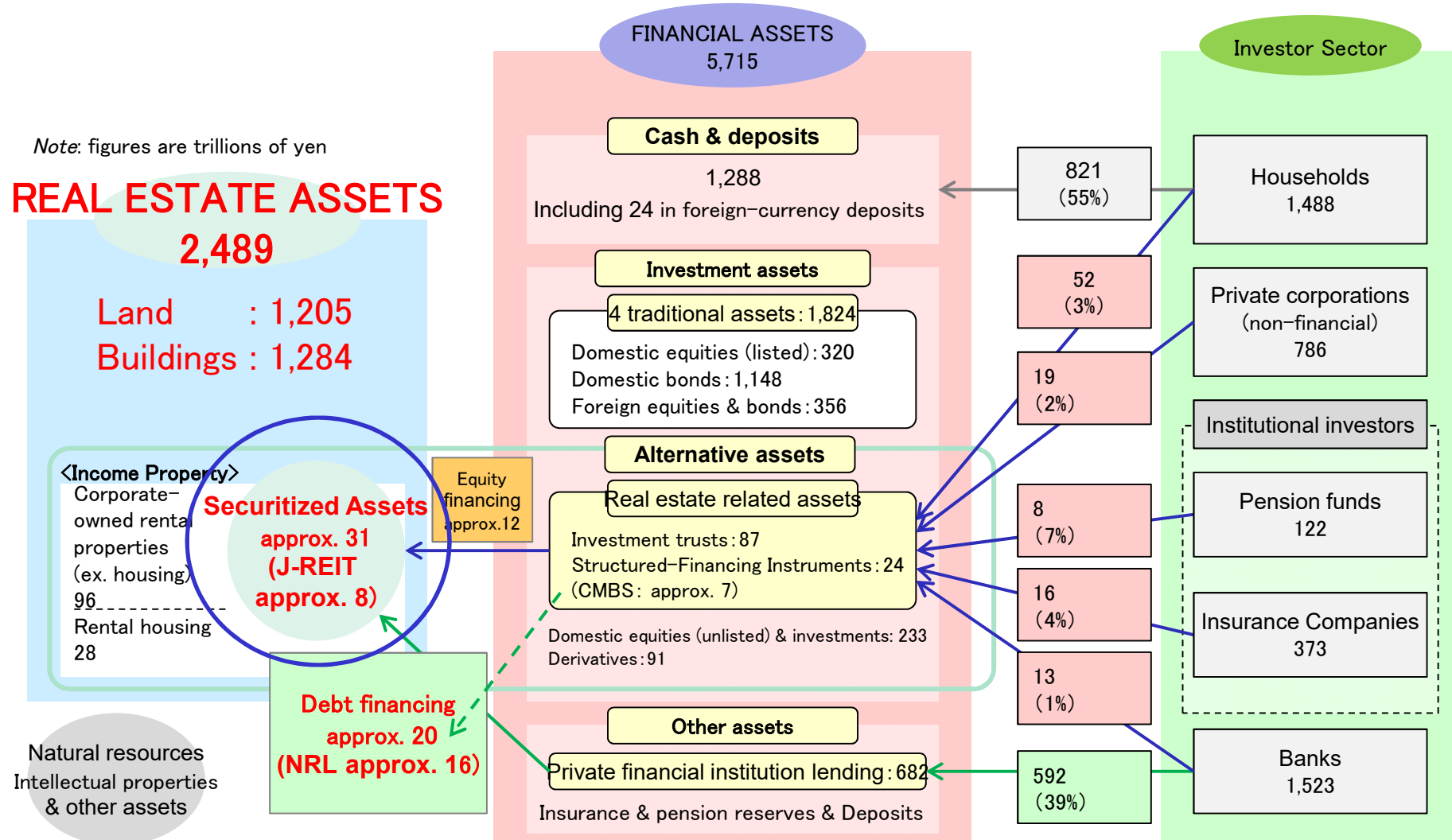
A: Rich transactions and income or rent data.

B: Poor transactions and rich income or rent data.

C: Poor transactions and income or rent data.

D: Strong regulation for conversion and transaction.

# MARKET SIZE: CASE OF JAPAN.



Source: Japanese Cabinet Office, Ministry of Land, Infrastructure, Tourism and Transportation

## Classification of commercial property.

- Commercial properties are very heterogeneous. Heterogeneity exists not only at the individual asset level, but at an aggregate level in populations of properties that effectively trade in distinct asset market segments.
- To construct useful CPPIs it is crucial to recognize this type of aggregate level heterogeneity and market segmentation, because different price dynamics can prevail across different market segments. Prices in one market segment might be rising at the same time those in another segment are falling. If you mix the two segments (or “populations”) together without care and attention, then you may think nothing is happening to prices in either market.

# CLASSIFICATION IN OFFICIAL STATISTICS.

- Asset classification in SNA perspective.
- For buildings, the acquisition amount should be recorded as the economic value, but subsequently, “consumption of fixed capital”, “improvement of building”, and “demolition” are taken into consideration in estimating the economic value.
- Therefore, when it comes to the categorization of these assets, one can see that it is necessary to perform estimation by distinguishing between assets with varying depreciation rates or curves.
- Specifically, they must be classified based on property use (housing, office, commercial facility, factory, hotel, medical facility, etc.) and building structure (wooden, reinforced concrete, steel-reinforced concrete).
- → “*Cost method*” in business sector.

# CLASSIFICATION IN BUILDING.

- Classification of types of construction .
  - 11. Residential buildings
    - 111. One-dwelling buildings
    - 112. Two- and more dwelling buildings
    - 113. Residences for communities
  - 12. Non-residential buildings
    - 121. Hotels and similar buildings
    - 122. Office buildings → Office
    - 123. Wholesale and retail trade buildings → Retail
    - 124. Traffic and communication buildings
    - 125. Industrial buildings and warehouses → Industrial
    - 126. Public entertainment, education, hospital or institutional care buildings
    - 127. Other non-residential buildings

# PRODUCT CLASSIFICATION.

- The CPA (Statistical Classification of Products by Activity) 2008.
- Residential.
- Business.
- Industrial and warehouses.
- Agricultural.
- Non-residential properties include: factories, office, warehouses, theatres, multiple-use buildings that are primarily non-residential, agriculture, forestry properties, similar properties.

## CLASSIFICATION IN BUSINESS SECTOR.

- Building usage type “*sectors*,” geographic location “*markets*,” and the perceived physical quality and/or size “*class*” of the individual properties.
- **Sectors**: offices, retail, industrial (including logistics) and rental residential.
- **Geographic Regions & Markets**: geographical divisions, within the metropolitan region or not, etc.
- **Property Physical Quality & Size Classes**: Class A (sometimes referred to as “prime” or “premium” or “institutional quality”) or Class B.

# Outline RE3201: Research Methodology

## SYLLABUS

- This is a restricted elective module with 4 module credit.
- The syllabus of the module is given by the NUS Bulletin: "Students will be introduced to the mechanics and process of research. This module covers topics such as: problem identification and formulation, statement of research objectives, literature review, development of relevant hypothesis, research design and methodologies, data collection, statistical analyses, report writing and presentation. Statistical techniques such as descriptive and inferential statistics, time series, and multivariate statistical methods will be introduced. The emphasis is on the application of the statistical tools to real estate research questions. Students will also learn to apply basic statistical tools with hands-on practices on software like SPSS and Eview."
- The lecturers-in-charge has re-developed the module in 2016. The content is given in the IVLE-RE 3201-Synopsis.



# SYNOPSIS

- For the first half of the module by Chihiro Shimizu  
<cshimizu@nus.edu.sg>
- Lecture 1 What is research methodology in real estate studies?
- Lecture 2 Hypothesis and research design
- Lecture 3 Method of data collection
- Lecture 4 Analysis of interpretation of data
- Lecture 5 Analyzing survey data: ethnical issues in survey
- Lecture 6 Case studies

## Lec01: Introduction & Syllabus

- 1/14: Introduction to Research methods: Finding a topic, research question and theory, latest research topics.
- Research Methodology in Real Estate (Studies), Purpose of Real Estate Studies, Difficulties in Real Estate, Utility of Science Research, Qualities of a good researcher.
- Case: What is Property?

## Lec02: Research Process

- 1/21: Research Process: Hypothesis and theory and Literature Review.
- Hypothesis, Theory and fact of Real Estate Studies or social science, Design of research, Literature survey, in research.
- Case: Aging and Real Estate Prices: Evidence from Japanese and US Regional Data.

## Lec03. Data Collection

- 1/28: Data Collection and Descriptive Statistics.
- Methods of data collection, Technique of Interviewing, Questionnaire, Sampling, Schedule.
- Review of Statistics: Describing Data, Graphics
- Case: Green Luxury Goods? The Economics of Eco-Labels in the Japanese Housing Market

## Lec04. Analyzing Data

- 2/4: Analyzing Data.
- Research Question and Data, Overview of multivariable analysis, The aims and methodology of Econometrics.
- Review of Statistics: Describing Data, Numerical
- Case: Housing Bubbles in Japan and the United States.

## Lec05. Interpretation of results

- 2/11: Interpretation of results, Validation of results.
- Interpretation of results of empirical exercise, Validation of results.
- Review of Statistics: Simple Regression
- Case: Estimation of redevelopment probability using panel data-Asset bubble burst and office market in Tokyo-.

## Lec06. Report Writing and Presentation

- 2/18: Report Writing and Presentation, Ethics in Research.
- Guidelines for the preparation of undergraduate dissertations, Presentation, Ethics in research.
- Review of Statistics: Multiple Regression
- Case: Housing Rent and Japanese CPI: Bias from Nominal Rigidity of Rents-.

- (7) Data sources of Real Estate in Singapore
- (8) Understanding real estate indexes
- (9) Interpreting property prices
- (10) Interpreting real estate demand data
- (11) Interpreting real estate supply data
- (12) Real estate finance data and interpretation
- Write up report, dissertation and case study



## Basis of Assessment:

- CA: 40%
- CA1: 20% allocated to the first half of the module
- 1. Classroom performance: 5%
- 2. Tutorial worksheet completion 15%
- 
- CA2: 20% allocated to the second half of the module
- 1. Classroom performance: 5%
- 2. Tutorial worksheet completion: 15%
- Final Exam: 60% (restricted open book: tutorial worksheet of the module are not allowed in the examination hall)

## References in RE3201:

- Floyd J. Fowler (2014), “Survey Research Methods”
- P.Eriksson and Anne Kovalainen (2016), “Qualitative Methods in Business Research” 2<sup>nd</sup> edition.
- P. Newbold, W.L. Carlson, B. M. Thorne (2014), “Statistics for Business and Economics” 8<sup>th</sup> edition.
- R.Cauvery et al (2000), “Research Methodology”
- R. Panneerselvam (2014), “Research Methodology” 2<sup>nd</sup> edition.

## **Announcements:**

- **Tutorial 1 begins on 3rd Week**
  - 1. Literature Survey
  - 2. Data Collection
  
- **Tutorial 2 begins on 5th Week**
  - 1. Graphical Presentations and Descriptive Statistics
  - 2. Regression
  
- **Project:**
  - Aging and house prices based on Tutorial 1 & 2.
  - Literature survey in your research topic.

# Chihiro Shimizu, PhD: 清水千弘

Professor, Institute of Real Estate Studies  
National University of Singapore  
21 Heng Mui Keng Terrace, #04-02  
Singapore 119613  
Tel: (65) 6601 4925 Fax: (65) 6774 1003  
Email: [cshimizu@nus.edu.sg](mailto:cshimizu@nus.edu.sg)  
Website: [www.ires.nus.edu.sg](http://www.ires.nus.edu.sg)