PRICE INDICES FOR REAL ESTATE SERVICES

AS USED IN THE CORPORATE SERVICES PRICE INDEX PRODUCED BY THE UK OFFICE FOR NATIONAL STATISTICS

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I Summary

Real estate services encompass a range of activities concerned with the buying, selling and renting of commercial and residential properties. This paper focuses on the commercial (non-residential) sector. The individual or organisation carrying out the activity represents a key feature: some are the property owners and some are agents. This feature has led to the development of two separate price indices:

1. Real estate agency services
2. Letting of self-owned property

The two indices require different pricing methodologies but they also complement each other and, together, represent the majority of corporate service activity within the real estate sector.

Note that other real estate activities, namely the development, selling and buying of self-owned real estate, is not included as it is not a corporate service.

II Introduction

This paper is derived from papers presented by the UK and Australia ABS at the Voorburg 2000 conference and is supported by papers produced by the Bank of Japan, the US Bureau of Labor Statistics and Statistics Sweden – these are attached as appendices.

Price indices and background information are described separately for property rental payments and real estate agency services within each of the following sections:

It should be noted that this principal paper is currently in draft status as it requires a more complete coverage of the range of real estate services. The aim is to reach final status in 2002.

The UK Office for National Statistics has established a range of Corporate Services Price Indices that currently covers around half the corporate services sector in the UK. A quarterly summary of the prototype top-level index, along with some 28 industry-specific series, is currently produced and is available on the National Statistics web-site (see http://www.statistics.gov.uk/cspi).

Renting and real estate services are included in the UK Corporate Services Price Index (CSPI) as follows:

1. A series for “Real Estate Agency services” covering selling, letting and acquisitioning activity and acting as a proxy for all real estate agency activities (including property management services)
2. A series for “Property rental payments” relating to the renting or leasing of self-owned non-residential property.

The first combines data on commission rates collected from real estate agents with indices of capital values and rental values provided by an external organisation (the Investment Property Databank - IPD). The second uses an index of the rental income from investment properties, also provided by IPD, and which is treated as a proxy for the industry as a whole.

To date, price indices for the sub-components of each of the above two indices have not been produced. In each case, the index is derived from indicators that represent partial coverage of the full range of activities. Therefore the indices are proxies for the sector they cover. Further work is being carried out to produce more detailed indices for future publication.

III Definition of Industry Outputs/Types of Services

Industry outputs/what is being priced

Real estate agency services

Output relates to the services provided by real estate agents as intermediaries in the selling, letting and acquisition of properties and other property management and related professional services. The services are mainly provided to the property owners although some are to prospective purchasers or renters. The value of these intermediary services is measured in terms of the fees and commission earned.

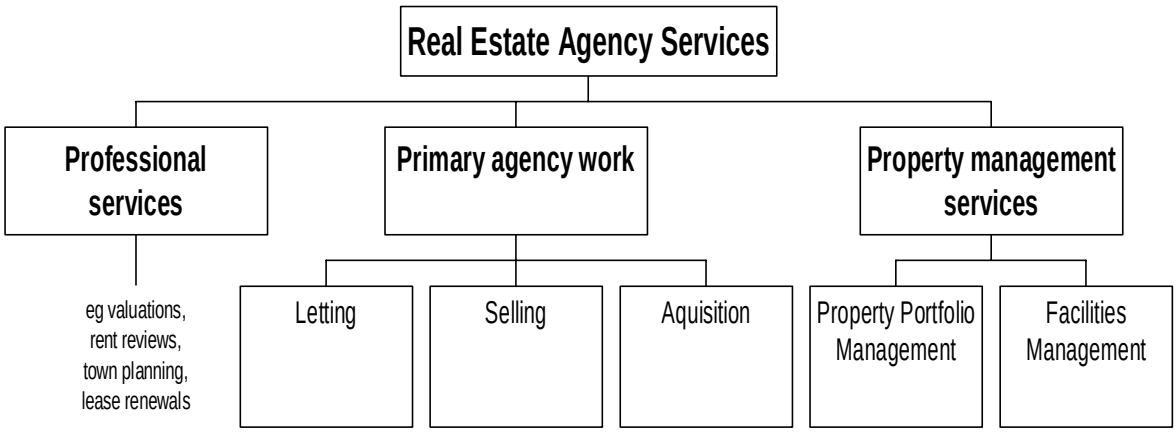
Property rental payments (non-residential)

Output is the provision of rented accommodation for non-residential purposes, measured by total rental payments to the property owners either directly or via agents acting on behalf of the owners. In practice it can also includes other services, such as use of utilities, ground leases, maintenance charges, and business rates.

Types of services

Real estate agency services

Real estate agency services are illustrated on the diagram below:



N.B. The cells relating to "primary agency work" on the diagram above are those for which prices are currently collected. "Primary agency work" is a term used solely for the purposes of the CSPI. Separate indices for property management services and other professional services are yet to be developed. Agency work accounts for approximately 40 per cent of the total turnover for real estate agency services. Letting is the dominant area of primary agency work, followed by selling and then acquisitions.

For each of the three components of primary agency work (letting, selling and acquisitions), activity is separated into four broad categories of property: office; retail; industrial and others.

Professional services include: valuations; rent reviews; lease renewals; rating (working out the rateable value of properties for the payment of business rates to local government); town planning and property consultancy (e.g. introductory fees and receivership work). These services constitute about 30% of the total turnover for real estate agents.

Property management services is a growing area of activity. Facilities management involves operational services required by the owner or occupier in order to run the building, e.g. cleaning, cooling, heating, lighting, repairs and rent collection.

There are four main methods used for the charging of estate agents services:

- Commission: a percentage of the sale value or a percentage of the rental charges;
- Fixed fee;
- Incentive fee based on a percentage fee above a specified amount;
- Work charged on a hourly basis, for example, receivership work, court work and expert witness work. These activities account for a relatively small proportion of industry turnover.

Approximately 80 per cent of real estate agents' work is charged for by applying percentage fees.

For primary agency work and professional services the most common method for charging work is by a percentage commission rate. However, small contacts will be charged on a fixed fee basis and some areas of professional services will be charged on a hourly basis. For rent review work estate agents will typically receive a percentage of the savings accrued.

A number of factors will determine the percentage commission charged for selling property. For example, if it is thought that the property will sell relatively easily and the customer agrees on the price recommended, the rate of commission will be relatively low. Property located in prominent location may be charged a lower rate of commission. Selling can occur by sole agency, joint agency. With sole agency the sole agent receives the commission. With joint agency, the commission is usually shared among the joint agents. Occasionally with joint agency, the first agent to introduce the final buyer will get the commission, but this is quite rare.

Letting services are typically charged for on a percentage rate of the first year's rent, regardless of the number of years in the contract.

Property management services tend to be charged on a contract basis. Although contracts may be repeated from quarter to quarter, aspects of the contract can change. This can lead to difficulties in the measurement of pure price changes and quality changes.

Property rental payments (non-residential)

These are payments for the renting or leasing of owned non-residential property. Similar to real estate agency services, rentals activity is separated into four property categories: office; retail; industrial and other. Other relevant categories are land and conference and exhibition centres but these are not covered in the UK CSPI.

The CSPI covers letting of properties owned for investment purposes – mainly by financial companies, particularly insurance. In theory though, all other non-residential properties owned by financial and non-financial companies should be included. Therefore the current CSPI is a proxy for all non-residential property rental payments.

The services covered relate to the actual rents paid (not taking into account of the different ways in which rents may be paid/charged) and include both existing and new rental arrangements (at a ratio of about 10:1).

IV Business Model

(Real estate agency services and property rental payments combined)

A. Industry organisation

Real estate activities, categorised to classes 70.20 (letting of own property) and 70.30 (real estate activities on a fee or contract basis) of the UK's Standard Industrial Classification, are sometimes associated with services such as auctioning, valuation and chartered surveying. Also, it should be noted that lettings of dwellings to private tenants, including lettings of social housing subsidised by government, are normally included in these categories – however they are excluded for the purposes of the CSPI.

This mix of activities between the various professions, frequently occurring within the same business unit, makes it difficult to provide accurate annual turnover data for all real estate activity in isolation. It is especially difficult to make an informed estimate of the proportion of that total which relates solely to commercial property transactions. Professional bodies in the UK such as the Royal Institution for Chartered Surveyors, the National Association of Estate Agents and the Independent Association of Estate Agents are unable to provide reliable data on this basis. These bodies tend to represent individual rather than corporate members.

More recent developments in the sector have only served to further obscure the position with the increasing tendency to diversify, both horizontally and vertically, especially by the larger business enterprise groups which have also expanded the scope of their activities into the global market. The range of services provided by estate agents can also include construction and property development,

conveyancing, facilities and asset management, financial and legal services, project management, consultancy and market research and intelligence. The globalisation of the market for dealing in real estate has been significantly aided by the developments in e-commerce and the massive growth in individual access to the internet.

With the liberalisation and expansion of the banking and financial services sector, high street banks, insurance companies and building societies became involved in estate agency services from the early 1990s onwards (mainly through acquisition of established businesses); but this trend has been reversed recently and, since 1997, many of these institutions have now withdrawn from market. Some firms of solicitors continue to provide estate agency services to their clients.

Characteristics of the industries as in 1999 are given in the table below (derived from the ONS' Annual Business Inquiry):

Category	Total employment	Total turnover (£ billion)	Number of businesses
Real estate agency/management on a fee or contract basis (SIC 70.30)	140,000	6.7	17,600
Letting of own property (70.20)	136,000	12.5	17,900
Total	276,000	19.2	35,500

Note that the above figures also include services provided in respect of residential properties. Note also that the figures exclude businesses in other industrial categories that may be providing real estate services as a secondary activity.

The total turnover of the two industries combined represents about 1 per cent of all production, construction and service industries and about 1.5 per cent of all service industries. Within the corporate services sector however, they represent 15 per cent on a net sector basis, (which just considers sales to non-domestic users outside the corporate services sector and for intermediate consumption). These industries combined therefore have a relatively high weighting in the UK Corporate Services Price Index.

The real estate agency category can be broken down into intermediation in buying, selling and renting which had turnover of about £4.1bn and property management (£2.6bn).

B. Operating units

In many ways, the structure of the industry has gone full circle and it is once again includes large numbers of small firms, family enterprises and sole proprietors. Large corporate chains are still important, however, with the top seven having over a quarter of the total number of offices in the UK. Another new development is the growth of affinity groups and franchise operations which allows small firms to club together to achieve economies of scale by sharing resources, market information, etc.

The whole real estate agency and property rentals sector is dominated by small businesses with around 30,000 (about 80 per cent) of them employing fewer than 5 people each. The following tables shows more detail:

ONS Inter-Departmental Register Data - February 2001									
	Number of employees:								
Category	0-4	5-9	10-19	20-49	50-99	100-199	200-499	500+	Total
Real estate agency/management on a fee or contract basis (SIC 70.30)	18,097	1,751	885	255	130	89	64	28	21,299
Letting of own property (70.20)	13,551	3,109	1,140	408	73	53	17	23	18,374
Total	31,648	4,860	2,025	663	203	142	81	51	39,673
Row percentages:									
Real estate agency/management on a fee or contract basis (SIC 70.30)	85.0%	8.2%	4.2%	1.2%	0.6%	0.4%	0.3%	0.1%	100%
Letting of own property (70.20)	73.8%	16.9%	6.2%	2.2%	0.4%	0.3%	0.1%	0.1%	100%
Total	79.8%	12.3%	5.1%	1.7%	0.5%	0.4%	0.2%	0.1%	

Note that the above figures are not directly comparable with the ABI results from 1999 that are shown in the preceding table.

Rental of non-residential properties has the following main categories of property: retail; industrial; office; and other. Excluding others, just under half of the total capital value is in retail properties, about one third in office and about one fifth in industrial.

It is estimated (by IPD, using their own and ONS data) that just under a half of all UK non-residential properties are owned for investment purposes – and about a half of those are held by domestic (UK) companies. These proportions tend to be much higher than is typical for other European countries. Around two-thirds of the owner-occupied stock of non-residential properties is owned by industrial and commercial companies.

ONS produces figures on investment by insurance companies, pension funds and trusts. Based on this, about 65% of the market value of non-residential property assets was held at the end of 1999 by insurance companies (mostly for long-term insurance), 30% by self-administered pension funds and the remainder by investment trusts, unit trusts and property unit trusts. It is estimated that these properties represent between a quarter and a third of all non-residential properties owned for investment and which are being rented.

C. Government regulation

There is specific legislation governing the activities of estate agents:

- The Estate Agency Act, 1979 - safeguards consumers against incompetent, unscrupulous or dishonest estate agents, rather than regulate or control the profession; and
- The Property Misdescriptions Act, 1991 - prohibits the making of false or misleading statements about property matters in the course of estate agency business and property development business.

Members of the various professional bodies and associations also operate under a code of practice (sometimes mandatory) and rules of conduct. Various services provided by estate agents are often covered by the provisions of other legislation, such as the Landlord and Tenant Act of 1954 for example.

D. Public ownership and subsidisation

The industry in the UK operates completely within the private sector; there is no public ownership or subsidisation of its activities.

V Sample Design

A. Sample frames

Real estate agency services

The sample structure contains the following parameters:

- region
- the type of property; and
- the type of primary estate agency activity

There are four regions to which the above sample structure is applied:

1. London;
2. Southern England;
3. The Midlands and Wales; and
4. Northern England and Scotland.

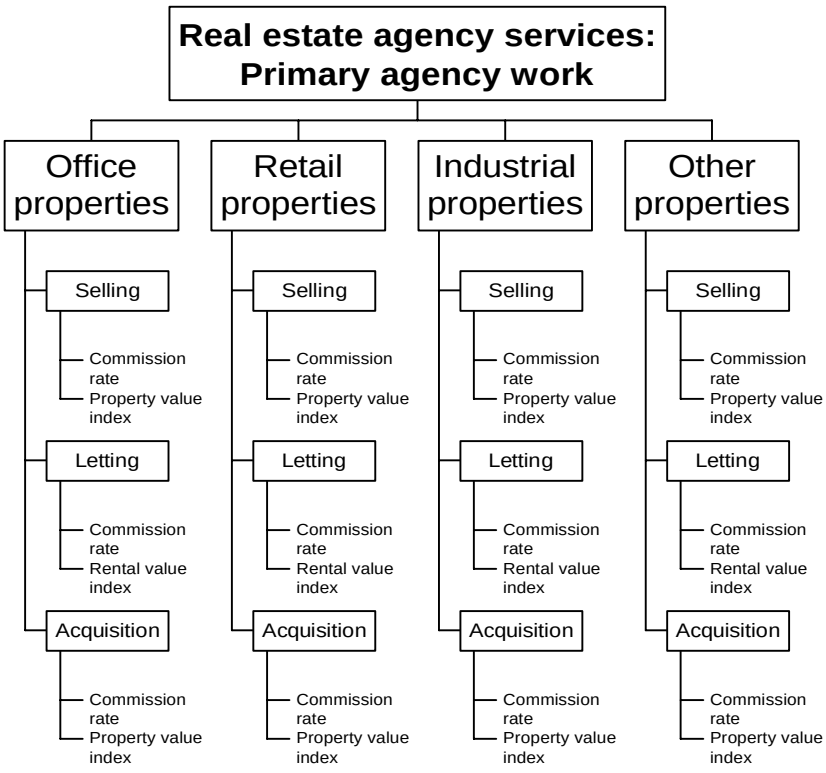
Northern Ireland is not yet covered by the survey.

For each component of the sample structure two elements are surveyed separately:

1. a commission rate; and
2. a rental value index or capital value index.

The diagram below illustrates the sample structure for each region:

Sample structure for price collection (for each region)



Property rental payments (non-residential)

Data are obtained from a monthly survey carried out by the Investment Property Databank (IPD). The IPD indices are compiled from valuation and management records for individual buildings in complete portfolios, collected direct from investors by IPD. All valuations used are conducted by qualified valuers working to RICS (Royal Institute of Chartered Surveyors) guidelines and relate to what the property would attract if it was put back on the market for rent or sale. Properties included are those purchased for investment purposes - mainly relating to insurance and pension funds.

The data used to compile each index are derived from a sample of over 1,000 properties which are independently valued each month. The IPD indices represent about 5% of the total commercial property market, are widely used by industry and are recognised by the RICS as being the industry standard. The sample of properties used is designed to include representative coverage of each of office, retail, industrial and other properties.

B. Sampling units

Real estate agency services

For the collection of commission rates, head offices of real estate agency companies were selected originally. When it became clear to selected contributors that regional information was required, several recommended the use of their regional offices for provision of data for the quarterly price inquiry. Ultimately the sampling units for this CSPI have become a mixture of headquarters and regional offices, dependent on the record-keeping practices of individual companies.

The rental value and capital value indices are obtained from the Investment Property Databank (IPD), as described above. The indices are published monthly and provided to the ONS as part of a continuing arrangement. Separate indices for rental values and capital values are provided for each of the 3 property types (office, retail and industrial) - the overall average being used for “Other properties”. At present the IPD indices in use are for the UK as a whole. However, it is anticipated that regional versions relating to the regions in the current sample structure will be available in the near future.

Property rental payments (non-residential)

The index is derived from the “gross income” index as supplied by IPD. This is obtained from calculating the changes in gross rent receivable for the properties covered in IPD’s monthly survey described above.

C. Reporter burden issues

Real estate agency services and property rentals

At the time of initial recruitment into the quarterly price inquiry, selected contributors were asked for a commission rate in each of the components of the sample structure (providing they carried out activity in that component in the base year and do so on a regular basis). There are recognised difficulties in providing specific commission rates each quarter – since the kind of properties being sold, bought or let can vary considerably from one quarter to the next. Also, calculating an average commission rate can be time-consuming and judgements might have to be made about weighting or whether or not to include non-typical transactions. In any case, changes in commission rates from quarter to quarter can often be unreliable due to changes in the mix of properties.

Contributors are asked to provide what they consider to be a *representative* commission rate received during the quarter being surveyed. For example, a contributor could report that a representative commission received for selling industrial properties was 2.0%. It is partly left to the contributor to judge what is representative although guidance is provided. This topic is described in more detail in Section VIII.

Data for the IPD indices are collated by professional staff employed by IPD who have access to the relevant data. There are no additional reporting burdens on the individuals and organisations who own the properties being valued and they all benefit from the information on the commercial property market that is published by IPD. The results provided to the ONS are extracts from regular information that is already published by IPD.

VI Industry record keeping practices

Real estate agency services

Commission rates are usually recorded for all transactions and are readily available to the real estate agents carrying out those transactions. The IPD portfolio assessments are derived from standard records available for investment properties and are compiled according to an established code of practice. The IPD indices are all published and historical records are available via their web-site.

VII Publication structure and relationship to CPC

The indices are currently published at the top-level only, i.e. the headings in the first column of the table below. Their relationship to the United Nations' Central Product Classification (CPC) - within the "Real Estate Services" section - is also shown:

Index	(SIC 92) UK	ISIC	CPC
Real estate agencies	70.30 ("Real estate activities on a fee or contract basis") containing: 70.31: ("Real estate agencies") and 70.32: ("Management of real estate on a fee or contract basis")	7020	72222 ("Non-residential buildings and associated land sales on a fee or contract basis")
Property rental payments	70.20 ("Letting of own property")	7010	72112 ("Renting or leasing services involving own or leased non-residential property")

Note also that as the CSPI is measuring the changes in prices of services from businesses to other businesses only, services relating to residential properties are excluded (and are covered in the Retail (Consumer) Price Index.)

VIII Pricing methodology

Real estate agency services

The rationale for combining commission rates with property value indicators is recognised internationally, e.g. by the National Accounts Working Party's Task Force on "Price and volume measures for real estate, renting and business services". For the record though, this is reiterated briefly here.

Monitoring estate agents' margins only could produce misleading results, e.g. if margins remained constant at 5% say, the index would remain constant. However, if property prices are increasing then the income earned would be increasing – and so this needs monitoring too to enable a true measurement of estate agents' charges.

An example follows of an index of estate agents margins (=average commission rates) with an index of average property prices (for selling property, say):

Period	Average property price	Property price index	Estate agents' margins	Index of agents' margins	Estate agents' charges	Index of estate agents' charges
1	70,000	100.0	5.0%	100.0	3,500	100.0
2	74,000	105.7	5.1%	102.0	3,774	107.8
3	78,000	111.4	5.2%	104.0	4,056	115.9
4	82,000	117.1	5.3%	106.0	4,346	124.2
5	86,000	122.9	5.4%	108.0	4,644	132.7

In the example above, both the average property prices and margins are rising, so the increases in agents' charges would be underestimated if only one of the component indices was used.

The approach chosen for the UK CSPI covers primary real estate agency activity only and is intended as a proxy for all real estate agency services.

In view of the preference to avoid collecting average commission rates, data are collected on representative commission rates. "A representative commission rate" is asked for on the survey form and for each market sector in which the contributor does business. It is defined as a rate which reflects as far as possible any movement in commission rates for the sector as a whole. Where there is a range of rates for a market sector then the pre-dominant or median rate is provided (it is up to the contributor to decide what is the most appropriate, although they are asked to note their method on the form). The following example is provided as a general guide to contributors:

Value of industrial property sold in South Wales	Commission rate
< £150,000	2.25%
£150,000 - £300,000	1.75%
>£300,000	1.50%

In this case 1.75% is quoted as the median commission rate – assuming the same number of sales in each price band. Average rates are accepted though if the contributor is unable to provide anything else. If the vast majority of sales were in just one price band then the contributor has the flexibility to quote the commission rate for that category if they judge it to be the most representative (so this would more likely relate to the true median if numbers of sales are taken into account).

Commission rates are combined with capital value or rental value indices for each of the components of the sample structure. Each of these components has a weighting that relates to the base period to enable the construction of a standard Laspeyre's price index. These weightings were derived from turnover data collected from the contributors when surveyed for the first time. (If a contributor's turnover was zero for a component then no price for that component was collected). Table 1 on the next page gives an example of the main part of this recruitment form.

Table 1

Example of part of the initial recruitment form for real estate agency services

REGION	**LONDON**		
Market sector	**Index reference number**	**Estimated turnover in 1995-96 (£000s)**	**Representative percentage commission received in 4th quarter 1995 (%)**
Industrial	47031		
Selling	47031-1	77	1.25
Letting	47031-2	100	8.0
Acquisition	47031-3	11	1.0
Office	47032		
Selling	47032-1	19	1.5
Letting	47032-2	43	10.0
Acquisition	47032-3	45	0.5
Retail	47033		
Selling	47033-1	12	1.2
Letting	47033-2	120	8.0
Acquisition	47033-3	-	-
Other (please specify)	47039		
Selling	47039-1	67	1.0
Letting	47039-2	-	-
Acquisition	47039-3	-	-

Price relatives for each component for each contributor are derived by combining the commission rate figure with the appropriate capital value or rental index value. The index values as provided are used which means the actual capital or rental values do not need to be used in the calculation. Price relatives for each component across all contributors are then calculated (using the weights derived from the turnover). Indices for each region and the country overall are also calculated using the relevant weights for each component (also derived from the turnover data).

The IPD capital value index is derived from figures for capital growth: the change in capital value from one valuation to the next net of any capital flows, divided by capital employed. (Capital employed is the capital value at the start of the year plus half of any net capital flow, and half of income receivable, i.e. flows of capital and reinvested income are assumed to be spread evenly throughout the year.)

The IPD rental value index is based on estimates of rental growth which are the percentage changes in the rental value used in the valuations from one year to the next.

The gross income index used for property rental payments is derived from calculating the changes in gross rent receivable.

Limitations/further work required

The inclusion of other real estate agency services, such as valuations and property management, will be pursued in the future. This will depend though on an assessment of the extent to which the current proxy indicator is a suitable indicator of price changes for all real estate agency services – something that should be carried out first.

Commission rate data are collected by region and, ideally, should be combined with regional indices for capital and rental values. Such indices will be pursued with IPD and their impact on the existing index will be assessed, along with the capability to produce regional CSPIs for this industry.

The data provided by IPD relates to the properties included in their survey. It appears that there are other kinds of non-residential property that may not be covered by these, such as those not held for “investment purposes” (according to the definition used by IPD). So, as for real estate agency services, the appropriateness of the existing proxy indicator needs further review.

IX Technical Concerns

The effectiveness of the current methodology will be examined as part of the quality assurance process that all industries covered by the CSPI are subject to.

For real estate agency services, there will be particular emphasis on the usefulness of collecting the data on commission rates. The theory of collecting such data and combining it with information on property values (as described earlier) seems fairly sound. However, what appears to have happened so far in practice is that commission rates rarely change and, when they do, it is a result of a change in the service being provided (and so a specification change or quality adjustment ensues). Changes in the index so far have therefore been very closely related to the changes in the capital value and rental value indices that are used. This raises the question of whether or not the capital value and rental value indices might be good enough proxies for a price index on their own.

Occasionally contributors have had difficulty in quoting rates for agency work as it can be part of an overall package provided to clients. In these cases charges for any one particular service can be influenced by those for others, e.g. agency work could be partly affected by any valuation or consultancy work carried out at the same time. In such instances, quotes are provided for specific transactions which do not reflect the full range of business of the contributor.

There have been a few difficulties with contributors interpreting the representative commission rates that are required. For example one contributor took an average of 10 transactions for each market sector and calculated the average commission rate for each sample. However, quarter on quarter changes tended to be caused by changes in the mix of properties in those samples rather than market pressures on their own. The contributor was asked to pick out typical transactions for each market sector and report on those each quarter, e.g. the commission rate for the letting of a 5,000 square foot office property in a particular kind of location.

In general contributors are advised to report the *median* commission rate as explained earlier. This still depends though on there being a sufficient number of transactions in the quarter for each area of activity being priced.

X Survey vehicles

Initial sample

Real estate agency services

The sample would normally be obtained from the business register owned and maintained by the Office for National Statistics (the "Inter-Departmental Business Register" (IDBR)). The IDBR collates business information, including turnover and employment data, from several government departments and businesses are classified on the register according to the UK Standard Industrial Classification (SIC).

A sample was drawn in 1997 relating to SIC 70.30 which is "Real estate activities on a fee or contract basis" and stratified according to turnover. However, at the time, a significant number of real estate agents who were also chartered surveyors were classified in a different category – Engineering consultative and design activities. Currently, the majority of chartered surveyors should be in 70.30 and this is not expected to be a problem when the sample is enhanced and the existing panel, where possible, is replaced.

As a result, a different source for the sample was used, one that would represent nearly all the main participants in real estate agency activities. This source was a register compiled and maintained by a well established UK magazine called the "Estates Gazette" which specialises in commercial property, (this company's web-site is www.egi.co.uk). Initially the top 20 companies, in terms of their turnover, were selected.

Property rental payments

Data are derived from the IPD indices, as described in Section V.

Methods used to reprice

Real estate agency services

A paper form is sent every quarter to those businesses (real estate agents) included in the panel. (The current panel has been in existence since the survey commenced in 1998.) The form is similar to the recruitment form outlined in Table 1. It excludes the column asking for turnover information and, instead, shows the values supplied by the contributor for the previous quarter, (for reference). Most of the data are now returned by telephone using the ONS' Telephone Data Entry system. Contributors dial a special number and, using the touch-tone facility, input their individual identifier and then supply data for each of the index reference numbers on their form. Voice messages can be left to explain any changes or to provide details of any new information. Input data are stored in a database which can then be loaded into the main CSPI database.

Data for property rental payments are obtained on a monthly basis from IPD. They send a spreadsheet by email.

Strategies to secure and maintain data quality

Following initial development, all CSPIs go through a quality assurance process. These mainly involve maintaining an informed dialogue with contributors and consulting with other industry representative where possible. The CSPI quality assurance process is outlined below.

CSPI QUALITY ASSURANCE PROCESS

1. The aim of the quality assurance process is to ensure that credible and accurate data "fit for the purpose" is produced each quarter. Price movements should be representative of the entire industry and the burden on contributors the minimum necessary to achieve acceptable data quality. It should be possible to monitor at least the sampling error of each series in order to establish confidence. The views of contributors, trade and other professional bodies and users are important and should be taken into account in the QA process.

2. This systematic review provides an opportunity that must not be missed to re-visit the whole question of the price collection mechanism(s) used for the industry and apply knowledge gained since the industry was first developed.

3. The list below sets out the main steps in the QA process, many of which cover more or less the same activities identified as phases of the process of developing an industry.

- *Examination of existing data and sampling errors, etc.*
- *Consultation with contributors, trade associations and users.*
- *Re-examination of the industrial structure.*
- *Re-examination of sample and questionnaire design.*
- *Production of interim report on findings.*
- *If significant change is NOT required then:*
    - *Monitor effects of any minor changes for x quarters.*
    - *Production of final QA report.*
- *If significant change IS needed then:*
    - *Test the new sample and/or questionnaire.*
    - *Continue interim collection of the "new" data while continuing collection of the "old" data.*
- *Produce the final QA report.*
- *Establish regular collection of new data and stop collection of old data.*

XI Time Series and analysis of published indices

Table 2 shows the values for each industry's CSPI for which data are currently published. The charts on the subsequent pages show the index values and the annual rates of change.

Although we currently only publish results at the industry level, further detail is available and we intend to increase the amount of detail published in the near future. For example, for property rental payments, indices may be published for each type of property (retail, industrial, office and others). For real estate agents, results may be available by region and possible also by type of property.

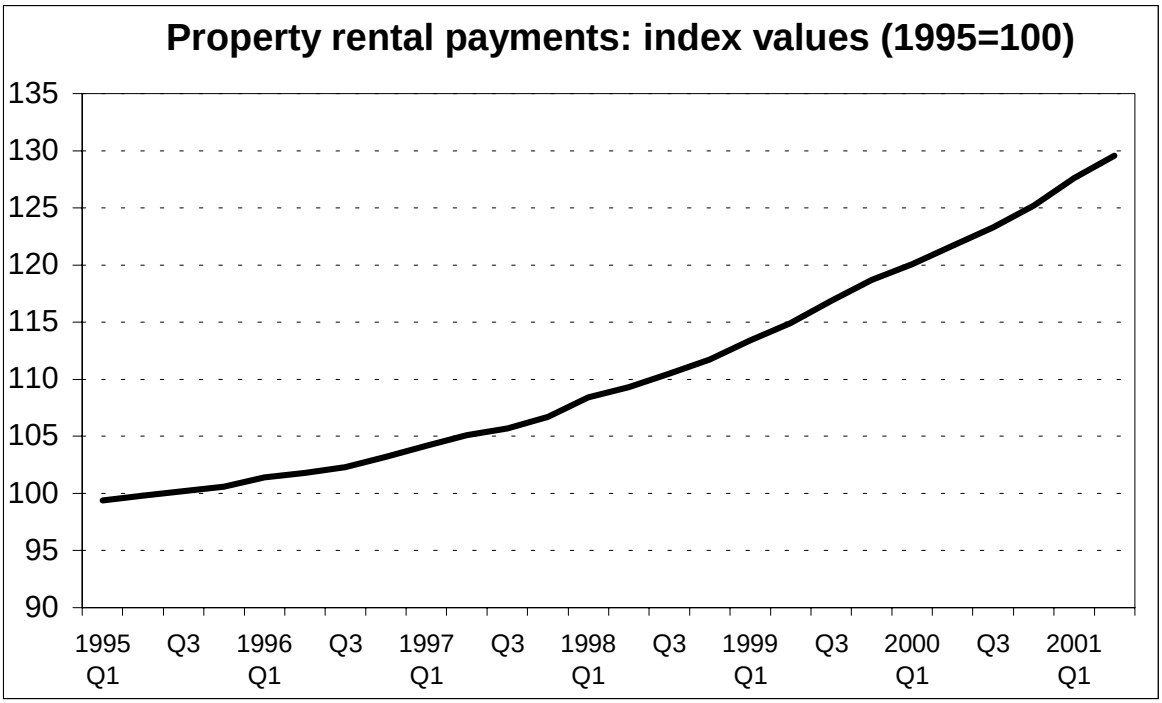
XI Time Series and analysis of published indices (cont.)

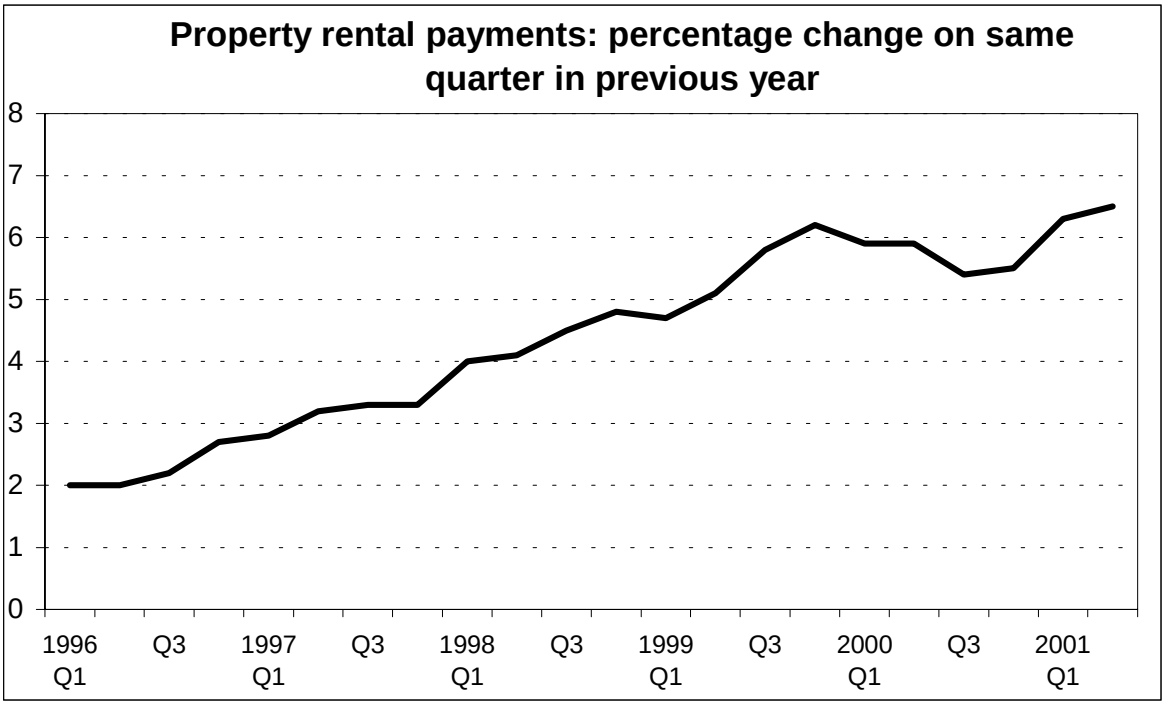
TABLE 2:
CORPORATE SERVICES PRICE INDICES: RESULTS UP TO Q2 2001
(EXPERIMENTAL STATISTICS) 1995=100

	Property rental payments	Real estate agency activities
SIC(92)	70.20	70.30
1995	100.0	..
1996	102.2	..
1997	105.4	..
1998	110.0	119.5
1999	116.0	125.5
2000	122.6	132.6
Percentage change, latest year on previous year		
1996	2.2	..
1997	3.1	..
1998	4.3	..
1999	5.4	5.0
2000	5.7	5.7
Quarterly index values		
1995 Q1	99.4	..
Q2	99.8	..
Q3	100.2	..
Q4	100.6	..
1996 Q1	101.4	..
Q2	101.8	..
Q3	102.3	..
Q4	103.2	..
1997 Q1	104.2	..
Q2	105.1	..
Q3	105.7	..
Q4	106.7	..
1998 Q1	108.4	117.0
Q2	109.3	119.0
Q3	110.5	120.9
Q4	111.7	121.3
1999 Q1	113.4	121.9
Q2	114.9	124.6
Q3	116.9	126.6
Q4	118.7	128.8
2000 Q1	120.3	131.8
Q2	121.7	133.9
Q3	123.3	135.2
Q4	125.2	137.2
2001 Q1	127.6	138.6
Q2	129.6	139.1

XI Time Series and analysis of published indices (cont.)

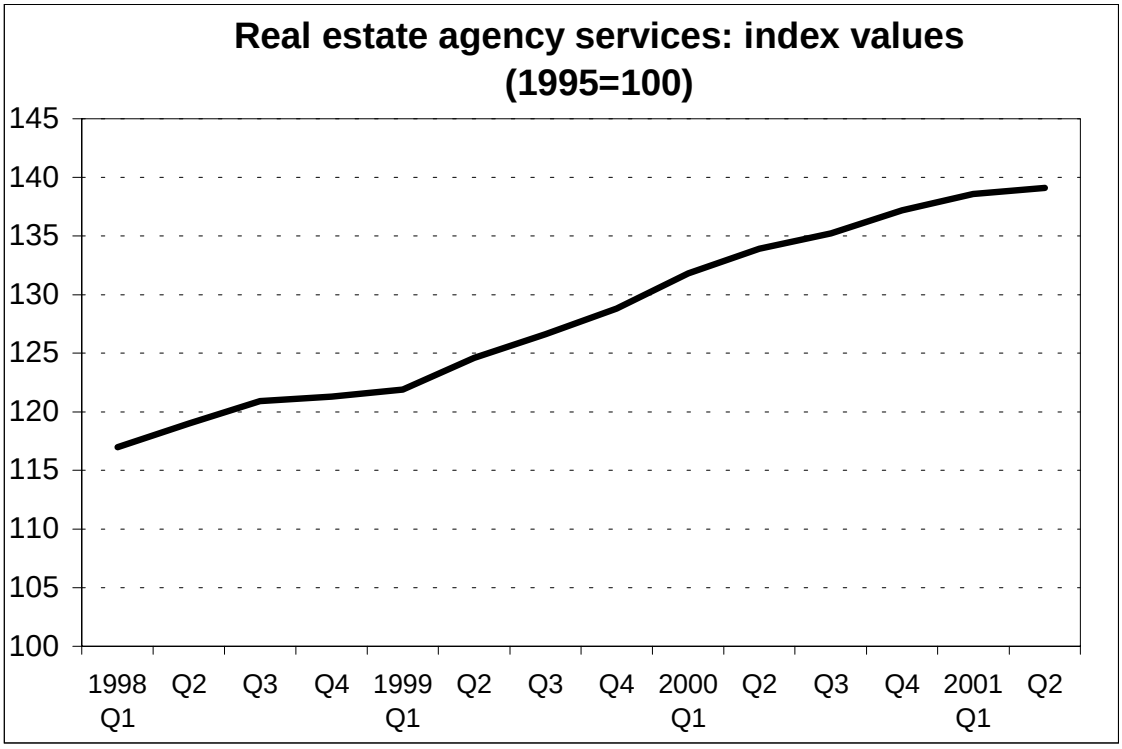
Charts for property rental payments

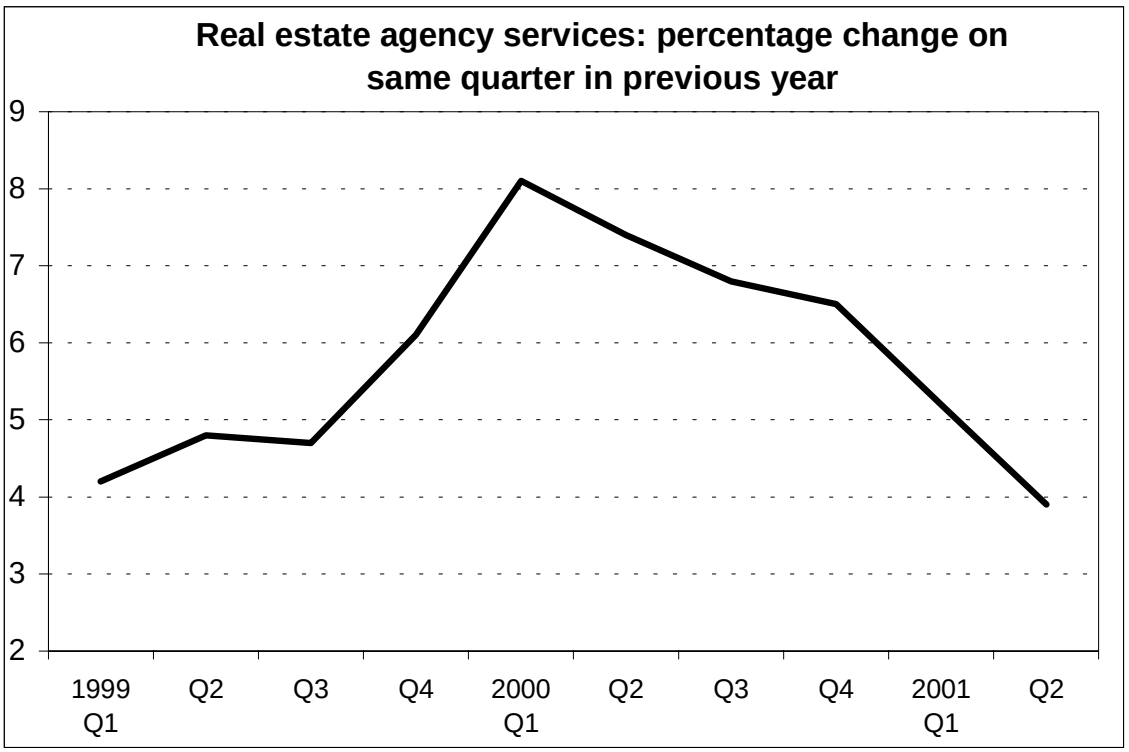




XI Time Series and analysis of published indices (cont.)

Charts for real estate agency services





XII Overview of appendices

Appendices are provided by Australia, the US, Japan and Sweden.

The Australian paper refers to what they have established for real estate agents' services for the sale and management of both residential and commercial property. The commercial element of this relates quite closely to the UK CSPI for real estate agency services.

The US paper describes their approach to a price index for rental payments to owners of non-residential properties. This relates to the UK CSPI for property rental payments although the US approach is more detailed and is broader in scope. The US also has a separate price index for Real Estate Agents and Managers and hopefully a paper for this will be added to this principal paper in the future.

The Japanese paper describes the approach they have taken in developing a corporate services price index real estate services that combines indicators for office space rental, sales space rental, hotel rental and parking space rental. This appears to be similar in scope to the rental payments indices of the US and the UK – and is probably somewhere in between the two. Agency services are not yet covered by the Japanese CSPI.

The Swedish paper describes their approach in measuring the rents of various kinds of commercial buildings, including offices, shops, industrial buildings and garages etc.

Australian real estate price index

A. Business model

The Australian real estate industry is divided into two main sectors: residential property and commercial/ industrial property. Each of these sectors can be broken down into two main components: property sales and property management. The real estate index is therefore composed of the four activities:

- sale of residential property
- sale of commercial property
- management of leased residential property
- management of leased commercial property.

These four activities account for 82% of agents' income (1998-99 statistics). Total income from property sales commissions is 58% and income from property management commissions 24% of real estate agents' income.

Structure of the real estate industry

The bulk of agents' incomes is derived from the sale of residential property, followed by residential property management. Between June 1998 and June 1999, income from property sales commissions was the main income stream of businesses in all size ranges except for those which employed 100 or more people, who derived the bulk of their income from property management commissions. Businesses are concentrated in the four states of NSW, Victoria, Queensland, and Western Australia. Between June 1996 and June 1999 there was a 6% decrease in the number of private sector businesses in the real estate services industry.

The real estate industry is heavily localised and dominated by small businesses. The 1998-1999 statistics show that 96% of businesses employ less than 20 people, and 47% of businesses employ less than 5 people, indicating that the majority of work is in the local area. This can be explained by the fact that buyers are generally only looking in particular locations, so an agent is likely to concentrate their activities in one area to increase the chance of obtaining a sale. Smaller agents appear to be involved almost exclusively in residential property sales in their local area, while commercial property sales appear to be the domain of the larger businesses.

Real estate agents may form franchise or marketing groups, with 46% of real estate agency businesses having franchise or marketing group/ cooperative affiliation at the end of June 1999. All members of a franchise agreement trade under the franchiser's name or banner. Members of a marketing group are independent businesses which trade under individual names or trading banners but adopt a common marketing policy.

B. Government regulation

Most agents' fees in Australia have been deregulated. The non-residential sector has been deregulated for some time, while deregulation of the residential sector began a number of years ago, following the 1992 Prices Surveillance Authority's (PSA) inquiry into real estate agents' fees. To date, all states and territories have been deregulated with the exception of Queensland, which is due for deregulation in the near future. Prior to this inquiry, agents'

fees were regulated by a set of scaled fees which determined what agents could charge. Today fees set by regulation are the *maximum* fees, and agents are free to negotiate lower fees than those scheduled.

Fees are determined by the individual business proprietor or franchiser. Costs included in the agent's fee include advertising, marketing, agents' time and expertise and an allowance for agents' overheads such as phone, premises, office expenses etc.

C. Pricing methodology

Data for representative sale prices, and the agent's commission for the sale and rental of the property, are collected, with advertising services excluded.

· Residential sales:

A sample of six representative house sales prices, and the corresponding total agents' fees, are collected from each respondent for each month. The total fees are the prices paid by the vendor and not the fee per agent. The six prices reported are selected at the respondent's discretion, and properties sold for investment or finance purposes are not differentiated on the collection form.

The sales prices are used to match observations between quarters, and so the movement in real estate agents' fees for a house of a particular price is recorded. For each house price, an average agent fee is obtained for each quarter. The changes in fees are measured as percentage changes in these average prices, which are weighted to obtain the overall percentage change in fees for each state. To also reflect the movement in house prices in the real estate index, this data is used in conjunction with the CPI *Established house price index* series. Changes in agents' fees are combined with changes in the CPI house index to derive real estate index numbers for residential sales for each state.

· Residential property management:

A survey is conducted to obtain the standard fees agents charge (as a percentage) for property management. Property management includes rental collection and property maintenance (eg, arranging property inspections or house repairs). Most of the fee charged is for rental collection. Some respondents have provided separate figures for these two components, while some have only given the charge for rental collection. Where the fee is decomposed, an average of the two prices is taken. For instance, if the figures are 5% for rental collection and 2% for property maintenance, they are averaged to give 6% for property management. Some respondents have supplied a range of percentages according to furnished and unfurnished properties, and other conditions, for which an average is also taken.

The letting fee is not measured directly since rent prices should reflect changes in the letting fee. Agents can earn more revenue from letting fees if there is a high turnover of tenants in the residence; however, the number of times a house is let has no relevance to the level of the transaction price being measured.

The index is compiled in a similar way to residential sales, using CPI data for *Privately*

owned dwelling rents. The percentage change in the fees (as dollar amounts) is combined with the percentage changes in the CPI rent index, to derive the real estate index numbers for residential property management for each state.

For both the residential sales and residential property management indexes, a national index is calculated by weighting together the state index numbers. The two indexes are then aggregated to produce the Australian residential real estate index.

· Commercial sales:

A major private commercial property organisation produces *Capital Value Indicators* for the CBD office markets, which show the average capital value per square metre of net lettable area. These figures are used as proxies for the sale price. Although they do not reflect discounting in the market, they do track broad movements in agents' fees which are based on a percentage of the sales price. Actual data on expenditure on capital improvement and upgrading since completion, have been incorporated where known. The data is provided for a set basket of properties, although in practice buildings which are undergoing significant changes are removed from the basket and reintroduced once the changes are completed.

· Commercial property management:

Rent figures are also produced by this private company for the CBD office market. The rent figures are divided into two rent series: gross rents and effective rents. The gross rent series is based on the market rental achievable for a lease of 1000 square metres. The effective rent series takes into account the value of concessions like rent-free periods or improvements made to the building, which are incentives sometimes offered in a depressed market. Incentives are converted to a present value based on prevailing market investment yields and amortised over the life of the lease, assumed to be 100 years. These amortised values of incentives are deducted from the gross rent in the calculation of the effective rental.

The effective rent series is a more accurate representation of the true current market rental, and is the one used by the ABS as an index for property management and leasing transactions. There is not always a linear relationship between rents and fees, as companies occasionally charge minimal property management fees to get the leasing rights to a building, though the relationship generally holds.

State indexes are derived and weighted together to produce Australia level indexes for both commercial sales and commercial property management. These two indexes are then aggregated to give the Australian commercial real estate index. This is then combined with the Australian residential real estate index to give the overall real estate index for Australia. The commercial real estate index structure is different to the residential real estate index as it does not involve the direct collection of transaction prices from businesses.

D. Limitations/concerns with published data

Quality change in the real estate industry is difficult to quantify, and there is currently no reliable estimate of the effect of productivity changes on price movements.

In commercial property the basket of properties changes over time. However the private commercial organisation which produces capital value indicators and rent series is able to estimate and compensate for quality "creep" so that their series reflect real price change in the market. Where there are no vacancies in a particular building, proxies are used to estimate the equivalent achievable rent.

Difficulties have been experienced in the collection of data and compilation of the index. Initially house prices were divided into ranges and the average fee for each price range collected. However a portion of the price change was being driven by changes in the mix of respondents between quarters, and the number of observations for each price range continually changed. For some price ranges the number of observations were too small to be representative, or were totally absent for the quarter. This meant that state-wide averages had to be adjusted to exclude these ranges and the data re-weighted to compensate. The latter was itself problematic because the exclusion of some ranges meant the weights did not sum to one.

While the matched sample methodology can result in a deficiency in useful observations for the index and a small sample size, the sample mix problems were largely overcome. The accuracy of the index could be improved by aggregating data by locality, although there are difficulties involved with identifying and specifying localities and the agents which belong to them.

E. Analysis of "goodness" of published data

The real estate index has been established for more than 5 years, and has a large number of respondents. It is a relatively complicated index, making use of CPI series and data from a major private commercial property organisation. The industry is heavily localised and mostly deregulated. The two primary factors affecting real estate agents' fees are the property value and the commission from the vendor. Further work needs to be done on more clearly specifying data required on survey forms.

Additional work needs to be undertaken to clarify the residential data collected. Currently, forms request the total agents' fee on sales, for which some have given the fee for their agency only and not the total paid by the vendor. There are also inconsistencies with figures provided for property management fees. Respondents are reporting commissions for rental collection only, rental collection and property maintenance, or a range of commissions for various types of property (e.g. furnished vs. unfurnished property). As long as prices don't change by a large amount between quarters for a given respondent, it is generally assumed that there is consistent reporting and that changes in the numbers (or averaged numbers, if more than one is reported) reflect price movements of the same quality property.

Also, the current match sample methodology used in residential sales component, is under review. This match sample methodology can produce volatile series at the state level, therefore the ABS is currently investigating alternate methodologies for this component of the real estate index.

Published results:

Property and business services price indexes (base of index 1998-99=100.0)
Real estate agents price index (ANZSIC 7720)

1998-99	100.00
1999-00	109.90
Sep-98	97.90
Dec-98	99.50
Mar-99	100.50
Jun-99	102.10
Sep-99	105.20
Dec-99	108.20
Mar-00	111.30
Jun-00	115.00
Sep-00	118.90
Dec-00	120.50
Mar-01	122.50

United States non-residential real estate price index

A. Business model

The index for Lessors of non-residential buildings (SIC 6512) tracks rental payments to the owners of non-residential buildings or properties.

Establishments classified within SIC 6512 include:

Retail properties	Freestanding, convenience, neighborhood, community, regional, and super regional shopping centers.
Professional and office buildings	General, government, financial, medical, and other professional and office buildings.
Manufacturing and industrial buildings	Heavy manufacturing, light manufacturing, assembly, research and development, warehouse and distribution buildings.
Other nonresidential buildings & facilities	Inland and ocean side docks, multi-purpose and single-use auditorium/theater/convention center buildings, religious centers and other nonresidential buildings.

Lessors of Non-residential Buildings (SIC 6512) are establishments primarily engaged in the provision of non-residential buildings to others for rent. Establishments in this industry own non-residential property, and lease it to others (tenants). Piers and docks in this industry are those that are leased by the owner (usually a port authority) to a terminal operating company or ship line that operates and maintains the facility.

The term “real property”, or “property” is the term used by the industry to describe buildings and real estate properties. Operators of nonresidential property, who will be referred to as “owners” throughout, are responsible for managing the property that they provide. The leasing of nonresidential buildings has two parts, consisting of providing the physical space, and the maintenance of the space (the entire property). First, the physical space is contracted through a lease. The lease is the governing document or contract between the owner and tenant, much like the rental agreement of an apartment in a residential setting. Second, the management of the entire space consists of heating, cooling, electrical, plumbing services, maintaining the physical structure and maintenance of common areas (hallways, lobby and outdoor areas).

Structure of the nonresidential real estate industry

The real estate industry has not seen a dramatic change in the past decade. However, in the early eighties, a boom in commercial property construction took place. This new construction created problems as there was excess supply of space.

The nineties saw growth of the economy in general, and the excess supply in real estate was reduced to a point where today there is excess demand. Overbuilding problems from the eighties seem to play an integral part in the finance and construction of new space, even today. Banks, insurance companies and pension funds that financed a large portion of real estate growth in the eighties are more reluctant to finance additional buildings. Many of the companies that financed real estate became owners of buildings that were vacant, or had such low occupancy rates that they could not cover their expenses.

SIC 6512 can be affiliated with SIC 6531, Real estate agents and managers, and SIC 6798, Real Estate Investment Trusts (REITS). Because of the close nature in which these industries operate, nonresidential buildings can be listed as companies classified within REITS, or be listed as property management companies. Property management companies do own some of the properties that they manage. Since many lessors of nonresidential real estate revenue are also derived from property management contracts, they are classified as property management companies instead of lessors of nonresidential real estate. REITS, on the other hand, are required to pay a majority of their revenue to shareholders (lessor of nonresidential real estate). Therefore, revenue derived from buildings that are owned by REITS is also

included in the revenue of lessors of nonresidential real estate; However, these nonresidential real estate companies are classified in SIC 6798, REITS. REITS are not limited to nonresidential property, therefore they cannot simply be added to the entire industry of SIC 6512.

Government regulation

There is no federal regulation of the real estate industry, as prices are determined by supply and demand conditions. Any regulation of the industry would come from local and state jurisdictions that place zoning restrictions on buildings such as height restrictions, and usage restrictions (the banning of certain types of business).

Pricing methodology

Two primary outputs can be measured for this industry. The first is providing the physical space and the second is management of the property (Note: this usually does not apply to pier and dock owners). Physical space can vary in size and functionality depending upon the needs of the tenant. Owners provide some degree of management of the rented space. This management can consist of any service necessary to keep a rented property in operation.

The provision of the physical space is typically not difficult to identify. Space is measured by the square footage of floor space. However, the management aspect can be difficult to identify. The management aspect is considered part of 6512 if it is paid for, or provided by the owner. If the tenant reimburses the owner for a service, then it, too, is considered part of 6512. In general, all management services that the owner provides to the tenant whether directly or indirectly through an outside contractor, are to be considered part of 6512. For example, if an owner provides the daily cleaning of a rented office space, the service includes both the provision of the space as well as the cleaning. Another example, if an owner provides utilities to a rented space (i.e. pays the utility bills), then the service output consists of provision of space and utilities. In general, the only qualifier for a management service to be considered part of SIC 6512 is that the service must either be provided directly or paid for by the owner.

Services that are not part of SIC 6512 are those paid for by someone other than the owner. If a tenant contracts an independent cleaning company to care for its space, then this is not considered part of 6512 because the owner did not provide the service. Also, if a tenant gets billed directly from a utility company, sometimes referred to as individual metering, then the utility is not considered part of 6512 again, because it is not paid for, or provided by the owner.

The following outlines price determining characteristics for all nonresidential buildings in SIC 6512:

Location - Nonresidential buildings located in areas conducive to their occupants' line of business generally receive higher average rents than their counterparts. Retail buildings, for example, located in heavily populated urban areas tend to receive higher average rents than retail buildings located in sparsely populated rural areas.

Quality of Property - Nonresidential buildings are classified according to their physical condition, amenities, and age. Classifications include Class A, B, and C with A being the highest classification. Buildings of a high classification (high quality) will receive higher average rents than buildings of a low classification (low quality).

Management Intensity - As the quality and/or quantity of services available to all tenants in a building increases, the average rent of a building increases as well. These services may include the following: security, elevator availability, and interior/exterior cleaning.

The following outlines additional price determining characteristics for specific property types in SIC 6512:

Number of Anchors (Retail Property) - The average rent in a retail building (i.e. mall) is dependent upon the number of anchor tenants it houses. Anchor tenants are tenants that attract customers to a shopping center, and they usually own the space they occupy. Because of these two factors, most anchors pay little or no rent, only common area maintenance and other operating expenses. Therefore, the number of anchors can have a strong impact on a retail building's average rent.

Level of Sales (Retail Property) -Retail tenants typically pay a percentage of their gross sales revenue as part of their rent. Given this, a retail building's average rent is dependent upon its level of sales.

Percentage of Seats Made Available (Theater/auditorium Property) - Theater and auditorium property owners generally receive, as part of the rent, a percentage of a tenant's gross sales. Given this, the more seats made available (and sold), the greater the level of gross sales and the higher the amount of rent received by the owner.

Number of Berths (Pier/dock Property) - A berth refers to the space allotted to a single ship or vessel on a pier or dock. The number of berths measures how many vessels or ships can be present at one pier/dock at any one time. It is a measure of size. Given this, the greater the number of berths (larger the pier/dock), the greater its rent.

Cargo throughput (Pier/dock property) - Rent for piers and docks is often dependent on the amount of cargo handled by the tenant. Therefore, the greater the cargo throughput, the greater the rent.

Non-residential real estate is an industry where input costs do not affect prices. For example, a building that can be very expensive to maintain may not get a very high rental price due to age, or construction quality.

Operators of retail, industrial and office buildings typically charge tenants by the amount of square footage of floor space rented. The rent for a particular space is determined by several factors such as demand, location of the property, location within the building (basement rents are typically not as high as street level), condition of the property (class of the building) and the amount of service that the operator will have to provide. In addition, the operator may receive a percentage of the gross revenue generated by the tenant while leasing the space, called percentage rents. Percentage rents typically occur in retail, and theater and auditorium settings. Theaters and auditoriums can be priced by the square foot or by revenue generated per seat. Over 90% of non-residential tenants are charged by the square foot they occupy.

Rental fees for pier and dock tenants can be charged in 3 different ways. (1) It can be based on what is considered “fair” return on the value of the property, (2) It can be estimated on a per unit rate based upon estimated cargo throughput, or (3) it can be any figure that will entice the renter to agree to a lease.

Given the wide array of property types and lease components, it was determined that the best way to price the entire industry was to collect the price per square foot (or unit of space, i.e., acre for piers and docks, and available seat for theaters and auditoriums). The price per square foot per year is a standard term in the industry. For our purposes, we divide the industry’s standard price per square foot per year by twelve to calculate a monthly price.

Collecting an actual rent paid per month per square foot can cause a volatility problem in the Producer Price Index (PPI). Most leases call for equal payments of a base rent over the year. Furthermore, the duration of most non-residential leases is for multiple years. Pricing a single lease can lead to long periods of relatively flat prices followed by a large price change in one month. Since most buildings in the United States have multiple tenants, the entire building is priced. Standard accounting operation for owners of non-residential property is to have a “rent roll” where all the tenants’ rents paid for the month are recorded with the corresponding square footage that they occupy. The price collected is then the average gross rent per occupied square foot. Collecting an occupied square foot is important since vacancy rates can fluctuate from month to month, and collecting rent per total square foot can cause prices to fluctuate simply because of vacancy rate changes.

Limitations/concerns with published data

Real estate pricing is determined more by local economic issues than by national economic issues. While a general downturn in the economy will tend to bring downward pressure on real estate prices, local economic issues have greater effect. Properties for office buildings, for example, are classified into three classes, Class A, Class B, and Class C properties. A Class B property is considered average for the area. Class A is considered above average, while Class C is considered below average.

Because of the competitiveness of the industry, all similar class properties should move in the same general direction within the same city. If one type of property class over builds, then it can lower the prices for all classes within a city. For instance, if a brand new Class A property opens and the demand for Class A property was smaller than projected, then the owners of the property may rent out space at a lower rate, thereby depressing the Class A property prices. Class B property would then become relatively more expensive to Class A and owners may have to lower the Class B prices to attract tenants. Class C property would then become relatively more costly and owners may lower Class C prices as well.

The PPI does not publish 6512 pricing data by locality or class of property. National pricing data is published for shopping center and retail stores, professional and office buildings, manufacturing and industrial buildings, and, other nonresidential buildings and facilities.

The prices collected by the PPI include the top 54 markets for Professional and office buildings, and Manufacturing and industrial buildings. Sources for buildings outside the top markets do not exist since most data sources are compiled for real-estate agents and brokers who use the data sources to match lessors and lessees.

Analysis of "goodness" of published data

The PPI index for Nonresidential real-estate has been in publication since December 1995. Some indexes were discontinued in 2001 to ensure a quality index. Due to reporting problems, some indexes in the initial publication structure changed to insure that high quality data is being disseminated.

Prior to the resampling, the publication structure was as follows:

Operators and lessors of non-residential buildings
Operators and lessors of retail property
- Shopping centers over 400,000 square feet
  - Enclosed shopping centers over 400,000 square feet
  - Open shopping centers over 400,000 square feet
- Shopping centers under 400,000 square feet
  - Enclosed shopping centers under 400,000 square feet
  - Open shopping centers under 400,000 square feet
- Other retail property

Operators and lessors of office property
Operators and lessors of industrial property
Operators and lessors of auditoriums and theaters
Operators and lessors of piers and docks
Operators and lessors of other nonresidential property

After the resampling, the publication structure was changed to:

Lessors of non-residential buildings
Leasing of shopping centers
- Leasing of open shopping centers
- Leasing of enclosed shopping centers

Leasing of other retail properties
Leasing of professional and office buildings
Leasing of manufacturing and industrial buildings
Leasing of other non-residential buildings

The PPI publishes one of the few national indexes on nonresidential real-estate prices. The PPI index is available on a monthly basis, rather than on a quarterly or annual basis, as opposed to other sources of price data for nonresidential real estate.

In addition, the PPI index is not limited to just one property type. The PPI index covers four major property categories, which are Retail properties, Professional and office buildings, Manufacturing and industrial buildings, and Other nonresidential buildings & facilities.

Many other indexes reflect asking prices. An asking price is the price that the owner hopes to get for the space being rented. Many times the rent paid is below the asking price. However, in good times the actual rent can exceed the asking price if several companies want to rent a particular space. The PPI collects actual rents that are paid to the owner of the building, as opposed to asking rents.

Many times an owner must “entice” a lessor to their property. They do this several ways. Some ways include: giving the first few months of rent free of charge; paying the moving expenses; paying for the space to be customized to the tenants needs, or desires; and, paying the fees associated with breaking the lease to the tenants previous lessor. The “enticement” is called a concession in the industry. PPI’s index incorporates concessions into the collected prices.

Producer Price Index Revision-Current Series

Series Id: PCU6512#
Product: Operators and lessors of nonresidential buildings
Base Date: 9512

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann Avg
1995												100	
1996	100.7	100.5	100.8	101.2	101.2	98.8	98.1	98.3	98.4	98.6	99	99.4	99.6
1997	99.9	98.7	99.5	101	101.3	101.1	101.6	101.3	101.8	102	101.8	101.6	101
1998	103.2	103.7	102.7	103	103.3	103	103.5	103.3	103.4	103.7	103.5	102.8	103.3
1999	103.3	105.2	104.9	105.5	105.5	105.4	106	106	106.1	105.6	108.1	108.7	105.9
2000	108.3	108.2	109.4	108.3	108.5	108.4	109	110	109.7	109.2	109.3	110.1	109
2001	108.4(P)	109.6(P)	111.9(P)	110.2(P)									

P : Preliminary. All indexes are subject to revision four months after original publication.

Series Id: PCU6512#1
Industry: Operators and lessors of nonresidential buildings
Product: Operators and lessors of retail property
Base Date: 9512

Year	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Ann Avg**
1995												100	
1996	103.4	101.2	100.9	101.9	101.3	101.4	101.3	101.3	100.6	101.3	101.1	103.8	101.6
1997	106.4	102.8	104.2	106	105.6	105	106.1	105	105.9	106.5	105.5	105.3	105.4
1998	107.4	106.7	106.4	106.8	108.8	108.2	108.8	107.8	107.8	107.9	107.6	109.4	107.8
1999	109.3	107.7	107.7	108	108.2	108.6	109.9	109.9	108.8	110.2	109.4	111.1	109.1
2000	111.4	109.5	110.4	109.9	110	106.9	107.1	107.1	107.9	107	107.9	108.8	108.7
2001	104.4(P)	105.0(P)	116.7(P)	107.6(P)									

P : Preliminary. All indexes are subject to revision four months after original publication.

Series Id: PCU6512#2
Industry: Operators and lessors of nonresidential buildings
Product: Operators and lessors of office property
Base Date: 9512

Year	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Ann Avg**
1995												100	
1996	99.9	100.6	101.1	101.4	101.7	97.4	96.3	96.7	97.2	97.3	97.6	97.3	98.7
1997	97.6	97.5	98	100	100.3	100.1	100.5	100.6	100.9	101	100.9	100.9	99.8
1998	101.3	102.5	101.7	101.9	102	101.8	102.3	102.5	102.6	102.9	103.4	100.9	102.1
1999	102.4	106.4	105.9	106.2	106.2	105.8	106.2	106.1	106.5	105	109.3	109.9	106.3
2000	109.4	109.4	111	109.7	109.4	110.5	112	113.6	112.6	112.2	112	113	111.3
2001	111.3(P)	113.7(P)	112.2(P)	113.4(P)									

P : Preliminary. All indexes are subject to revision four months after original publication.

Series Id: PCU6512#3
Industry: Operators and lessors of nonresidential buildings
Product: Operators and lessors of industrial property
Base Date: 9512

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann Avg
1995												100	
1996	97.5	97.5	97.5	97.6	97.3	97.2	97.2	97.3	97	96.2	97	97.1	97.2
1997	95.5	97.7	97.3	95	95.2	95.8	95.6	95.5	96.9	96.4	97.9	97.8	96.4
1998	98	98.5	99.9	100.2	100.9	100.1	100.8	99.8	99.9	101.8	101.7	102.6	100.4
1999	102.2	102.2	101.6	106.3	106.4	106.5	106.4	106.5	106.6	107	107	107	105.5
2000	107.4	108.7	110.9	110.9	111.2	111.2	104.8	106.5	107	107	107	108.5	108.4
2001	111.8(P)	109.6(P)	109.9(P)	109.9(P)									

P : Preliminary. All indexes are subject to revision four months after original publication.

Series Id: PCU6512#4
Industry: Operators and lessors of nonresidential buildings
Product: Operators and lessors of auditoriums and theaters
Base Date: 9512

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann Avg
1995												100	
1996	100	100.7	100.7	100.7	100.7		100.7	100.7	100.7	100.7	105.2	102.6	101.2
1997	97.1	92.2	95.4	95.4	100.1	99.4	99.4	99.4	99.5	99.5	99.9	99.7	98.1
1998	117.5	117.5	106.8	106.8	100.2	101.1	101.1	101.1	101	101	93.1	97.3	103.7
1999	92.1	92.1	93.2	93.2	93.2	93.2			93.2	93.2	96.4	94.6	93.4
2000	87.7	95.2	92.1	88.3	93.7	95.8	98	98	97.3	97.3	97.3	97.3	94.8
2001	97.3(P)	92.1(P)	92.1(P)	92.1(P)									

P : Preliminary. All indexes are subject to revision four months after original publication.

Series Id: PCU6512#5
Industry: Operators and lessors of nonresidential buildings
Product: Operators and lessors of piers and docks
Base Date: 9512

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann Avg
1995												100	
1996	100	100	100	100	100	100	100.1	100.1	100.1	100.2	96.8	96.8	99.5
1997	97	97	97	97.9	97.9	97.9	97.9	97.9	97.9	97.9	98.9	98.9	97.8
1998	95.3	95.3	95.4	95.5	96.6	96.6	96.6	96.7	96.7	97	97	95.3	96.2
1999	95.3	95.3	96.3	96.3	96.3	96.3	96.3	96.3	104.1	104.2	104.2	103.4	98.7
2000	99.4	99.4	99.4	99.4	99.4	99.4	100.9	100.9	100.9	100.9	100.9	97	99.8
2001	101.0(P)	103.0(P)	102.8(P)	102.8(P)									

P : Preliminary. All indexes are subject to revision four months after original publication.

Series Id: PCU6512#6
Industry: Operators and lessors of nonresidential buildings
Product: Operators and lessors of other nonresidential property
Base Date: 9512

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann Avg
1995												100	
1996	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	100.1	99.9
1997	100.1	100.1	100.2	100.2	100.1	100.1	100	100	100	100	100	92.9	99.5
1998	92.9	92.9	92.9	92.9	92.9	92.9	93.2	93.2	93.2	93.2	93.2	92.8	93
1999	92.8	92.8	92.8	92.8	92.8	92.8	93.2	94	94	94	94	93.8	93.3
2000	100.9	102	102	102	102	102	101.6	101.6	101.6	101.6	101.6	101.6	101.7
2001	105.6(P)	106.7(P)	106.7(P)	106.7(P)									

P : Preliminary. All indexes are subject to revision four months after original publication.

July 9, 2001

Real Estate Services in Japan's Corporate Service Price Index (CSPI)

A. Business Model

Real estate services are divided into four categories. The first provides rental services of real estate for residential use. It accounts for 82 percent of the volume of output, or about 53 trillion yen.[1] The second provides rental services of real estate for non-residential use. It accounts for 12 percent, or about 7 trillion yen. The third category provides agent or intermediary services, such as for buying, selling, and renting real estate. The fourth concerns services related to the management of real estate. The third and fourth categories comprise about 6 percent, or about 4 trillion yen, of the total output volume.

Rental services of real estate for residential use provide rental spaces for living, such as houses, flats, and apartment buildings. Providers of the services contract with households.

Rental services of real estate for non-residential use provide various types of rental spaces: office spaces, sales spaces, a group of hotel guestrooms or hotel buildings, and parking spaces, etc. Office space has a large share as defined by area: about 64 percent of the total rental space for non-residential use.[2] Sales space and parking space account for 16 percent and 10 percent, respectively.

Agent services: Agencies buy, sell, and rent real estate, such as houses, apartments, and office buildings, on behalf of customers. Intermediary services: Service providers match vendors with buyers of real estate. Providers charge commissions on agent and intermediary services.

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[1] The figures cited in this paragraph are from the "1995 Input-Output Table for Japan," compiled by the Statistics Bureau, Ministry of Public Management, Home Affairs, Posts and Telecommunications (MPHPT).

[2] The figures cited in this paragraph are from the "Extracts from Annual Survey on Japan BOMA Member Buildings" for the year of 1999, compiled by Japan Building Owners and Managers Association (BOMA) and Tokyo Building Owners and Managers Association (BOMA).

The fourth category concerns services related to the management of real estate. One example is management services, such as for apartment operation and building maintenance based on the commission from owners.

The Corporate Service Price Index (CSPI), compiled by the Bank of Japan, covers services traded among corporations. In other words, the CSPI does not cover the services to the consumer households. Rental space services for residential use, and a part of agent, intermediary, and management services for households are thus beyond the scope of the CSPI. The CSPI covers space rental for business use, of which output is about 7 trillion yen. The rest comprises agent, intermediary, and management services for businesses, of which output is about 3 trillion yen.[3]

B. Government Regulation

All entrants to the real estate services industry are required to obtain licenses issued by the government.

There are no regulations concerning fees for the real estate services.

C. Pricing Methodology

We compile four items regarding real estate services in the CSPI.[4] All items capture the services of space rental: office space rental, sales space rental, hotel rental, and parking space rental. They are classified by type of service, not by industry.[5]

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[3] The figures cited in this paragraph are from the "1995 Input-Output Table for Japan," compiled by the Statistics Bureau, Ministry of Public Management, Home Affairs, Posts and Telecommunications (MPHPT).

[4] "Item" is the lowest index aggregation level which is published in the CSPI.

[5] The CSPI adopts a classification system based on type of service. In the classification system, outputs of each company are categorized by the type of service. This is different from the industry classification system, in which outputs are categorized by the major output of each company. In the industry classification system, all outputs of each company are counted in one industry, although minor output can be quite different from the output of the industry in which the company is categorized.

Therefore, the item "office space rental" in the CSPI, for example, includes office rental services only. Even if the providers supply services categorized in other fields, they are not

For compiling an index for each item (i.e., office space rental, sales space rental, hotel rental, and parking space rental), actual transaction prices are surveyed.

For office space rental, we survey two types of fees: fees for rental space and fees for buildings, both of which are fixed for the price survey to determine the quality of services. Fees for the fixed rental space are monthly, for which a contract is often renewed every two or three years. Fees for the fixed building is a monthly averaged fee of all rental spaces in a building. More concretely, the averaged fee is calculated by dividing the total sales of rental spaces by the total areas of rental spaces. Some kinds of deposits and maintenance fees, such as those for the public space where the building of the rental spaces is located, are not included in the fees, in principle. As there are various types of rental spaces and buildings with varied locations, we have expanded the numbers of price data as much as possible. Currently, we survey about 280 prices. We select 36 places from major cities throughout Japan, such as Tokyo, Osaka, Nagoya, Sapporo, Yokohama, Fukuoka, etc.

For sales space rental, we survey three types of fees: two types of those for fixed rental space and the other for fixed buildings. One of the types of fees for the fixed rental space is monthly, for which a contract is often renewed every two or three years. The other type of fees for the fixed rental space is determined by the percentage of monthly sales at a rental space. Fees for the fixed building is a monthly averaged fee of all rental spaces in a building. More concretely, the averaged fee is calculated by dividing the total sales of rental spaces by the total areas of rental spaces. Some kinds of deposits and maintenance fees, such as those for the public space of buildings where the rental spaces are located, are not included in the fees, in principle. Specification for price survey of "sales space rental": fees for fixed rental space renewed every two or three years, and for fixed buildings, are the same as those of "office space rental." As there are various types of rental spaces and buildings with varied locations, we have expanded the numbers of price data as much as possible. Currently, we survey about 70 prices. We select places for the price survey from Japan's major cities.

For hotel rental, we survey two types of fees: those for a group of hotel guestrooms ― some floors of a hotel building, and those for fixed hotel buildings. Fees for a group of

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included in the item "office space rental."

hotel guestrooms are monthly, and are determined by monthly sales-related factors, such as operation rate of guestrooms. Fees for the fixed hotel buildings are also monthly, and their contracts are often renewed every two or three years. As there are various types of guestrooms and hotel buildings with varied locations, we have expanded the numbers of price data as much as possible. Currently, we survey about 20 prices. We select places for the price survey from the major cities of Japan.

For parking space rental, we survey monthly fees for parking space located in office buildings, such as underground, or by the side of an office building. For capturing price movements for business use, we select such parking spaces. As there are various types of parking spaces in varied locations, we have expanded the numbers of price data as much as possible. Currently, we survey about 50 prices. We select places for the price survey from the major cities of Japan.

D. Limitations and Concerns Regarding Published Data

In the CSPI, services for space rental, which total 7 trillion yen, or as much as 70 percent of the real estate services, are currently covered by the price survey.[6] But if we turn the merits of such coverage inside out, the coverage of surveyed real estate services is still limited to some extent due to the lack of survey of agent, intermediary, and management services. These services total 3 trillion yen, or about 30 percent of the total transaction volume of the real estate services among corporations that are within the scope of the CSPI. To achieve more accuracy and wider coverage of the index, additional surveys of the agent, intermediary, and management services are desirable. However, it is very difficult for us to survey these services continuously at the same condition in terms of the quality of services because each contract for these services is different, and no contract ever happens twice.

Another concern regards the quality adjustment in replacing price data of real estate services from old to new. We mainly determine the quality of services by the rental space, customer, and provider of the services. However, when the price data of rental space cease to be representative, we face the difficulties of adjusting quality differences between the two. So far, we have not been successful in such quality adjustment by

[6] The figures cited in this paragraph are from the "1995 Input-Output Table for Japan," compiled by the Statistics Bureau, Ministry of Public Management, Home Affairs, Posts and Telecommunications (MPHPT).

using the methods of quality adjustment that have been adopted for the CSPI, such as the production cost method and overlap method. Some have argued for the adoption of the hedonic regression method, which is a technique for quantitatively estimating the price changes corresponding to the change of various characteristics in a product. We have begun to consider the feasibility of that approach.

E. Analysis of "Goodness" of Published Data

We have compiled four item indexes of the real estate services for more than 15 years, starting in January 1985. The indexes generally show an increasing trend until around 1993; they began to decrease or stabilize after that.[7] We would like to try to evaluate its "goodness" through qualitative analysis.

First, the indexes have strong correlation with land prices because changes in land prices can be almost explained by the discounted cash flow method. In Japan, from 1985 through 1990, commercial urban land prices continued to rise rapidly, and began to decline in 1991. The former period is often referred to as the "bubble period" which stems from the huge gap between land prices and its yielded income: this relation is roughly shown by the ratio between land prices and nominal GDP (see Appendix 3). During that period, people expected large capital gains; in other words, people expected further increases of future rents for a continued period of time beyond the increases of long-term interest rates. The indexes ― rents for existing spaces ― continued to rise for the same period following the land price development. Then, reflecting the burst of the bubble, land prices and the indexes turned to decline during the early 1990s. Even during 1999-2000, which showed economic expansion in business cycle, land prices continued to decline and rents failed to stop declining. This is partly because the aftereffect of the burst of the bubble still exists to some extent. Moreover, the industrialization in Asian countries and a shift in production from Japan to Asia have provided additional downward pressure on those prices recently to equalize the prices of factors of production among those countries.

Second, a time lag between the developments of land prices and the indexes could be explained from the fact that the land prices would reflect the expected future rents for the space, while the indexes reflect the realized current rents. It is obvious that there is

[7] See appendices for the indexes of real estate services and related factors. Graphs and a table of the indexes are available.

a time lag between both prices, because land prices are determined before the expected rents are actually contracted. Thus, land prices turned to decline in 1991, reflecting the changes in expectation of future rents as well as increases in the long-term interest rates, while the indexes did so with a time lag, starting in early 1994. Additionally, there would be technical factors affecting to a time lag: that is, the cycle of actual contracts for rental spaces adopted as price data of the CSPI. Roughly half of our tracking prices are renewed every two or three years. That means the price movement would have some stickiness. Therefore, it can be understood that land prices lead the asking rents-which show movement of newly offered prices, and the asking rents lead the existing rents as adopted in the CSPI.

Finally, the development of the "sales space rental" index has seasonal cycles, as does that of "hotel rental." Indexes of sales space rental decrease both in February and August, because there are some survey prices of which the level is affected by amount of monthly sales due to price settlements. Sales at the rental spaces generally fall during those months.

Overall, the trend of the indexes of real estate services, which we have surveyed for more than 15 years, can be explained qualitatively by taking account of changes in Japan's macro economic conditions.

[N.B. Charts and tables are provided in a separate Excel spreadsheet]

Appendix 4: STATISTICAL CENTRALBYRÅN

Swedish real estate price index

Building rent survey in the NR building estimate

The NR building estimate

The NR calculation model can be treated as consisting of two sections:
A. Rentals for housing purposes
B. Rentals for other purposes

NR will estimate the total rental income in current prices and break down the development in rents into price and volume components to obtain revenues in constant prices. The number of square meters (m^2) rented is used as an operative measure of volume development.

In regards to rental housing, an estimate already exists based on census information and extrapolation methods. In 1994, total housing rentals were calculated at SEK 81.7 billion. Thus, this report will treat only the B section. The B section is often termed the *commercial rental of buildings* and refers to offices, shops, industrial buildings, garages, etc. In reality, the rental purpose can be for any sort of operation. Hence, it can be an issue of a hotel, restaurant, craft shop, atelier, etc. The same building can shift over time among several different usage areas.

We use the type codes in the Building register (FTR) to provide a more accurate determination of the population. These are summarized as follows:

Table 1: Type of building

Type of building	Type code	Number
Farming unit	100-199	352 548
Small house unit	200-299	2 330 344
Apartment unit	300-399	120 111
Of which in IKU	320,321	87 709
Industrial unit	400-499	154 346
Pit unit	600-699	4 752
Elec prod. unit	700-799	1 579
Special units	800-890	89 862
Other units	900-999	114
Total		3 053 656

(Appendix 1 provides a complete list of these codes.)

In principle, all building types can be rented out. However, rentals are concentrated primarily among apartment units and secondly among industrial units and special units.

The revenue and cost survey (IKU) carried out by V/BO covers the codes 320 (mainly housing) and 321(housing and buildings). The IKU also measures the building rents in this population. In 1994, SEK16.0 billion in rental revenues was measured in this sector (of which SEK 3.3 billion represents other revenues).

Special units are buildings of governmental character (schools, hospitals, churches, etc.). A large portion of these buildings has been commercialised in recent years by municipal incorporation, whereby they have come to belong to the interest population.

The Bor/OE survey of municipal enterprises has been used as a source for estimates of this group. In 1994, total turnover of SEK 51.9 billion was measured for the 678 municipally owned enterprises in building management, of which public housing (SEK 32.1 billion according to BHU) and general building rentals (SEK 5.6 billion according to IKU). IKU therefore represents the remaining part. Another publicly owned company, the Akademihus, is also active in this sector and a separate estimate has been made for it.

Thus, there has been a need for a survey that covers the remaining part of commercial building rentals. The LHU (Building rental survey) aims to meet this need. Table 2 provides a rough description of the total interest population.

Table 2: Building rentals, total

Section	Total rent 1994, billions
Housing	81.7
IKU, buildings	16.0
Municipal building management	14.2
Vasakronan	?
Akademihus	?
LHU	approx. 40
Remaining	?

In regards to constant price calculations, NR intends to calculate volume development according to Laspeyres and thus the price index according to Paasche. The estimates of constant prices are made separately in the following areas.

- Housing. The sources are FoB, BHU and IHU.
- Buildings; IKU section.
- Buildings; LHU section. See below.
- Municipal building management and the Akademihus and Vasakronan. Source information is lacking at present. Since they are expected to apply market rents it is reasonable to impute a rental development represented by a weighing together of IKU and LHU.

Appendix 4: STATISTICAL CENTRALBYRÅN

Swedish real estate price index

Building rental survey

This section shall provide a general report on the development of LHU and the results from the first year's survey with the new design. A more detailed description of the sample design, etc. can be found in "Undersökningsdesign för TPL 96", Dalén, 22 November 1996).

General

In the period 1993-1995, LHU was carried out semi-annually with the aim of measuring price and volume developments for building rents. The design was changed for 1996 due to quality problems with the original design (large non-response, comparison problems across the years, etc.). The 1996 survey design is described below.

Statistical measures

The survey aims to estimate two types of units: production values (total rental revenues) and price indices (developments in rents per m^2).

Coverage - population

The survey objects are buildings as found in the building tax register (FTR). The population is defined in two dimensions:

- According to the building code type as stated in FTR
- According the owner's CFAR branch as stated in SNI92 (SIC)

In its broadest sense, the interest population consists of all commercial rental of buildings (as distinguished from the use of a building in own activity). Other surveys, especially IKU (Revenue and cost survey), cover parts of this population, especially most housing rentals. LHU focuses therefore on rentals for other purposes than housing (offices, shops, hotel/restaurant, craft shops, industry, etc.). However, some housing rental may exist in the LHU population.

However, the exact range of the population is difficult to define in relation to rentals, since rentals can exist for most types of buildings. The most important code types are, however, the so-called 300-series (housing units, of which however 320 and 321 are surveyed in IKU) and the most important SNI branch is 702 (building management).

It was decided that that the buildings marked A-C in Table 3 would be included in the LHU population for LHU-96.

Appendix 4: STATISTICAL CENTRALBYRÅN
Swedish real estate price index

Table 3: LHU population range

	SNI=702, (building management)	SNI≠702
Code types=320-321	**-**	**-**
Code types=300-399 excluding 320-321	A	C
Code types=400-499 (industry units)	B	-
Other code types	-	-

In LHU-97, the municipal enterprises included in the BoR/OE survey and Akademihus should also be explicitly excluded from the population.

Results of the 1996 survey

Table 4 describes taxed rental revenues:

Table 4: Total rental revenues 1996, SEK billions, at 95% confidence level.

	Housing	Office	Shops, etc.	Industry	Other	Total	Total w/o housing
A	3.2±5.5	13.2±1.2	6.4±1.0	1.0±0.4	1.7±1.3	25.5±5.8	**22.3±1.7**
B	0.1±0.1	2.0±0.8	0.6±0.5	9.8±2.2	0.4±0.3	12.9±2.2	**12.8±2.2**
C	0.3±0.3	5.3±0.9	3.3±0.8	0.8±0.8	1.4±1.2	11.0±1.9	**10.7±1.8**
To-tal	**3.6±5.5**	**20.5±1.6**	**10.2±1.4**	**11.5±2.3**	**3.5±1.8**	**49.3±6.5**	**45.7±3.3**

The last column is the central element since housing is excluded from the NR survey. Vasakronan and Akademihus should be removed from these estimates. The contribution of Vasakronan to the LHU was approximately SEK 2.5 billion (of which none was housing in principle); and the contribution of Akademihus was 0.

Price development involves two time horizons: December 1995 - December 1996 in Table 5 and January 1996 - January 1997 in Table 6.

Table 5: Price index for December 1996 with December 1995=100, at 95% confidence level.

	Housing	Office	Shops, etc.	Industry	Total	Total w/o housing
Laspeyres	100.9±1.4	102.0±1.0	103.2±3.0	97.7±3.1	101.1±1.1	101.1±1.2
Paasche	**100.9±1.4**	**102.2±1.0**	**103.1±3.0**	**96.3±4.6**	**100.8±1.5**	**100.8±1.6**

Table 6: Price index for January 1997 with January 1996=100, at 95% confidence level.

	Housing	Office	Shops, etc.	Industry	Total	Total w/o housing
Laspeyres	100.9±1.5	99.4±1.1	100.0±1.5	99.1±2.2	99.6±0.8	99.5±0.9
Paasche	**100.9±1.5**	**99.1±1.1**	**99.9±1.5**	**99.0±2.7**	**99.5±0.9**	**99.4±1.0**

We note that changes that significantly differ from 0 (index differs from 100) are in exceptional cases only.

The intended use of the LHU for calculating constant prices is revealed in the following equation:

$$\sum P_{96}Q_{97} = \sum P_{97}Q_{97} \Big/ \frac{P_{97}}{P_{96}} = \sum P_{97}Q_{97} \Big/ ½\left(\frac{P_{Jan97}}{P_{Jan96}} + \frac{P_{Dec97}}{P_{Dec96}} \right)$$

The price development from one year to the next is calculated as an average value of the development January-January and December-December according to the LHU. It should be noted, however, that the December-December information appears one year later, which is why the January-January information is used as a preliminary estimate.

All index types (Laspeyres, Paasche, Fisher) are calculated within the framework of the LHU. However, a Paasche price index is used in accordance with the NR general principle.

Survey quality

The confidence levels for the random sample error are provided above. Table 7 describes the response structure in the survey.

Table 7: Response, non-response and coverage in LHU 96.

Respondents	Overcoverage					Non-response					Entire sample
1	2 (own business)	5 (no building)	35 (under reconstruction)	80 (all unrented)	**Total**	0 (not received)	3 (combined)	61 (survey incomplete)	65 (bankruptcy)	**Total**	
764	60	7	8	7	**82**	129	8	14	5	**156**	**1002**

The survey response frequency can be calculated as (764+82)/1002=84.4%. No great differences can be distinguished among the different parts of the survey. The response frequency pertains primarily to the calculation of rental revenues. For the price index, the December calculations are based on 696 buildings and the January calculations are based on 721 buildings, where applicable responses have been submitted for both months.

The major remaining problem is probably undercoverage in relation to commercial building rentals for the total interest population of NR. There is reason to believe that some rentals, of unknown size, are hidden in the non-surveyed area of the building register. The difficulty in designing a statistical sample survey such as LHU is to effectively cover those parts of the population where building rentals are fewer and less extensive. However, the survey population in LHU-97 is planned to increase.

We evaluate the survey quality as generally good. However, the length of the confidence levels is fairly large and undercoverage should be reduced. Thus there is an argument for an increase in the size of the sample.

Future changes

The current design of the LHU is suited for the purpose for creating adequate estimates of the total extent of commercial building rentals in value and volume. Another use of the survey would be to provide general insight into market relationships in the building sector. However, the LHU meets this need in only a very rudimentary way in its present form.

A commentary follows on some possible changes and extensions of the LHU framework.

- *Increased coverage of the interest population.* LHU-97 also includes a small sample of industrial buildings owned by non-industrial enterprises other than property management firms. The remaining significant undercoverage concerns mainly so-called special units (buildings of governmental character such as schools, hospitals, churches, etc.) owned by private enterprises. Industrial buildings rented by an industrial enterprise to another are not covered either.
- *Expanded sample*. In addition to providing a smaller sampling error, an expanded sample would enable a richer spectrum of reporting groups. See below. V/BO has promised to contribute an assessment of the increased costs involved in an expanded sample. The decision is now up to Statistics Sweden.
- *Coordinated sample.* To enable increased precision in estimates of rental developments between the years in current prices requires the implementation of a positive coordination of samples beginning with LHU-97.
- *Regional reporting*. The current sample may be able to provide a rough breakdown of total rentals by larger regions; but it cannot provide a regional breakdown of rent developments unless it is dealing with significantly great differences. However, a very large sample is required for detailed regional breakdowns.
- *Quarterly breakdown*. NR would actually like the quarterly development in constant and current prices. But it is difficult to make progress in regards to the distribution of rents over time. One difficulty is that rental periods vary and transcend quarter boundaries. Another difficulty is the large variety of contract forms, which include such variations as a part of the rent as a percentage of the turnover or that certain types of expenditures (for example, heating) are treated separately and billed once a year. We find that expanding the aims of the survey would involve great costs and difficulties in this respect.
- *Breakdown by building type.* This is probably not a major interest, but this can be roughly done in the current structure for the rental totals.
- *Breakdown by SNI (SIC) branch*. SNI 702 (building management) can already be distinguished but not for the other branches. An expanded sample can be designed if needed that focuses on an expanded branch reporting.

Appendix 4: STATISTICAL CENTRALBYRÅN
Swedish real estate price index

LHU – Results of the 1998 survey

Summary

The main results of the survey are presented below using symbols from the memorandum Dalén-Elffors – News from the Building rent survey (LHU) 97:

Table 1: Total rent income 1998, SEK billions, at 95% confidence level.

Stra-tum	Building type						
	Apart-ments	Office	Shop	Industry	Other	Miscellaneous	Total
A	0.5±0.2	15.0±3.2	6.4±0.7	1.5±0.7	2.7±0.6	1.5±1.5	27.6±4.4
B	0.0±0.0	1.4±0.3	0.5±0.3	7.0±0.8	1.5±0.3	0.1±0.1	10.4±0.9
C	0.3±0.2	4.8±0.6	1.9±0.4	0.3±0.2	1.5±0.8	0.4±0.2	9.2±1.0
D	0.0±0.0	1.9±2.3	0.1±0.1	2.6±0.8	0.6±0.3	0.6±0.9	5.8±2.6
To-tal	0.9±0.2	23.1±4.0	8.8±0.9	11.3±1.3	6.3±1.1	2.5±1.8	53.0±5.3

Table 2: Price index for December 1998 at 95% confidence level, December 1997=100.

	Apartments	Office	Shops, etc.	Industry	Other	Total
Laspeyres	101.3±1.4	102.0±0.7	101.9±2.2	98.9±2.0	102.6±1.5	101.3±0.7
Paasche	101.3±1.4	101.8±0.6	101.9±2.3	98.7±2.0	102.7±1.7	101.2±0.7

Table 3: Price index for January 1999 at 95% confidence level, January 1998=100.

	Apartments	Office	Shops, etc.	Industry	Other	Total
Laspeyres	100.8±0.7	100.5±0.9	101.4±2.1	100.4±1.1	100.3±1.1	100.6±0.6
Paasche	100.8±0.7	100.5±0.9	101.5±2.1	100.5±1.1	100.7±1.4	100.7±0.6

For corresponding results for the previous year, see Dalén, “LHU - Results of the 1997 survey”.

Survey quality

The confidence levels for the random sampling error are given above. These have fallen significantly since the size of the sample was doubled beginning with the 1997 survey.

Table 4 below describes the structure of responses in the survey.

Table 4: Response, non-response and overcoverage in LHU 98.

Response	Overcoverage					Non-response				
1	2 own busi-ness	5 no build ing	35 under reconstru ction	80 all unren ted	**Total**	0 not received	3 combine d	61survey incompl ete	**Total**	**Total sample**
1554	155	34	10	15	**214**	190	18	24	**232**	**2000**

Appendix 4: STATISTICAL CENTRALBYRÅN

Swedish real estate price index

The survey response frequency can be calculated as (1554+214)/2000=88.4%, an increase from 85.4% in the previous year. The responses for the different strata were: stratum A 88%, stratum B 77%, stratum C 69% and stratum D 51%. The response frequency applies to the calculation of rental income. For the price index, the December calculations are based on 1464 buildings and the January calculations are based on 1486 buildings. This represents approximately 73-74%, which is somewhat larger than in the previous survey (for which the corresponding figures are 1400 and 1392).