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LAND PRICES IN
FINLAND -
INFORMATION
SYSTEM AND
PRICE
DEVELOPMENTS*

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Abstract: This study describes the land information systems, their evolution, and the market for land information in Finland. We describe the availability and quality of price information both in urban (residential, office and industrial markets) and rural markets (arable and forest land). In addition to pure land, we also describe what statistics exist concerning of different forms of real estate. In addition to official statistics, we also made a small survey to the earlier Finnish land price studies. Although a lot of other type of information has been available for long periods of time, continuous statistics on land and real estate prices with national coverage have only been available from the first half of 1980s. Available statistics are used to describe price and rent developments in different markets. As for land and real estate, changes in their real prices have been remarkable even in international comparison. The boom at the end of 1980s and the bust thereafter can be seen in all price series.

Key words: Land Prices, Real Estate Markets, Finland

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Tiivistelmä: Tutkimuksessa kuvataan maan ja yleisemmin kiinteistöjen hintainformaatiota koskevia tietojärjestelmiä, niiden kehitystä ja markkinoita Suomessa. Suomen maamarkkinat jaotellaan kaupunkimaahan (asunto-, toimisto-, ja teollisuusmaa) ja maatalousmaahan (pelto- ja metsämaa). Maan lisäksi tarkastellaan myös rakennettuja kiinteistöjä. Vaikka muuta kiinteistöjä koskevaa tietoa on ollut saatavilla pidemmän aikaa, jatkuvia aikasarjoja maan hintakehityksestä koko maan kattavina on ollut saatavilla vasta 1980-luvun alkupuolelta lähtien. Tästä johtuen virallisten tilastojen lisäksi tarkastellaan myös aiempia maanhintatutkimuksia Suomessa. Saatavilla olevien tilastojen avulla kuvataan maan- ja asuntojen hinta- ja vuokrakehitystä. Maan ja asuntojen reaali hinnat ovat vaihdelleet huomattavan paljon kansainvälisen vertailunkin valossa. 1980-luvun lopun boomi ja sen jälkeinen hintojen romahdus näkyvät kaikissa sarjoissa.

Asiasanat: maan hinta, kiinteistömarkkinat, Suomi

Summary

In this paper we study land information systems, their evolution, and the market for land information in Finland. We concentrate on information systems in different segments of the Finnish land markets by describing the availability and quality of price information in urban and rural markets. In urban land markets, the main segments are residential, office and industrial markets. Rural markets include agricultural and forest land markets. In addition to pure land, we also describe what statistics exist concerning prices and rents of different forms of real estate.

Earlier land market information was based on separate studies some of which date back to the first half of this century, while official statistics with national coverage are rather recent. On arable land, forest land, and sites official statistics are available beginning from 1982 based on the statistics of National Land Survey of Finland. Statistics Finland has since 1985 published statistics on apartment prices based on the data of biggest real estate brokers. Another statistics on apartment prices is based on duty stamp data, and it has been published from 1987 on by Statistics Finland. Information on rents of dwellings are based on separate rent studies by Statistics Finland dating back to 1966. Before that Government Board for Social Services compiled rent statistics. There are no official statistics on rental office and industrial space markets. Instead, the biggest real estate broker in Finland (Huoneistokeskus Oy) and a research institute (Kiinteistötalouden instituutti) specialized on real estate markets, collect and publish statistics.

The state of land information in Finland is somewhat astonishing especially when compared to census type information, which in Finland dates back hundreds of years and is internationally of high quality. As for land information it turned out that information on land, real estate and apartment transactions has been collected for a long time locally but the information has not been used to produce statistics even at regional not to speak of national level. One of the reasons has been that the information, according to law, needed to be kept only for a limited period of time after which it could be destroyed.

The lack of land price information and the similar situation concerning real estate and apartments is also based on the history of taxation in Finland. Apart from stamp duty collection based on purchase prices of real estate, the need for price information for the purposes of taxation has been limited. One obvious need to produce better price information has been the introduction of property taxation in 1993.

Available statistics are used to describe price and rent developments in different markets. All series share the same basic trend in the 1980s and 1990s. From the

beginning of the series to the mid 1980s the real prices increased steadily. After that in the late 1980s prices increased dramatically, especially in apartment markets. At the beginning of 1990s real estate prices collapsed, and as late as in the mid 1990s the real price spin has stabilized. In some price series the real prices are still lower than in the beginning of 1980s.

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1. Introduction

The purpose of the paper is to describe the land information systems, their evolution, and the market for land information in Finland. We concentrate on information systems in different segments of the Finnish land markets by describing the availability and quality of price information in urban and rural markets. In urban land markets, the main segments are residential, office and industrial markets. Rural markets include agricultural and forest land markets. In addition to pure land, we also describe what statistics exist concerning prices and rents of different forms of real estate. Available statistics are used to describe price and rent developments in different markets.

Collection and availability of information on land markets has varied during the last few decades. Information on transactions of agricultural and forest land, including prices, has been collected to land registers and for tax purposes for a long time, but this information has not been used to provide publicly available official statistical price information before 1982. Over the years this kind of information was collected locally but it was stored only for quite a few years. Thus earlier land market information is based on separate studies some of which date back to the first half of this century. The oldest information on land price developments we know of begins from 1909. The earliest and post World War II studies differ both in the methods and samples, but on the other hand they are the only possibility to consider older price data. During the post World War II period the longest price series are based on agricultural and forest land purchases of National Board of Agriculture since it began its land purchase activity in 1958. For site prices, the only reliable longer series is collected by the real estate department of the City of Helsinki. That data covers site prices in the Helsinki region from 1960 on. Official price information on arable land, forest land, and sites are only available beginning from 1982 based on the statistics of National Land Survey of Finland. Also a research institute specialized on agricultural economics collects data on rents of arable land.

As for different forms of urban land in non-residential and residential use, also here official statistics with national coverage are rather recent. In case of housing, besides some separate studies, prices of apartments (dwellings in housing company form which constitute an important housing segment in Finland), have been collected by the City of Helsinki from 1961 on. There is also a biggest real estate brokers' apartment price series commencing 1970. During the earlier years it was mainly based on information from the Helsinki Metropolitan Area, but gradually its coverage increased to the whole country. Statistics Finland has only since 1985 published official statistics on apartment prices, based on the data of biggest real estate brokers. Another statistics on apartment prices is based on duty stamp data, and it has been published from 1987 on by Statistics Finland. Contrary to apartments, brokers' information or stamp duty data have not been

used to produce statistics on prices of single family homes. The data of the National Land Survey of Finland covers single family homes but there is no information on characteristics of buildings.

Information on rents of dwellings are based on separate rent studies by Statistics Finland dating back to 1966. Before that Government Board for Social Services compiled rent statistics. There are no official statistics on rental office and industrial space markets. Instead, the biggest real estate broker in Finland and a research institute specialized on real estate markets, collect and publish statistics.

The purpose of this paper is to describe the land price information system and its development in Finland. At the end, we also discuss recent and future development of the availability and use of data, and the challenges to get better price information. Currently, the need for a better land and property price information system stems i.a. from the introduction of property taxation since 1993. In addition to describing the evolution of Finnish land price information system, we also analyze the booms and busts in price developments which have been remarkable even internationally.

This paper is organized as follows. Chapter 2 begins with a short introduction of Finland and then presents shortly the main features of Finnish real estate statistics available today. Chapter 3 summarizes earlier studies on rural land prices, urban site prices and housing prices which preceded the emergence of official price statistics. Chapter 4 is the main chapter of this study. Here both the new and old statistical information concerning different forms of real estate prices are analyzed in more detail. Also recent price developments are described and discussed in this connection. Chapter 5 is a conclusion where we briefly summarize the history and current state of Finnish land information system. We also give some reasons for its historical development and discuss its current and future challenges.

2. An Introduction to Finnish Real Estate Statistics

2.1 Finland in Brief

Finland is located between Sweden and Russia in Northern Europe. The population at the end of 1996 was 5.1 million, of which 65 percent lived in urban municipalities. The largest cities are Helsinki, the capital of Finland, with 530 000 citizens, Espoo with 200 000 citizens, Tampere with 190 000, Vantaa and Turku with 170 000 citizens.

The geographical area and the use of it during the last 40 years is represented in table 1. The most notable features are the diminishing of arable land area, and the increase of built-up areas¹.

Table 1: The Finnish geographical area (1000 sq. kilometers)

Land type / Year	1951-53	1964-70	1986-94
Total area	337	337	338
Inland water courses	32	32	34
Total Land area	305	305	305
Forestry land	263	267	263
Agricultural land	40	33	30
Built-up areas	2	2	8
Transport routes etc.	NA	3	4

Source: The Finnish Forest Research Institute 1996.

2.2 Main Features of Finnish Real Estate Statistics

Finnish statistics concerning real property have been bipartite. At the same time there has been good statistics on real property but virtually no information at all on their prices. However, during the last decade the situation has improved considerably, mainly for two reasons. First, the real estate register has been improved. Several different statistics have been linked together and the whole register is now in a computer form. Second, price information on most land and apartment purchases is now available.

National Land Survey of Finland maintains real estate register. The real estate register is based on the documents on land surveys, maps, and the decisions of authorities. The register includes all real estates, and the information contains i.a. area, purpose of use, servitudes, proportions on other real estates, plan, and

¹ The changes in total area and inland water courses originate from classification and methods changes.

possible restrictions concerning that real estate. A continuous time series of the amount of real estates is available from 1924 on, and since 1994 all real estates have been in computer form. The real estate register is public.

In addition to the real estate register National Land Survey (NLS) of Finland has registered all² real estate assignments in Finland since July 1981³ to the Official Market Price Register. The register is based on law and it is public. It includes main information of the assignments, i.a. information on the object, its area, principle use, planning situation, location, buyer, seller, and purchasing price. It should be pointed out that only the type of the building is reported but no further valuation is made. NLS has published an annual statistics book on the information from 1982 on. From the beginning it has had information on i.a. arable land, forest land, detached and terraced house sites, and free time apartment sites. Commencing 1984 also information on productional land (rock, sand, turf) and water areas have published. In addition to pure price information also price indices for arable land, forest land and sites are published. Furthermore, specified outputs can be ordered from NLS.(NLSb 1997, pp. 10-11)

Statistics Finland has produced data on building stock in its population census since 1950. The censuses have been carried out every ten years. From 1985 on studies on housing and dwelling conditions have been produced yearly. The use of register-based data has increased since 1970, and nowadays all data on buildings, dwellings and housing conditions are compiled from registers. Data on business premises was collected only in 1980. Statistics Finland maintains also data on apartment prices and rents. From 1985 on it has published a quarterly apartment price statistics which is based on the data of biggest real estate brokers. Since 1987 also another apartment price publication has existed. It is based on the duty stamp data and is published annually. Annual rent statistics are available from 1925 on.

In addition to these publicly available statistics also the government has collected data on real estates and real estate markets, mainly for taxational reasons. The tax authorities have data on sites and buildings for the real estate tax value calculation. Arable land and forest land information is collected for profit taxation calculations. The tax authorities have also data on share formed real estate values, which is based on stamp duties charged on housing share transactions. However, as a rule the data of tax authorities is classified as

² The register excludes purchases of share formed sites, which means that most of the business premises purchases are excluded. In Finland real estate property can be owned either directly or through the shares of a housing or real estate company. It is quite common to own real estate through a real estate company that can have one or several shareholders, especially in the residential market.(Olkkonen and Häkkinen, 1996, pp. 17)

³ The register was first proved in the county of Mikkeli, where information is available from the first of April 1975.

confidential. In addition to tax authorities, also National Bureau of Agriculture (hereafter NBA) has data on agricultural and forest land and real estates.

Also some unofficial series on land prices have existed. A continuous time series of the price of rural land in Finland is available from 1958 on, when the National Board of Agriculture began to buy and sell land for agricultural purposes. Urban land price information on the Helsinki area is available from 1959 on. Later also other cities have collected price information on their own area, e.g. the city of Espoo since 1977. The city of Helsinki has also collected data of the apartment prices on its area. The first effort to a more comprehensive apartment price collection was made in the 1970s, when the biggest house brokers began to collect price information on the brokeraged houses and apartments. Naturally sales announcements of land and buildings were published in newspapers, and house brokers have collected i.a. price information for their own purposes.

3. Earlier Studies on Real Estate Prices

3.1 Rural Land⁴

The first study concerning rural land prices was made by Kokkonen (1940) and it studied land prices in 1934-38 in the county of Nurmijärvi, which is a small county near by Helsinki. Kokkonen collected the price data from the local jurisdiction, where the copies of the bills of sale were saved. In addition of the prices of whole farms, also prices of arable and forest land were examined. This was possible because in most bills of sale the purchasing price was divided in sub segments. Virolainen (1950) made a similar study in 1950. This study can be thought of an extended version of the Kokkonen's study while it covers the whole country.

Hanhilahti (1979) investigated price formation of arable land in 1960-1975 with NBA's data. In addition, he compared Virolainen's 1930s prices to newer ones (1969 and 1977). Hanhilahti also scanned the possibilities to get price information of arable land in the late 1970s, and concluded that the NBA's statistics was the easiest, and for longer series, the only way to get price information in those days. According to Hanhilahti the other possibilities were the registers of notary public, legalization statistics, account books of farms, and the National Land Survey of Finland's experimental statistics in the county of Mikkeli.⁵

In addition to NBA's statistics Hanhilahti used two earlier research results, Leponiemi and Lammi's (1968) study of NBA's purchase prices of whole farms in 1961, 1962 and 1966, and Suomela's (1968) similar study of the free market prices. Comparing these results the author could get a view of the price difference between NBA's and free market prices. Valkama (1979) used Hanhilahti's data to survey the price development of arable land in 1960-1978. In order to compare the reliability of NBA's price statistics during 1970s, he used Laukkanen's (1974) farmer research results and made two own interviews. The first was addressed to the NBA's price judgment authorities and the other one was similar to Laukkanen's study. Comparing the results of those two studies Valkama could examine the possibility of downward bias in NBA's prices. Also Laurila made several studies (1986a, 1986b and 1988) in the mid 1980s on the price level of arable land and the comparability of different statistical series.

⁴ In this study the term 'Rural land' includes arable land, meadow and forest land.

⁵ According to Hanhilahti in 1979 in Finland were 51 local notary public offices, so the data collection would have been an enormous job. From legalization statistics the only obtainable information was just the total amount of the annually made assignments, and the account values of farms can diverge a lot from the market values. Finally, the statistics of National Land Survey covered just the purchases of the county of Mikkeli, where the system was first tested from the beginning of 1976.

3.2 Site Prices⁶

According to Leväinen (1991, pp. 38) the oldest report on site prices is Penttinen's article (1955) on the Village of Pakila (which is now a part of Helsinki), which covers years 1909-1954. After that, in 1955, Pöyhönen studied site prices in seven urban areas. His work is a pioneering work on applying econometric methods in Finland both in general and concerning land prices. Pöyhönen collected his data from site purchases during 1934-52. Salmela made a similar study in 1964 of the site prices in 6 cities in 1949-62.

Änkö's study (1969) focused on Helsinki and its neighboring municipalities. While other preceding studies treated all site types as one, Änkö divided sites to following types: block houses, terraced houses, detached houses, industrial buildings, and raw land. The investigated era was 1965-67. Kantola (1967) studied housing and industrial site prices in some population centers in the county of Uusimaa in 1956-65.

Kanerva (1975) also investigated housing and industrial site prices, but his study covered the whole country. He divided Finland in four different regions, in which the investigated areas were selected by random selection. Kinanen made a similar study in 1977 concerning the years 1972-75 covering 80 urban areas in the country. The data for all of these studies was collected separately from local sources. For example Kinanen collected most of his data from the county offices. Besides that, also registers of public notaries, legalization statistics, and possible local price statistics were used as sources.

Leväinen (1992) studied factors influencing prices of residential lots. However, the main purpose was to develop a calculation method for a site price index (SPI). In the empirical part, Leväinen tested his method for three Finnish cities with the NBS's data. In addition, he linked from several separate studies a site price series from 1909 to 1986, which mainly concerns the site prices on Southern Finland. Also another time series was made for the Helsinki Metropolitan area during 1935-1986.

Ridell (1992) investigated Finnish site and apartment price markets in 1960-1991. The study was divided in two sections, of which the first one focused on longer price development in Helsinki in with the data of Helsinki Real Estate Department. Ridell inspected both price development of detached sites and block house dwellings. In the other section, he studied terraced and detached site price development in 26 urban municipalities in 1985-91 with NLS's data. Because NLS does not assess buildings separately, Ridell could not study price development of detached and terraced houses.

⁶ In this study the term 'site' means as a rule unbuilt sites. However, it should be beared in mind that in NLS data sites are divided to built and unbuilt ones.

Laakso (1997) studied site and especially apartment markets and price formation in the Helsinki metropolitan area in the 1980s and early 1990s. The main tool of the study was hedonic regression analysis, which allowed Laakso to analyze how different apartment level, neighborhood, distance etc. factors have affected on apartment prices.

3.3 Apartment Prices

Vihriälä and Skurnik (1985) studied apartment price structure in the Helsinki Metropolitan Area (HMA) and in the City of Turku. The data was in quarterly form and it covered years 1970-1983. It was based on the biggest real estate brokers sales data. This study was the first one, in which systematically collected apartment price time series was used. It is worth to mention that Skurnik had already in the 1970s studied possibilities to collect reliable time series data on apartment prices.

Korpinen (1989) studied long time real price trends of accommodations. The data set consisted of the Statistics Finland's time series (beginning from 1970) and Korpinen's own series from 1947-1969. Korpinen collected price statistics from the Helsinki down town area from registers of housing companies. In the second part of the research, Korpinen estimated an recursive demand supply model (a cob web -model) to explain the difference between prevailing market price and estimated trend real price of dwellings.

Salo (1990) studied housing demand in Helsinki 1960-1990. The study was based on a price series, which was made by linking together Statistics Finland's (from 1970 on) and an earlier collected series (by Skurnik 1980) on prices of dwellings . In the empirical part Salo examined Finnish housing markets with three different time series models to study both short and long term price formation.

Koskela, Loikkanen and Virén (1992) studied house prices, household saving and financial market deregulation. Their time series concerned shares on housing companies and was basically the same as in Salo (1990).

Kosonen (1995) studied Finnish apartment prices in 1980-1993, and compared them to other Scandinavian countries. In addition, Kosonen estimated a SURE model for all Scandinavian countries, in which she explains apartment prices with real household disposable income, post-tax real interest rate, unemployment rate, and credit granting compared to GDP. In Kosonen's other study (1997) she used a time series approach to explain Finnish apartment price formation. Kosonen formed an error-correction model, in which she explained real house prices with real after-tax interest rate, real household disposable income, unemployment rate, housing capital stock, and real construction index.

4. Statistics

4.1 Introduction

As already mentioned, collected information on real estate transactions has not been used to provide publicly available official statistical price information before 1982. However, there are some unofficial price series concerning real estate prices in Finland before that. The longest such price series is based on agricultural and forest land purchases of National Board of Agriculture since it began its land purchase activity in 1958. For site prices, the only reliable longer series is collected by the real estate department of the City of Helsinki. That data covers site prices in the Helsinki region from 1960 on. Official price information on arable land, forest land, and sites are only available beginning from 1982 based on the statistics of National Land Survey of Finland. In addition to price information there are statistics on rents of agricultural land beginning 1962. This information is produced by Agricultural Economics Research Institute (MTTL).

The housing statistics on prices of single family houses are even today defective since NLS does not assess buildings on the sites. As for apartments (dwellings in housing company form) which constitute an housing segment in Finland, the City of Helsinki collected prices from 1961 on. There is also a biggest real estate brokers' apartment price series commencing 1970 which during the earlier years was mainly based on information from the Helsinki Metropolitan Area, but gradually increased its coverage in the whole country. Statistics Finland has only since 1985 published official statistics on apartment prices, based on the data of biggest real estate brokers. Another statistics on apartment prices is based on duty stamp data, and it has been published from 1987 on by Statistics Finland. Information on rents of dwellings are based on separate rent studies by Statistics Finland dating back to 1962. There are no official statistics on rental office and industrial space markets. Instead, the biggest real estate broker in Finland and a research institute specialized on real estate markets, collect and publish statistics.

This chapter considers price information and its sources for arable land, forest land, sites, and buildings.

4.2 Rural Land

4.2.1 Old Information

National Board of Agriculture (NBA) began to buy and sell land for agricultural purposes in 1958. NBA's statistics mainly describe land prices in its voluntary purchases but include also possible probate sales. The data includes also inheritanced and exchanged areas. NBA's purchases were based on at place made appraisal of the whole farm or a part of it. NBA followed cautious pricing, so that its purchases would not increase locally prevailing market price level. The purchases were appraised separately according to the types, e.g. arable land, meadow, forest land and the tree stand⁷. In addition, also the possible buildings were assessed. (Hanhilahti 1979, pp. 31)

In principle NBA's data describes free market price of rural land. One should, however, be a bit skeptical when studying NBA's price series. Usually the land is not sold to the state until it is the only possible buyer, which can be due to the poor location and / or the quality of the land. For example Laurila (1986a, pp. 31) suspects that NBA's prices are lower than prevailing free market prices just because the quality of the land is also poorer than of the directly purchased land. On the other hand, government tries to follow local prevailing market prices. According to some earlier studies (e.g. Valkama 1979, pp. 17) the biggest differences between NBA's price level and free market price level occurred when market prices rose rapidly. Then, because NBA obeyed cautious pricing politics, NBA prices were often lower than market prices for some time, until NBA corrected its prices so that they were again on market price level. That kind of stepped price curves were usual in the early 1970s in several regions. Another problem with these statistics is the small amount of observations. Despite these problems NBA's price series is the only available continuous time series on rural land prices from the late 1950s on.

4.2.2 Statistics Available Today

National Land Survey (NLS) of Finland collects all rural land purchases and accommodations in its Official Market Price Register. The rural land is divided to forest land and arable land. NLS also calculates price indices for those land branches. Because NLS does not assess possible buildings, it can neither appraise pure land value in purchases which include buildings. Therefore, price development of arable land and forest land are both estimated from restricted samples of total purchases. For arable land, the representative areas must consist

⁷ It is important to note that the pricing of arable land and forest land have differed considerably in Finland. The value of arable land was registered as it, but forest land and the value of tree stand were registered separately. In fact, tree stand has been the main source in value formation of forests.

of at least two hectares of unbuilt land, and the purchases must be made in free competitive markets. The latter excludes e.g. purchases among relatives. The number of these representative arable land purchases have been around 400 to 500 per year during 1982-96. Same restrictions affect also forest land, with the exception that purchased area must be at least five hectares. The amount of representative forest land purchases have varied between 2000 and 2500 per year. The price information is given in FIMs per hectare.

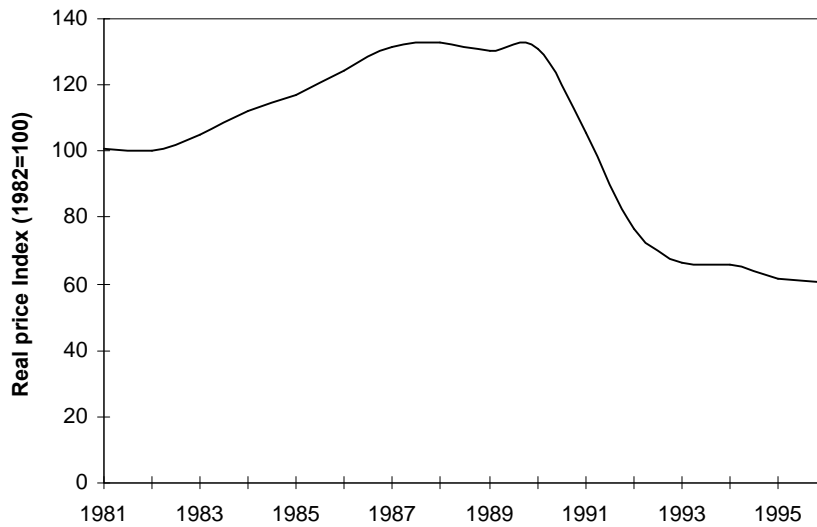
NLS does not publish area and value information on all arable and forest land purchases, so these markets can not be studied directly⁸. Instead of that, combined information on both arable and forest land is published. According that combined data, some 11 000 purchases were made annually during 1982-96. The purchased areas in those transactions varied between 230 000 hectares and 450 000 hectares. Rural land purchases have consisted some 10 percent of the value and some 20 percent of transaction volume of all land purchases in Finland.

Besides the earlier described volume and value information, NLS also calculates and maintains price indices for arable land, both for the whole country and for the agricultural counties. The indices are based on hedonic regression techniques. The real price indices for arable land, forest land, detached house sites, shore front free time apartment sites, apartments and apartment mean rents are represented in chapter 4 in figures 1-6. The nominal time series are tabulated in appendix 2.

Figure 1 represents the real price (CPI 1982=100) index of arable land for the whole country. At first one notices the bipartite nature of the time series. From 1981 to 1987 real price level increased steadily to a level where it settled down up to 1990. After that real price level fell drastically. The negative price spin straightened in 1993 but the real price level has fallen down even since that.

⁸ It is possible to order specified outputs from NLS. However, the ordered information is in a raw form, so further classification of the data must be made by oneself.

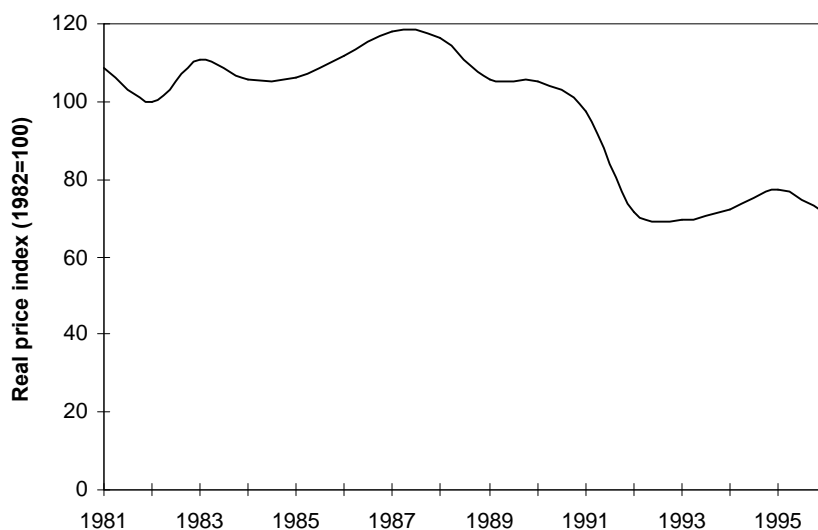
Figure 1: *The real price of arable land in 1981-96*



(Source NLS annual statistics 1996)

Figure 2 presents the real price (CPI 1982=100) development of forest land during 1981 to 1996. When compared to the real mean price development of arable land, it can be noted that in the 1980s the forest land price increase was much steadier than the price increase of arable land. However, after 1990 the real price level collapsed. Since that the nominal value has increased slightly. After 1993 also the real mean price level has turned back to slightly upward trend.

Figure 2: *The real price of forest land in 1981-96*



(Source: NLS annual statistics 1996)

4.2.3 Rent Statistics

Agricultural Economics Research Institute (MTTL) is a unit related to Ministry of Agricultural and Forestry. It has from 1962 on produced rent statistics on arable land. The data is based on voluntary farm accounting, which includes some 1000-1200 farms. It should be mentioned that the farms are not a representative sample of all Finnish farms; the account farms are e.g. roughly twice as large as the mean sized Finnish farms. However, this data must be classified as official since it is included to the statistic publications of Eurostat.

4.3 Site Prices

4.3.1 Old Statistics

The oldest reliable continuous time series covers site and apartment prices in the city of Helsinki, and it has been collected since 1959. Also some other cities have collected information on purchases on their area, for example Espoo since 1977. Despite the absence of official statistics, it is possible to form at least a rough outlook of the Finnish site prices from on the early 20th century. Several individual studies have been made since the 1950s, in which the studied site prices start from 1909. Naturally those studies differ widely both in methods, types, and locations of the sites.

4.3.2 Statistics Available Today

National Land Survey of Finland has collected information on site prices since July 1981. The main partition of different site purchases is made between master planned and non-master planned areas. As with the other statistics of NLS, possible buildings are not assessed. However, NLS divides its statistics into the built and unbuilt sites, so it is possible to observe pure site market development in Finland.

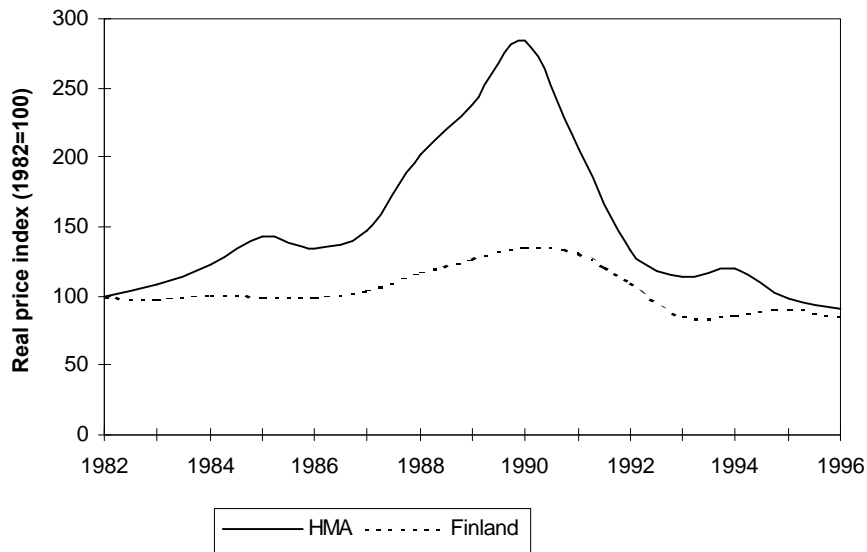
In addition to the detached and terraced house site purchases also vacation home free-time apartment and business premise (divided in service, commercial, and industrial sites) purchases are registered. The free time apartment sites are divided to the ones with and without a shore. Since 1984 also productional land (e.g. rock, sand and turf) and water area purchases are included. As already mentioned, it is possible to order specific outputs of the registered purchases from NLS. The price information is in FIMs per square meter.

National Land Survey of Finland calculates price indices for detached unbuilt sites⁹ in the Helsinki Metropolitan Area (HMA) and in the rest of the country, and for unbuilt lake or sea side free time apartment sites for all counties. However, for industrial sites no indices are calculated

The detached real site price (CPI 1982=100) indices in the Helsinki Metropolitan Area (HMA) and in the rest of the country are represented in figure 3. These series cover only sites in unzoned areas, where the general price level is much lower than in zoned areas. To get some idea of the price level in zoned areas, we have in appendix 2 tabulated also the nominal mean prices of detached house sites in the County of Uusimaa. Those figures are only weighted averages, so annual changes in the distribution of purchased sites make these mean values biased. According to figure 3, the mean real price level increased rapidly in the Helsinki Metropolitan area (HMA) in the mid- and late 1980s. The increase in the HMA was most powerful in the late 1980s, when the real price level almost two-folded during 1987-90. On the other hand, the price fall was even more drastic: the average price per square meter fell in four years (from 1990 to 1993) almost 60 percent. After that, real prices have still decreased, and the real price level is today lower than it was in 1982. In the other parts of Finland the price development has been much steadier, while a slight increase in the late 1980s is barely noticeable. However, after 1990 the real mean price level has decreased in other parts of the country too.

⁹ The data includes also built rent site purchases.

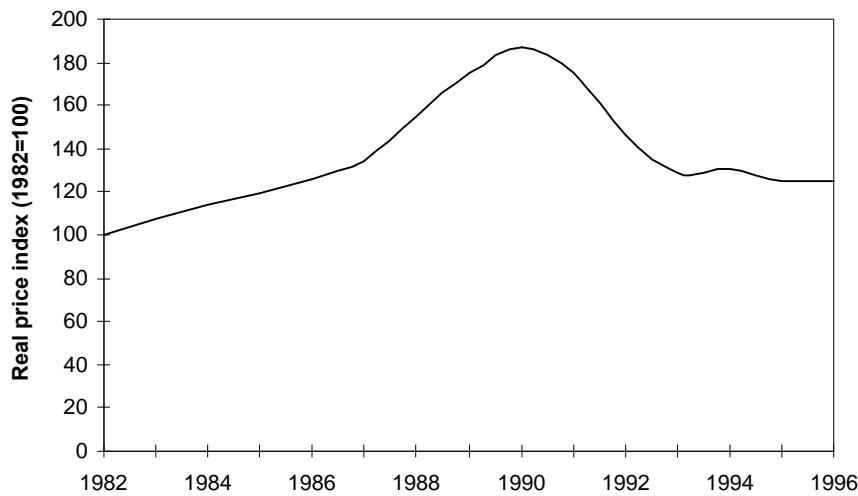
Figure 3: *The real price of detached sites in unzoned areas in 1982-96*



(Source: NLS annual statistics 1996)

The real price (CPI 1982=100) index of shore front free time apartment sites is represented in figure 4. The mean prices are calculated with hedonic regression methods. The price development has followed similar pattern with other introduced price series: a drastic price increase in the late 1980s and even more drastic decrease after that. It is, however, notable that the real mean price level of shore front vacation apartment sites is nowadays in higher level than in the early 1980s. In the other three inspected land segments the real price are lower in 1996 than in 1982.

Figure 4: *The real price of shore front free time apartment sites in 1982-96.*



(Source: NLS annual statistics 1996)

4.4 Apartment Price Statistics

4.4.1 Old Statistics

Old reliable statistics concerning apartment prices are scarce in Finland. The only example is the City of Helsinki's statistics on its area since 1959. On the other hand, the real estate brokers have collected their information on brokered apartments. The biggest real estate brokers have from the 1970s collected their sales in one data base, and on the basis of that data Statistics Finland formed official apartment price data (Apartment Prices According to Real Estate Brokers) in the mid 1980s.

4.4.2 Real Estate Broker Statistics

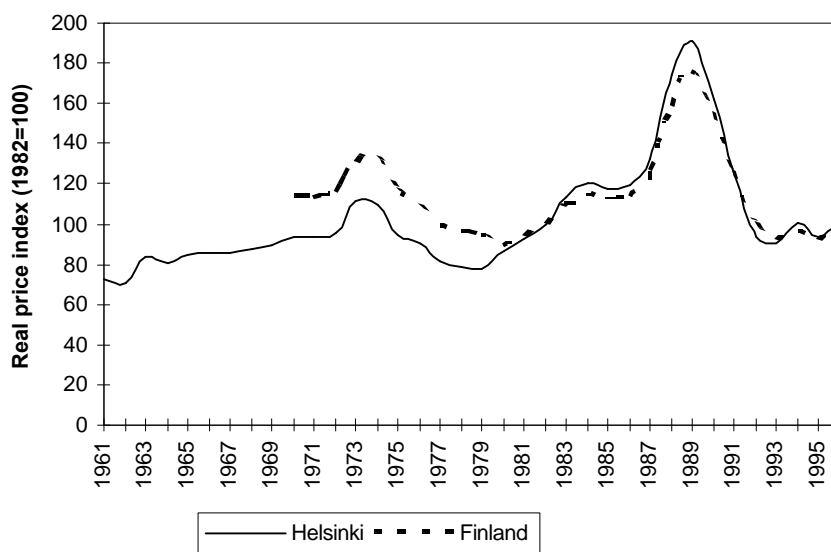
Statistics Finland has maintained quarterly statistics for apartment (i.e. shares in housing companies) prices since the second quarter of 1985. The statistics is based on the sales data of the biggest nationwide real estate brokers, which have had a common price development register since 1977. With National Housing Board's aid Technical Research Center of Finland (VTT) has completed that series back to 1970, so a continuous price series of apartment prices is available from 1970 on. Nevertheless, it should be stressed that publicly available information on house prices was not published until 1985. (Statistics Finland 1985, pp. 3)

The statistics on housing prices describe the unencumbered prices of existing housing corporation flats in deals brokered by real estate agencies. The price information is given in the form of FIMs per square meter. The statistics include only share formed existing apartment purchases, which means that e.g. most detached houses and the purchases of new apartments are excluded. Naturally also the transactions which have made without are excluded. (Statistics Finland 1985, pp. 11) According to Statistics Finland (1985, pp. 15 and 1997b, pp. 3) at the beginning the sources contained some 20 percent of the total purchases of housing corporation flats. Commencing 1978 the regional coverage and included purchases have improved steadily, and nowadays the statistics on housing prices comprise some 30 percent of all concluded housing purchases.

Statistics Finland calculates mean price development for several different areas, which are published both in price form (FIMs per square meter) and as indices. The main regional partition is Finland as a whole, Helsinki metropolitan area (HMA), and Finland without HMA. In addition, price development is published for the main cities and urban areas in Southern-, Middle-, and Northern Finland. The Helsinki metropolitan area is divided into the separate cities, and Helsinki is also divided in four smaller segments. When it is possible, the mean prices and price indices are calculated for the whole collected apartment stock, and for block- and terraced houses separately. Block houses are furthermore divided to one-, two-, and three+ room units. The price index calculations are based on hedonic regression method since third quarter of 1995. Before that, the indices were directly calculated Laspeyres indices.

Finnish apartment price development is presented in figure 5. The prices are real prices (deflated with CPI 1982=1). The prices covering Helsinki 1961-1969 are based on the data of the City of Helsinki real estate department, while the newer ones are from House Broker Statistics. From figure 5 one can notice how the real price level of Finnish apartments has developed during the last 30 years. With the exception of the price decrease after the first oil crisis and the price peak after the liberalization of financial markets in mid 1980s, an upward trend is noticeable up to 1990, when the prices collapsed. After 1992-93 the real price level has stabilized almost to the same level as in the 1960s.

Figure 5: *The real price of apartments in Helsinki and Finland in 1961-1996*



Sources: Statistics Finland and The City of Helsinki.

4.4.3 Apartment Prices According to Stamp Duties

As already mentioned, Finnish tax authorities have collected data on share formed real estate values based on stamp duties. In 1984 the Finnish Parliament accepted a law¹⁰, which obliges the National Bureau of Taxation (NBT) to observe the development of the housing apartment tax accumulation on stamp duty charged on housing share transactions. The material of tax authorities has covered the whole country since 1987. Data on the provinces of Uusimaa, Oulu and Lapland is also available for the years 1985-86. Statistics Finland was authorized in 1988 to use these statistics for its housing price development studies. (Torkkeli 1990, pp. 26-27)

The statistics includes only share formed housing transactions, so large number of dwellings (e.g. most of detached houses) are excluded from this statistics. In addition it also excludes all other real property than houses, i.a. business premises. The prices are unencumbered prices in FIMs per square meter. On the basis of the data Statistics Finland calculates mean prices as unweighted arithmetic means of all purchases made during the inspected year. The apartments are divided to similar sub categories than in the house broker

¹⁰It is worth to mention that Heikki A. Loikkanen tried as early as in 1974 to attain stamp duty data to form apartment house prices from 1960 on. National Bureau of Taxation (NBT) abandoned his application, as it did again in 1975. Loikkanen complained to the Supreme Administrative Court, which gave a positive statement to Loikkanen in spring 1977. However, NBT pleaded lack of resources, so in practice Loikkanen's application was still abandoned.

statistics. In addition, information of the total amount of share formed houses, rate of sales, transaction sums, share of company debt, and number of transactions are published. It is also possible to obtain specific printouts from the material, even by week-date or postal code specification. Because the building year is included in the duty stamp data, also information on new apartments can be achieved. However, there are deficiencies with classification on house type, building year, and postal codes, particularly with regard to new housing, so the statistics on prices for new housing company units are not comprehensive. (Statistics Finland 1997c)

When comparing the two housing price statistics produced by Statistics Finland, one can note that both statistics give fairly close same impression of the regional apartment price development. However, the mean price for the whole country differs between these statistics for two main reasons. First, the statistics of real estate brokers concentrates more on Helsinki Metropolitan Area, where the apartments are more expensive than in the other parts of the country. The second reason for this is the different indexation: In the stamp duty statistics the mean prices are calculated as unweighted arithmetic means for all transactions, while in the house broker statistics the prices are weighted so that it takes in account the differences of apartments (e.g. the number of rooms) and different regional location.

4.4.4 Rent Statistics

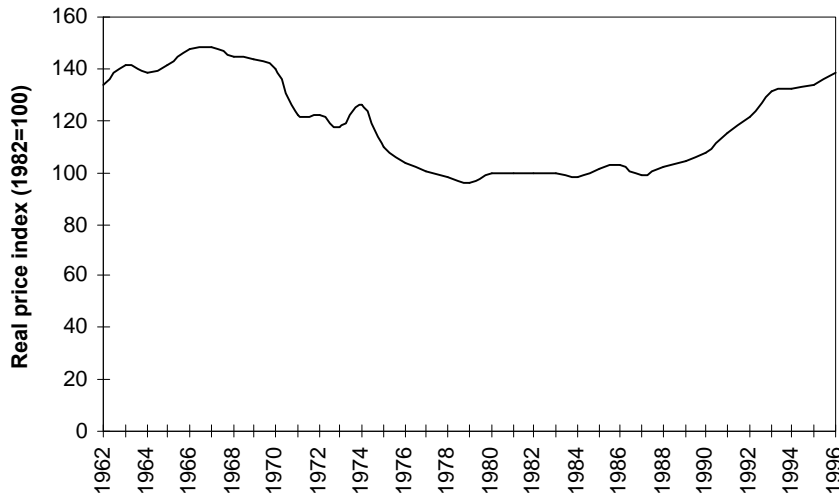
Regular rent data collection began in 1925 in Finland. Statistics Finland has compiled the rent survey since 1966. For the period 1925-1965 the data was compiled by Government Bureau for Social Surveys and published in the Social Reviews of the Ministry of Social Affairs. (Statistics Finland 1997d, pp. 3)

The Rent Statistics are based on an annual sample survey, which consists of about 15 000 rental dwellings. The survey examines two months rent level and the 12-month changes in rents. The rents are calculated per square meter in FIM's per month. The annual publication comprises the mean rent development in the whole country and in different sub segments, regions, and house types. The statistics describe the rent level for the entire stock of rental dwellings, covering both new and old tenancies and rent contracts. In addition Statistics Finland has begun to study rents on new contracts commencing year 1996. (Statistics Finland 1996, pp. 3)

Figure 6 presents nominal and real mean rents of the entire tenancy stock in 1962-96. The interesting feature of the figure is the downward trend in real rents, which was caused by rent regulation policies in Finland. The rents were regulated after the world war II up to 1992 with the exception of years 1962-67. After 1992

when the regulations were demolished the real rents have increased slightly (approximately eight percent from 1992 to 1996).

Figure 6: *The real rents of apartments in Finland 1962-1996*



Source: Statistics Finland.

4.5 Commercial Property Markets

4.5.1 The City of Helsinki

The City of Helsinki has investigated rent markets for urban nonresidential space on its area in 1980, 1986, and 1990. The investigated space types were office, industrial, warehouse, store, and restaurant spaces. The 1980's data was from the census data of Statistics Finland, which in 1980 included also office rents. Before and after that commercial rent statistics have not been included in the census data, so the City of Helsinki made its own inquiries both in 1986 and 1990. From 1992 on the City of Helsinki has made similar studies annually co-operating with Finnish Institute of Real Estate Economics (KTI).

The data of 1980 was divided in different segments according to areas, site types, and site sizes. The Helsinki area was studied as a whole, by sections, by quarters, and by sites. The downtown area was studied by sites, and the scope widened with the movement away from the center. The site sizes were classified in five different classes. According to that data, office rents were clearly higher than industrial rents, which in turn were higher than rents paid for warehouses. The influence of location was somewhat blurred; the rents varied a lot both in the downtown and surrounding areas. The rents of store and restaurant sites were

highest in the shopping centers and in the core downtown area.(Oukari and Olander 1984)

The City of Helsinki made a sample study of the commercial space rent level in 1986. Because of the small sample (approximately. 1000 cases) the main interest was in the downtown area and some other local centers. The main results indicated that rents had increased strongly from 1980, for example the real rents in the core downtown area were some 70 percent higher than in 1980. The mean real increase for the whole city was some 57 percent.(Kotiranta and Oukari 1987)

The sample in the 1989 study was clearly larger than in 1986. According to the author it covered some 59 percent of the office space in Helsinki. The sample consisted of rents of store, commercial, office, industrial, and manufacturing spaces. The mean real rents were some 9 percent higher than in 1986. Of the different sections, industrial and productional spaces increased most, over 23 percent. The store rents increased by some 13 percent, while the increase in office rents was only 4 percent compared to the year 1986.(Kiiski 1990)

4.5.2 Real Estate Brokers

The real estate broker Huoneistomarkkinointi has since 1989 collected rent and price information on commercial, office, industrial, and warehouse spaces in the Helsinki metropolitan area. The information is based both on the brokered transactions and to the view of Huoneistomarkkinointi's own rating and expert services. The rent and price levels are based on the latest available information, so they include only fresh contracts. From the other biggest cities similar information has been available from 1990 on. Later also several smaller cities have been added to the system. Huoneistomarkkinointi also collects yield requirements for non-residential spaces. It has since 1989 published an annual real estate market review where the main features of the Finnish commercial markets are featured. In addition, it offers more detailed information on market development. Concerning the Helsinki Metropolitan Area, also a semiannual Future Look is published on basis of the latest law- and planning news.(Huoneistomarkkinointi 1997)

4.5.3 The Finnish Institute of Real Estate Economics

The Finnish Institute of Real Estate Economics (KTI) was founded in 1993 as a unit related to the Turku School of Economics and Business Administration. KTI produces and analyzes information on demand, supply and prices of Finnish real business premises. The analyzes are based on KTI's own data files, which it has collected since the early 1990s. Since 1993 the data set has included some 21 000 units per year from 60 regions. However, it should be stressed that the data include all rent contracts, both old and new ones, so it probably diverges from the

Huoneistomarkkinointi's data. On the basis of the data KTI publishes an annual rent report. In addition more detailed studies are made, usually on the basis of needs of data suppliers. The most widely distributed one is the business space barometer, which is published twice a year in Kauppalehti, the biggest Finnish business newspaper. In addition of rent statistics, KTI also collects and calculates gross-, net-, and capital yields of real estate investments. At the moment data is available from the Helsinki downtown area, from the City of Espoo, and from the city of Turku.

4.5.4 National Land Survey of Finland

NLS is currently compiling urban site market statistics on sites in share form which are excluded from the currently available statistics. The project started in Spring 1997, and 1998 is planned to be its pilot year. The data will be based on voluntary disclosures of site buyers and sellers¹¹, so it might not be as comprehensive as the other NLS's statistics. The statistics is planned to consist at least of commercial and business sites; it is possible that it will also cover industrial spaces. In summary, the statistics is planned to be pretty similar with the KTI's statistics with the exception that it consists of sales while the KTI's statistics consists of rents.(Torkkeli 1997, phone interview , 13 August 1997)

¹¹ In contrast to the other NLS's statistics which are based on the law.

5. Conclusion

In this paper we described the land information systems, their evolution, and the market for land information in Finland. We concentrated on information systems in different segments of land markets by describing the availability and quality of price information in urban and rural markets. In urban land markets, we considered both the markets for raw land and building sites for alternative uses. Furthermore, we included the markets for residential and non-residential real estate in our analysis, and especially apartments in housing companies, an important type of housing in Finland. Rural markets included agricultural and forest land markets. Besides price statistics we also paid attention to rents of different forms of real estate and housing in general.

Historically, the state of land information in Finland is somewhat astonishing relative to some other areas. Especially compared to census type information the situation is the opposite one. Information on population of Finland dates back hundreds of years through the "church books" and it is internationally of high quality. As for land information it turned out that information on land, real estate and apartment transactions in has been collected for a long time locally but the information has not been used to produce statistics even at regional not to speak of national level. One of the reasons has been that the information, according to law needed to be kept only for a limited period of time after which it could be destroyed. Thus earlier land market information is only based on special studies or covers a special segment only like the price series based on agricultural and forest land purchases of National Board of Agriculture since 1958. For site prices, a continuous longer site price series covers the Helsinki region from 1960 on. Official price information on arable land, forest land, and sites are only available beginning form 1982 based on the statistics of National Land Survey of Finland.

In the area of different forms of housing the situation is similar. For older times there are some separate studies of price development. A time series on apartment prices is based on information from biggest brokers from 1970s on. Initially it covered mainly the Helsinki Metropolitan Area, later its coverage increased, and in 1980s it became one of the sources which Statistics Finland uses to produce housing price statistics concerning apartments. Stamp duty data has become another source for official house price statistics in 1980s. Only the history of official statistics on housing rents date back longer, Statistics Finland has produced it since 1966, earlier the Government Board of Social Services was responsible for rent statistics.

The lack of land price information and the similar situation concerning real estate and apartments is also based on history of taxation in Finland. Apart from stamp duty collection based on purchase prices of real estate, the need for price information for the purposes of taxation has been limited. As for households, wealth taxation has existed, but as property values used in taxation have until recently been totally out of line (below) market prices, and in addition the tax rates only applied to taxable values beyond a high limit, extremely few actually paid wealth tax. As for income tax, until 1970s, imputed income from owner-occupied housing was part of taxable income. However, rent information was used to derive the imputed income component, and furthermore, this form of taxation came to an end in 1970s. Despite this, interest payments on housing loans were fully deductible in income taxation until they were somewhat restricted later. Thus, especially for the purposes of taxation there was no urgent need to have accurate price information. Only as late as in 1980s official land and real estate statistics have emerged covering the whole country. One obvious need to produce better price information has been the introduction of property taxation in 1993.

In addition to recent developments in taxation, the need for better price information has grown among agents' operation in land and property markets. This need was first answered by biggest private real estate brokers who summarized their own information. More recently, new developments in real estate markets have emphasized the needs for a better price information. Namely, commercially oriented development of office or retail property is a rather new phenomena in Finland. Until the beginning of the 1980s most major office construction projects were initiated by the owner of the real-estate and large companies typically developed headquarters, factories and other buildings for their own use. However in the 1980s there was a significant change in the market: some of the large construction companies, and a number of new firms, many of them backed by large banks and insurance companies, became involved in property investment and development with many new office blocks and shopping centers developed for letting on the open market. Gradually the development, construction, financing, ownership and use of property is to a large extent becoming separated from each other in Finland, as in most other industrialized countries.

After liberalization of financial markets beginning at the latter half of 1980s, new institutions are emerging in the area of finance. Property funds are a new stage at the development of property finance. Property funds make it possible to collect money for property investments from new sources both from domestic and foreign investors. At the same time they allow the decentralization of the risks connected with investments. All the changes in taxation, commercial real estate markets and finance require better market information in the provision of which

both public statistics and privately produced information will be involved in the future.

The reason for not having had good price information cannot be explained by uninteresting price developments in Finland. In early 1970s there was a very sharp boom and a bust in land and housing markets. At the latter half of 1980s similar developments started with skyrocketing prices, followed by an even more drastic collapse. International economic boom, financial liberalization and tax reforms in Finland were associated to the boom, and partly respective negative economic developments, collapse of exportation to the fallen Soviet Union with internal banking crisis were among the reasons for the fall of prices. These developments are behind the price series which are presented in our paper.

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APPENDIX 1: The Finnish Building Stock

Table A1.1: The Finnish building stock (in thousands).

Building type	1970	%	1980	%	1990	%	1995	%
Residential buildings	768	92	843	90	1 012	87	1 062	87
Detached houses	714	85	773	83	908	78	944	77
Attached houses	5	1	23	2	53	5	61	5
Blocks of flats	49	6	47	5	52	5	58	5
Shop buildings	21	3	22	2	33	3	39	3
Industrial buildings	22	3	20	2	29	3	34	3
Other buildings	26	4	51	6	88	8	84	7
Buildings total (exc. summer cottages)	838	100	935	100	1 162	100	1 220	100
Summer cottages	176		252		368		416	

Source: Statistics Finland 1997a

Table A1.1 illustrates some key features of the Finnish building stock and its development from 1970 on. The proportion of different types of buildings has remained quite stable while the total amount of building stock has increased. The most significant change has occurred in attached houses. Their total amount and percentage share has increased rapidly. Another significant feature is the increase in the number of summer cottages

Table A1.2: The Finnish dwelling stock (in thousands)

Building type	1970	%	1980	%	1990	%	1995	%
Detached	791	54	826	45	935	42	968	41
Attached	30	2	132	8	262	12	297	13
Blocks of flats	582	40	811	44	393	43	1 026	43
Other	56	4	60	60	64	3	80	3
Total	1 463	100	1 838	1 838	2 210	100	2 374	100

Source: Statistics Finland 1997a.

The Finnish dwelling stock has increased quite similarly with the building stock. The main feature is again the increase of total dwellings stock and the increased share of attached houses.

Table A1.3: Finnish dwellings by tenure status.

Tenure status	1970	%	1980	%	1990	%	1995	%
Owner-occupied	857	59	1 121	61	1 477	66	1 462	61
Rented	547	37	537	29	546	25	705	30
Without permanent residents	44	3	107	6	179	8	197	8
Other or unknown	16	1	73	4	8	1	11	1
Total	1 463	100	1 838	100	100	100	2 374	100

Source: Statistics Finland 1997

The tenure status of Finnish dwellings has developed such that the share of owner-occupied dwellings has increased until 1990 while the share of rental dwellings has decreased. From 1990 to 1995 this trend has reversed e.g. due to the removal of rent control in 1992. Also the proportion of dwellings without permanent residents has increased over time. According to Statistics Finland (Statistics Finland 1997a, pp. 40), the reason for this is the decrease in the removal of dwellings. Nowadays the unoccupied dwellings are generally in good shape, so they are often kept as country houses and used during holidays.

APPENDIX 2: Price series

Table A2.1: The price series of National Land Survey

Time	Arable land	Forest land	Sites* (unzoned)	Sites** (unzoned)	Sites (zoned)	Sites (free time)
1981	1.21	0.59	-	-	-	-
1982	1.31	0.59	11.28	3.90	138.52	8.61
1983	1.50	0.71	13.25	4.16	158.29	10.04
1984	1.72	0.73	15.96	4.59	163.91	11.37
1985	1.90	0.78	19.75	4.80	183.11	12.62
1986	2.09	0.85	19.36	4.94	185.68	13.85
1987	2.29	0.93	21.93	5.32	213.08	15.21
1988	2.43	0.96	31.56	6.32	298.25	18.42
1989	2.54	0.93	39.57	7.32	109.60	22.21
1990	2.71	0.98	50.30	8.29	73.29	25.19
1991	2.28	0.94	37.86	8.32	173.78	24.58
1992	1.70	0.71	24.98	7.19	238.16	21.05
1993	1.49	0.71	21.87	5.72	229.51	18.92
1994	1.50	0.74	23.20	5.85	237.74	19.37
1995	1.41	0.80	19.34	6.18	235.35	18.78
1996	1.39	0.74	18.12	5.82	212	18.93
1997	1.32	0.77	-	-	-	-

(Source: National Land Survey of Finland)

All values are nominal mean prices (FIMs pr. sq. meter). Arable, forest land and water front free time apartment price series are mean values for the whole country, unzoned site prices include the Helsinki Metropolitan Area (HMA, *) and the whole country without HMA (**). Zoned site price series covers the County of Uusimaa.

Table A2.2: Apartment price and rent series.

Time	Price (Helsinki)	Price (Finland)	Rents (Finland)
1961	560	-	-
1962	565	-	3.6
1963	705	-	4.0
1964	748	-	4.3
1965	826	-	4.6
1966	862	-	5.0
1967	914	-	5.3
1968	1015	-	5.6
1969	1059	-	5.7
1970	1138	1014	5.7
1971	1218	1062	5.3
1972	1325	1157	5.7
1973	1738	1472	6.1
1974	1995	1756	7.7
1975	2031	1830	7.9
1976	2213	1952	8.5
1977	2270	2004	9.3
1978	2331	2071	9.8
1979	2484	2192	10.2
1980	3093	2321	11.9
1981	3681	2690	13.3
1982	4361	3158	14.6
1983	5362	3732	15.8
1984	6071	4197	16.6
1985	6310	4374	18.2
1986	6604	4551	19.1
1987	7612	5104	19.1
1988	10544	6942	20.6
1989	12307	8223	22.5
1990	11067	7670	24.6
1991	8900	6513	27.4
1992	6833	5290	29.7
1993	6735	4936	32.7
1994	7537	5278	33.4
1995	7122	5048	34.0
1996	7650	5321	35.4

(Source: Statistics Finland and the City of Helsinki)
 All prices are nominal mean prices (FIMs per sq. meter)