

THE SWEDISH HOUSING MARKET: STRUCTURE,  
POLICY ISSUES AND MODELING\*

Alex Anas (Northwestern University,  
Evanston, Ill., USA)  
Ulf Jirlow (Stockholm Regional Planning Office)  
Jan Gustafsson (Stockholm Research and  
Statistical Office)  
Björn Hårsman (Stockholm Regional Planning Office)  
Folke Snickars (ERU, Ministry of Industry,  
Stockholm; and, University of  
Umeå, Sweden)

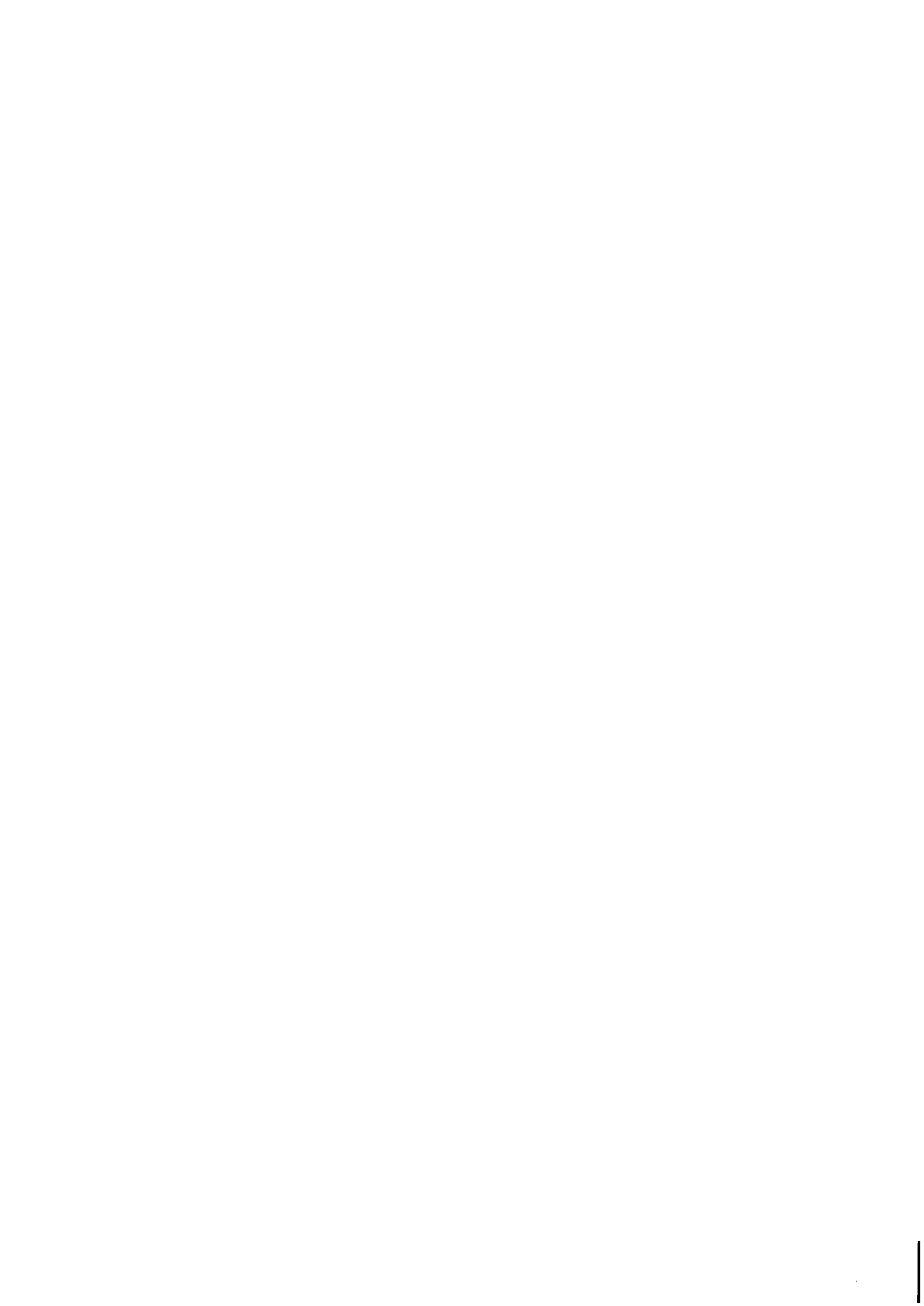
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INTERNATIONAL INSTITUTE FOR APPLIED SYSTEMS ANALYSIS  
A-2361 Laxenburg, Austria



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## FOREWORD

*Contribution to the Metropolitan Study: 20*

The project "Nested Dynamics of Metropolitan Processes and Policies" is a collaborative study within the project area Regional Issues at IIASA. The series of contributions is a means of conveying information between the collaborators in the network of the project.

This paper reports on a penetrating investigation of the housing market in the Stockholm region. It is based on a sequence of interviews and discussions with various decision makers and managers whose actions form an important market system. The paper examines the details of the system structure with the objective of formulating a reliable model of transactions, regulations, investments, etc. The work on the model itself is currently underway and will also be presented in the near future.

The approach undertaken by the authors is original in its careful treatment of such system properties which constitute deviations from a free market. Consequently, the paper provides an already tested guideline for the work on the housing sector in other metropolitan regions in the study. Recently, this type of work has been initiated in several of those regions. It is believed that this work may bring about a new generation of housing sector modeling and a renewal of the pertinent analyses.

Åke E. Andersson  
Professor of Economics  
Leader, Regional Issues Project



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# THE SWEDISH HOUSING MARKET: STRUCTURE, POLICY ISSUES AND MODELING

## INTRODUCTION

This paper is an examination of the Swedish housing sector institutions with particular emphasis on the public control measures on the demand and supply sides. Our observations are relevant to the metropolitan housing markets of Greater Stockholm, Greater Göteborg and Greater Malmö, although main points also apply to the non-metropolitan part of Sweden.

In the literature on the Swedish housing sector, a single comprehensive statement of how this sector is structured, how it operates and how it is controlled by various government policy instruments, does not exist.<sup>1</sup> It is hoped that the current paper provides the first comprehensive view that can be a starting point for future, more detailed investigations.

The Swedish housing sector is based on social values and attitudes quite different from those prevailing in purely free-market oriented societies such as the United States. It is therefore useful to many societies that the Swedish situation be evaluated from the vantage point of free market urban and housing economics. The free market perspective helps identify "distortions" which are induced by various government controls. From the Swedish perspective, these are not distortions, but policy interventions justified for the sake of distributive justice and entitlement. Rent controls and the institution of rationing new dwellings are among such policy interventions. Nevertheless, there are some important similarities (and differences) between the Swedish and American policies with regard to the deductibility of home owners' interest payments, the taxation of capital gains and the levying of a "property tax" proportional to assessed value.

We identify a number of policy issues which are of concern to Swedish economists and politicians. These are the interactions between government subsidies, housing sector performance and macro-economic policy, planning the expansion of the stock by region and municipality, and the rationing of new dwellings more efficiently.

Reforming the Swedish housing market is also discussed by considering how the market and the institutions can be reorganized in major ways. While such reorganization may appear very appropriate from the free market viewpoint, it may be only partly desirable from the Swedish viewpoint.

The paper also discusses the need for a mathematical, empirically workable and policy-oriented dynamic model of the Swedish housing market. The policy perspectives developed in the paper are candidates for empirical testing with such a model.<sup>2</sup>

Intentionally, the paper is kept free of tables and figures even though much quantitative data has been examined in preparation. We wish the reader to gain an accurate conceptual framework for thinking about the qualitative structure of the Swedish housing market and do not wish an extravaganza of numbers to cloud this objective.<sup>3</sup>

## 1 STRUCTURE OF THE SWEDISH HOUSING SECTOR

Sweden is the fourth largest country in Europe in land area. Only 10 per cent of its land is cultivated and 50 per cent is forest. The population is 8.3 million and the density only 20 inhabitants per square kilometer. The populations of the three largest metropolitan areas are: Stockholm (1.39 million), Göteborg (0.69 million) and Malmö (0.45 million), amounting to 16.7 per cent, 8.4 per cent and 5.5 per cent of the national population, respectively (Sweden, 1983).

The low population density and the abundance of timber resources may suggest that large Swedish cities would be sprawled and primarily consist of spacious wooden single family homes. A number of factors have contributed to the opposite; thus, Swedish metropolitan areas have a large share of compactly built large multifamily buildings and complexes. The important factors in this regard are the need to conserve energy in heating and transportation, strong government control over building activity since World War II and a national goal of making social services easily accessible to most inhabitants.

### 1.1 The State, the Counties and the Municipalities<sup>4</sup>

Sweden's national or central government (hereafter, the State) consists of twelve ministries, one of which is the Ministry of Housing and Physical Planning, which is responsible for physical planning, housing provision and building. The country is divided into 24 counties which constitute a regional form of government. The

County Administrative Boards coordinate State planning within the county and act in a supervisory capacity, hearing appeals and ratifying plans adopted by the municipalities. County Housing Boards come under the National Housing Board and administer State loans and grants for housing provision.

The country is divided into about 280 municipalities. Since 1945, there has been a gradual reduction in the number of municipalities by consolidating them and thus improving efficiency in public service provision. In the county of Stockholm, for example, the number of municipalities has been reduced from 109 in 1945 to 25 in 1980. Greater Stockholm now consists of 22 of these, excluding three peripheral municipalities. The largest municipality in Greater Stockholm is Stockholm city which comprises the core of the region. For a study of the interactions of State and municipal politics in the Stockholm region, see Anton (1975).

There is a division of responsibility between the State and the municipal governments. The State sets out the financial extent of new housing construction and rehabilitation, provides aid in the form of housing allowances and loans, interest subsidies for new construction and rehabilitation, enacts legislation and formulates taxation policy in relation to housing goals. The municipalities are responsible for physical planning and land policy, assessment of local housing needs, granting housing allowances with partial state funding, and receiving and forwarding to the central government applications for loans and grants.

Key legislation which regulates the planning process and building activity consists of a number of acts. The **Building Act** contains regulations on the supervision of the planning process and of development procedures. The **Building Ordinance** regulates building permission and design standards. The **Swedish Building Code** regulates the detailed design and construction of buildings. The **Pre-Emption Act** enables the municipality to take over the buyer's place, acquiring real estate changing hands in an ongoing transaction by paying to the seller the price agreed upon between buyer and seller. The purpose of this law is to enable land acquisition in advance of urban development. The **Expropriation Act** makes it possible for the municipality to acquire land which is required for development. The **Nature Conservancy Act** regulates adverse effects from water and air pollution and noise.

Drawing its powers from these legislative acts, Swedish municipal governments have strong control over land use and the housing stock. Municipalities own or can acquire substantial lands within their domain. Thus they are the chief suppliers of land to developers and can designate the type and extent of development in binding master plans. Another means of control is that municipalities own the non-profit housing companies which build and manage a large part of a municipality's rental housing stock.

## 1.2 Land use and the ownership, supply and pricing of land

The municipality's master plan is the ultimate means which determines land use. A master plan normally specifies the type of land use and amount of floor space to be built in each area. Private landowners must request a plan for developing their land in a desired manner. If the municipality denies them such a plan the private landowners do not generally have the right to go to court. Municipalities can refuse development requests for various reasons, including, for example, high costs of supplying the land with public infrastructure, utilities and public services.

Swedish municipalities have been buying, selling and leasing land for many decades. As a result they now generally own most of the land to be used for urban development within their jurisdictions. They are in a strong monopoly situation with respect to housing developments since these are heavily subsidized by the State subject to a "land condition rule" which states that a builder cannot in general get a subsidized loan unless the land on which he builds is acquired from the municipality. The most important exception from this rule concerns construction of detached single family houses. Commercial and industrial development in Sweden is not subsidized and builders must obtain a loan at the market interest rate. Builders of such developments are free to build on non-municipal land but must, of course, abide by municipal approval based on the master plan.

When selling land to developers, municipalities charge the cost of acquiring comparable land at the current time plus the costs of any land improvements and administration. In the case of housing developers, the principle that the municipality should make no profit guides the transaction. In the case of non-

residential developers, there is no law against attempting to extract the highest price the buyer is willing to pay. If the municipalities do not sell the land at very low prices, i.e. to increase the employment possibilities for municipal residents, they try not to exceed a conservatively estimated price. One reason for this is, of course, that any sale price paid to the municipality can be used by private landowners selling to the municipality in the future, or by others whose land is being expropriated by the municipality, to argue that they are entitled to the same price or compensation.

Expropriation with adequate compensation is a power of the municipalities, but they choose to exercise it with caution since it can be challenged in court with the municipality being liable for the legal costs of the property owner at the pre-appellate level.

Often, municipalities choose to maintain land ownership by leasing land to be developed according to plan. This arrangement is known as a lease-hold system. The Stockholm municipality, for example, operates a large lease-hold system. Lease values can be changed at fixed time intervals which over the years have been gradually reduced from sixty to ten years. This enables the municipality to extract from the lessee the current value of the land, although lease holders can have legal recourse.

The primary effect of these Swedish land ownership institutions is that land speculation is severely discouraged and successfully curtailed. Developers can obtain land at low prices when buying from the municipality for purposes of subsidized developments such as housing. A segmented land market exists since commercial-industrial developments are free to occur on private land and at unrestricted prices as long as they are consistent with the municipal land use plan. Municipalities rarely change their land use plans. This is in sharp contrast with American zoning specifications which are frequently changed in times of development pressures. Since Swedish land use plans are so stable, it is rarely possible for private landowners to profit from anticipating changes in these plans; and, conversely, it is equally rare that municipalities have to compensate landowners who stand to lose from changes in the land use plan.

Since landownership is so highly centralized, the land "market" is not a competitive one. Municipalities can force housing developments to occur in

places where competitive market land prices would be too low to allow development. This type of pattern has appeared in some suburbs of Stockholm. A consequence of this is that turnover and vacancy rates in such places are observed to be unusually high.

### **1.3 The Type, Quality and Ownership of the Housing Stock**

First of all it must be emphasized that houses in Sweden are built by private firms. The main exception is BPA, a construction firm owned by the trade unions. However, the orderers of new construction as regards multifamily housing are, in most cases, non-profit companies owned by the municipalities or cooperatives.

The housing stock in Sweden can be grouped into three categories. These are as follows:

**(a) Single family housing:** These dwellings are generally owner-occupied by families and they are mostly constructed by private builders, to be bought and occupied by families. A striking aspect of these dwellings is that a large part of them is often planned into subdivisions in which they are spaced closely. There are precise building standards which apply to design and construction and careful attention is paid to their proximity and relation to public facilities, shopping, open space and public utilities.

A substantial part of the single family stock is of older vintage and does not necessarily conform to current building standards.

**(b) Cooperative Multifamily Buildings:** These dwellings are individual flats in multifamily buildings and they are tenant owned. Owners have the same rights as single family dwelling owners in purchasing and selling these units, except that they are subject to some control by the cooperative association in the areas of repair and renovation. Also, the maintenance of common facilities in these buildings is financed by means of an assessment levied on the tenants by the association. The Swedish cooperative market is to some extent dominated by large cooperative associations. The largest are HSB and Svenska Riksbyggen which are nationwide associations with branch associations in counties, municipalities and individual buildings.



**(c) Rental Multifamily Buildings:** A large part of the stock in Sweden consists of rental flats in multifamily buildings. Approximately half of these buildings are owned and managed by private landlords. However, since World War II, the bulk of multifamily buildings have been ordered by non-profit housing companies. These companies generally retain ownership and management of the buildings. Each municipality owns at least one non-profit company. The Stockholm municipality owns a number of such companies, the largest being AB Svenska Bostäder which has a holding of over 50,000 flats.

Tenants who obtain a flat hold an irrevocable lease and have the right to remain in the flat indefinitely as long as they conform to the conditions of their lease and continue to make rental payments.

It is sometimes the case, and increasingly so in recent years, that some privately owned rental buildings are converted to the cooperative mode and turned over to a cooperative association for management. This is usually possible if the owner wish to sell and a majority of the tenants in a rental building vote in favor of conversion.

Swedish multifamily buildings are generally compactly built and contain small flats. There is visible differentiation in architectural features and in the number of stories by vintage. A great deal of this differentiation can be explained by changes in the building code and changes in construction costs over time. Building complexes constructed since World War II are generally carefully situated near transit stations and contain within them shopping facilities, recreational grounds and schools.

At this point, it is useful to cite some aggregate statistics. In the year 1980, 44 per cent of Sweden's dwellings were single family and 56 per cent were multifamily. For Greater Stockholm, the corresponding percentages were 24 per cent and 76 per cent, for Greater Göteborg, 32 per cent and 68 per cent, and for Greater Malmö, 31 per cent and 69 per cent. While a nearly uniform 93 per cent of all single family dwellings around the nation was owned by private persons, the ownership of the multifamily stock exhibits more diversity among the three metropolitan areas. Non-profit companies (controlled by the municipalities) owned 35 per cent, 42 per cent and 18 per cent of the multifamily stock in Greater Stockholm, Göteborg and Malmö respectively with cooperative

associations owning 25 per cent, 23 per cent and 40 per cent of the multifamily stock in the respective metropolitan areas, and private persons and companies owning 39 per cent, 32 per cent and 39 per cent respectively (Statistics Sweden, 1983). These figures show that despite the great growth of cooperatives and non-profit rental dwellings after World War II, large parts of the total multifamily rental stock and predominant portions of the older stock continue to be owned by private landlords. The figures also show that there are significant differences among the metropolitan areas which are not entirely explained by the size of these areas. The large proportion of cooperatives in Malmö is one such difference.

#### 1.4 Finance of New Construction and Modernization<sup>5</sup>

As a rule, the Swedish State subsidizes nearly all new construction in the housing sector. In contrast, other construction such as commercial and industrial is not subsidized. The subsidies take the form of State mortgage loans and guaranteed interest rates on first mortgage loans. The interest rates for both kind of loans are much below the market rate.

Developers are free to build with market loans but the State subsidy is so large that any such construction is unprofitable. To qualify for a State subsidy a private builder or non-profit company must fulfill the following requirements: (a) it must build on municipally owned land and according to the master plan, (b) it must conform to the building code and (c) it must apply for approval by the municipality demonstrating that its estimated construction cost will not be much in excess of the "approved construction cost" for that locality.

To fulfill the last requirement the builder files an application which shows the calculation of the "approved construction cost" for the proposed building by using unit prices published frequently by the government. In addition to this, the builder also estimates the actual construction expense that will be incurred, this number being generally higher than the approved cost. If the difference is deemed too high, a State loan cannot be obtained.

The subsidized loan structure is as follows: For rental dwellings built by non-profit companies: 100 per cent of the "approved construction cost" receives a

subsidized loan. For cooperatives and single family dwellings and privately owned rental houses the corresponding percentages are 99 per cent, 95 per cent and 92 per cent respectively. The unsubsidized portion and any excess over the approved construction cost must be covered by a market loan.

A mortgage loan equal to 70 per cent of the approved construction cost is obtained from a bank, the State subsidizing this bank for the difference between market and loan interest rates. Recently, the market rate on these bank loans has been 12 per cent and it is adjusted at five-year intervals. The subsidized loan interest rate for multifamily construction is 3 per cent in the first year and rises indefinitely by an increment of 0.25 per cent a year. For single family homes the loan interest rate is 5.5 per cent in the first year and rises at 0.5 per cent yearly until it catches the market interest rate.

The remaining 30 per cent, 29 per cent, 25 per cent or 22 per cent of the approved construction cost (for non-profit rental, cooperative, single family dwellings and privately owned rental, respectively), comes directly from the State. The subsidized interest rates and annual increments for this portion of the loans are the same as for the bank loans. A peculiar aspect of this subsidization scheme is the method of amortization for these loans. The government has stated the goal (or expectation) that the State portion of the loan be paid off in 30 years. However, for multifamily houses this may or may not come about. The reason is that the payments on the State loan which gradually increase are not applied toward capital amortization until the interest rate catches the annually adjusted normal rate. Thereafter, any difference between the interest rate on the loan and the normal rate is applied toward amortization. If the normal rate goes over the subsidized rate, then amortization ceases. The peculiarity is that, conceivably, the subsidized rate may never exceed the normal rate and thus amortization may never begin. For single family houses the amortization of the State loan starts immediately after the house is constructed and goes on for 30 years.

The bank portion of the loan for multifamily houses is subject to more rigid rules of amortization. It is guaranteed to be amortized in 50 years with principal payments graduated in ten-year intervals. The equivalent time for single family houses is 40 years.

The State and subsidized bank loans are in principle assumable by all future owners. However, the first buyer of a single family home normally relieves the builder from the market loan and pays the difference between the price and first mortgage plus state loan as a down payment. The same procedure applies to cooperative associations. In a next step the down payment is distributed among the members, i.e. the households living in the building.

In recent years, new construction activity in Sweden has diminished substantially, becoming replaced, in large measure, by reconstruction and modernization activity. Modernization refers to major upgrading of a building, addition of facilities and repairs and, frequently merging flats within the building to create a smaller number of larger flats. The State subsidizes modernization by loans to be repaid within a maximum of 30 years. These are also subject to approval by the municipalities and excesses over approved costs must be covered by market loans.

Starting in 1984 the State also subsidizes loans for repairs and maintenance in multifamily houses. The loans are given by certain banks and the subsidy has the form of an interest guarantee. The subsidy is available for non-profit companies, cooperatives and private owners of multifamily rentals. The subsidy system is quite different from the general interest subsidy system and it is effective for 10 or 20 years due to the different measures for improvement in the building.

### 1.5 Pricing, Rent Control, Rent Pooling and Rent Negotiations<sup>6</sup>

In Sweden, the pricing of the housing stock follows the principle that municipality owned companies should not make a profit or, in the case of private landlords, not more than a small margin of profit.

For single family (owner-occupied) dwellings, this principle is enforced by regulated pricing. A builder sells these dwellings at the approved price which is set at the time of the subsidized loan application. These prices are set to cover precisely the builder's estimated construction cost, assuming these estimates are not high enough to result in rejection of the application. When a builder sells at this price, the buyer, usually a household, makes a down payment equal to the unsubsidized portion of the builder's loan and assumes the subsidized State and

bank loans. If such a buyer (the first-owner) wishes to resell the dwelling within three years, he cannot sell at any price, if the state loan is to be kept. Thereafter, prices are entirely free and subject to the forces of supply and demand. As regards cooperative dwellings the tenant can sell anytime at any price.

Rent control is a very important feature of the Swedish housing market and has been the focal point of study, debate and reform (Kemeny, 1981; Turner, 1982). The principle is again to set rents throughout the lifetime of a dwelling in such a way as to cover the construction, maintenance and operating costs of the dwelling so that the owner, a non-profit company or private owner, makes no profit.

We now turn to an examination of the non-profit company, which is essential to understanding the concept of rent pooling. A non-profit company contracts a building firm to construct rental housing and thereafter owns and manages the rental units. The principle of no profit applies at the company level. Annually, each company totals the costs of its entire stock. These costs include that year's loan payments plus an estimate of maintenance, operation and any new construction costs. Also included are any funds needed to replenish the company's reserves. Dividing this total cost estimate by the number of rental dwellings in the company gives the average rent per dwelling in the company. This average rent is then adjusted for various dwellings in the company according to size, age-standard and other factors. This process of rent pooling and adjustment is resolved in annual negotiations between representatives of each non-profit company and representatives of the tenants of that company, who are members of the national tenants' association, and regional or municipal representatives of the tenants' association. During these negotiations, the tenants' association examines the company's bookkeeping and requires to see income from interest and other investments of the non-profit companies.

Tenants are often opposed to pooling and new construction by the company, because in times of rising construction costs, pooling increases the rents of existing tenants. The companies' efforts to adjust rents by size and standard do not resemble a market adjustment. In 1972, a national committee composed by representatives of the non-profit companies association (SABO) and the tenants association recommended the use of a point system which assigns points to

buildings by their age and then makes adjustments for location, social services, commercial services, etc. This point system is not used in any formal way nor does it seem to have any scientific or statistically valid rationale. In any event, such a point system would only work in bringing relative rents within a company more in line with a free market rent structure, but cannot correct the discrepancy in rents among companies.<sup>7</sup>

Clearly, different non-profit companies must charge very different average rents if they have significantly different construction profiles over time, namely different vintage mixes. For example, new companies which were set up in the sixties to build in the new suburbs of Stockholm would charge rents much higher for flats identical to those held by older companies which built in Stockholm during the forties and fifties. A reflection of this rent pooling scheme is that the rent for the same type of flat increases with distance from the city center, contrary to what would be normally observed in a free market.

Another effect of rent pooling is observed in Stockholm where the municipal companies of the city of Stockholm have, in the past, built housing on land bought or leased from suburban municipalities. The costs of these relatively new outlying buildings are pooled with the older and centrally located buildings owned by the same company. Thus, tenants in these buildings can end up paying rents which are much lower than the rents paid by tenants in the stock built by the suburban company.

Another issue which features prominently in the negotiations is the cost of vacancies in the stock of a company, particularly any newly built stock. A position formulated by SABO is that the municipalities should subsidize the cost of vacancies in excess of 1.5 per cent of the potential total rent income. This is negotiated with each municipality and most have agreed to follow this practice.

Negotiations are held once a year to set the rents of the following year. The tenants' association negotiates separately with each company and also with the local association of private landlords. If a specific set of negotiations with a non-profit company is deadlocked, the case is appealed to the "national committee on the rental market", which consists of officials elected from SABO and members of the tenants' association. This committee then decides on a compromise rent level for the coming year. The associations of private landlords cannot appeal to this committee, but instead can seek recourse in the courts.

It appears that there is substantial variance in the negotiating powers of different non-profit companies and their respective tenants. Even though non-profit, a few companies have accumulated reserves, while most of them have survived on much tighter budgets.

#### 1.6 The Public Queue: The Case of Greater Stockholm<sup>8</sup>

Throughout Sweden there is a policy, followed with various degrees of consistency, to ration new dwellings in municipal queues. In this paper we will focus on how this is done in Greater Stockholm where the 22 municipal housing agencies have been consolidated into the Stockholm Federation of Municipal Housing Agencies (KSB), thus creating a single public queue at the metropolitan level, into which all dwellings available for rationing are pooled.

There is a complicated set of rules that govern how KSB rations dwellings. By law, all dwellings built since 1968 with government loans (this includes rental, cooperative and single family homes) are available to be claimed by KSB every time they are ready for letting. However, KSB chooses to exercise this right differentially. KSB does not exercise the right to sell single family homes the first time, but will let them if they are rental single family homes. In the case of cooperatives, there are special agreements between KSB and particular cooperative associations. The agreement with HSB is that this association should sell all of its new cooperative flats. Riksbyggen, on the other hand, gives all of its cooperative units to KSB for rationing. Agreements with other associations provide, for example, that they assign 50 per cent of their new cooperative units to specific banks which in turn ration these units to their customers who raise the down payment by participating in the banks' savings programs for cooperative tenant ownership.

In addition to all the newly built rental dwellings, KSB also handles around 50 per cent of the vacancies in the existing stock. The remaining half is available for rental directly from private landlords.

It is estimated that approximately 15 per cent of the total mobility in Greater Stockholm is handled through KSB. On the supply side of the queue there is a rule that KSB has approximately three months to fill a flat. If a flat is not filled in

this period, it is returned to the landlord or non-profit company who generally prefer to do their own letting unless the flat in question is in a difficult-to-rent location.

To obtain a flat from KSB, a household fills out an application describing its current dwelling and its desired dwelling, and a maximum rent it is willing to pay for it. This application must be renewed annually if the household remains in the queue that long. A household receives a maximum of three rental offers and is ejected from the queue if it rejects those offers. In few cases it happens that a landlord or non-profit company will object to a tenant assigned by KSB. In such cases, KSB can go to court on behalf of the tenant, but this rarely happens.

Another rule is that if a current tenant is assigned to a dwelling by KSB, then that tenant's vacated dwelling must be turned over to KSB for reletting.

Out of the total number of flats that KSB handles, roughly around 20 per cent is allotted to households with severe medical or social problems and households which must be evacuated because their flats are being reconstructed.

For the remaining 80 per cent of the flats KSB uses a six priority classification of households according to assessed need. Priority one includes households dislocated because of various emergencies such as fire etc. and families in heavily overcrowded flats. Priority two consists of households with children, but living for instance with their parents or in substandard flats. Priority three covers households without a flat but with children that can stay elsewhere (as occurs after a divorce when children can stay with one parent). Priority four includes mainly households without children and with a substandard flat. Priority five covers households which want to swap their flats. Also in this priority are those who have a cooperative and want to move to a rental unit. Finally, priority six consists of households which do not currently live in Greater Stockholm but need to move in.

The above assessments of need take precedence over the time an applicant has been waiting in the queue. However, when need is equal, then the time one has been waiting in the queue is a deciding factor. The time a household spends waiting in a queue can vary enormously depending on the location, type and price of the desired flat.



## **1.7 Swapping, Black Markets, Mobility and Household Formation**

Although the public queue is extremely important because it is the only means by which new rental dwellings are let and a very vital means of entering the market for some households, it amounts to only about 15 per cent of mobility in Greater Stockholm.

The predominant and legal means of relocation is the swapping of one dwelling for another without any side payments. Such swaps can occur between two tenants or an owner and a tenant and are generally believed to be responsible for perhaps 75 per cent of total household mobility. Swappers find each other through newspaper columns, through the services of realtors or through friends and acquaintances. Two households getting married will often swap their two units with the one unit of a household that is undergoing a divorce. There are generally no restrictions on the nature of the swaps that can be undertaken.

It appears that Swedish regulations are unclear about what constitutes legal pricing during a swap. For example, it is legal to swap one's cooperative unit with a tenant's apartment. If the apartment is attractive and well located, the owner of the cooperative may substantially lower the selling price. Does this constitute a fair transaction or a black market transaction?

Swapping differs from what might be called a direct black market transaction, which is clearly illegal. While it is not illegal to pay to get a rental contract it is illegal to receive payment. Financial penalties and jail sentences may be enforced. Black market transactions are believed to be significant but not very large.

It is obvious that these institutions of swapping, black markets and the public queue have a pronounced impact on household formation and mobility. New households with young members do not have a flat to swap nor the income to buy and are thus restricted to entering the public queue. Since this queue is not as efficient or fast as a free market can be, it is reasonable to conclude that it retards household formation, forcing these young households to remain longer with their parents or to join into other forms of co-tenancy.

Swapping and the black market also retard mobility because they involve

processes of matching and search which are much more cumbersome and risky than those of a free market where vacancies can be rented directly from the landlords on a first-come, first-served basis at the going rent.

### 1.8 Housing Allowances<sup>9</sup>

The Swedish State and municipalities jointly administer a system of housing allowances designed to improve the housing consumption of certain household groups. The percentage of rent to be covered by the housing allowance is determined on the basis of household income and wealth, the rent or price to be paid by the household, and number of children. There is also a special municipal allowance system for pensioners. Households are eligible for allowances regardless of dwelling type and tenure.

In 1981, total housing consumption expenditures amounted to 20 per cent of total private consumption, a percentage which has remained stable over the years. In the same year, about 9 per cent of total housing consumption expenditures were paid as rent allowances and another 12 per cent of housing expenditures was paid in interest subsidies. Thus 22 per cent of total housing expenditure was subsidized in allowances.

In summary, even though the purpose of rent control in Sweden is intended to keep down the average cost of housing, the State and municipalities recognize the need of many groups and contribute significantly in an effort to improve their housing consumption relative to the rest of the population. A large number of households receives such allowances, although the bulk of the payments are concentrated on pensioners and those underconsuming housing.

### 1.9 Housing and the Income Tax<sup>10</sup>

Sweden is a country with extremely high income taxation. Thus, income tax subsidies to homeowners, landlords and non-profit companies which own housing are of special significance. The State income tax is progressive for individuals. The municipal tax is not progressive and although it varies somewhat by municipality and is set annually, it is generally around 30 per cent of income and

is divided roughly equally between the county and the municipality. The total income tax rate for the average industrial workers is about 40 per cent and the marginal income tax rate is about 65 per cent. For companies the income tax is around 52 per cent of net taxable income.

The treatment of housing within the Swedish income tax system relies on "assessed (or taxation) value". In Sweden, buildings are assessed every five years and the assessed value is defined as 75 per cent of the estimated fair market value.

Housing is an asset to which income is imputed. Non-profit companies and cooperative associations impute a flat 3 per cent of assessed value. Owners of single family homes must impute as income a percentage which increases with assessed value. At present, this percentage starts at 2 per cent and increases to 8 per cent. From the imputed income, the owner subtracts interest payments. If, in this calculation, the dwelling generates a loss, as is usually the case for owners of single family housing, the loss can be netted against other income.

Starting in 1983, there is a new rule which will go into full effect in 1985. This rule will limit the taxes saved from the ownership of single family housing, by the deduction of loss due to interest payments, to no more than 50 per cent of taxes. This rule applies in fact to all losses due to interest payments.

Independently of the imputed income calculations, all housing owners pay a "property tax" to the municipality. This tax is computed by adding 1.5 per cent of the assessed value to the income taxable by the municipality.

A second aspect concerns the treatment of capital gains and losses in the income tax system. In Sweden, income from the sale of an asset is ordinary taxable income, but housing is afforded special treatment as in the United States. In this case the taxable capital gain is the "real capital gain", i.e. an adjustment is made for inflation. Starting in 1981, the State introduced a change in this method in order to discourage short-term speculation in home ownership. This change prohibits the use of the inflation factor for sales that occur within five years of the purchase of housing. Thus, unlike the U.S. tax system which taxes only nominal capital gains, the Swedish system taxes nominally only short-term capital gains. As in the U.S., capital gains for homeowners are postponable under

certain rules. These are that the gain exceed a minimum amount, that the owner must have been the occupant for at least three out of the five years immediately preceding the sale, and that a more expensive house be bought within one year of the sale. A capital gain realized from a cooperative dwelling is fully taxable only if the dwelling was held less than two years. The percentage of the capital gain which is taxable falls to 25 per cent when the ownership period exceeds five years. Assessed values for cooperative buildings are prorated to specific units on the basis of their share in floor space. Interest is paid directly by the association and deducted in its income tax calculations, whereas capital gains and losses are taken by the individual tenant-owner.

An income tax feature which concerns owner-occupiers and rents alike is that housing allowances are tax-free.

The deductibility of interest payments has a substantial effect on the net housing expenditures of the owners of single family homes. In the year 1981, the total "foregone tax revenues" for owners of single family houses corresponded to 20 per cent of total housing consumption expenditures by all households in that year.

Since 1983 a special tax is levied on rental and cooperative houses built before 1975 with the exception of those built or reconstructed with the support of State loans after 1957. The tax for 1983 was 1 per cent of the assessed value and is raised to 1.5 per cent and 2 per cent for 1984 and 1985 respectively. The tax is somewhat inaccurately called the "~~rental-house-fee~~" and is motivated on parity grounds since the guaranteed interest rate for the subsidized housing is continuously raised by 0.25 per cent per year, compared to 0.5 per cent per year for single family housing.

According to a recent government proposition the rental-house-fee is to be replaced in 1985 by a **new state property tax** motivated by fiscal needs. For privately owned rental houses the tax rate is 2 per cent of the assessed value and the tax is deductible. For non-profit companies and cooperatives the rate is 1.4 per cent of the assessed value and the tax is non-deductible. For single family houses the tax rate for 1985 is 0.5 per cent of  $1/3$  of the assessed value. For 1986 and 1987 the tax rate for these houses increases to 1 per cent and 1.4 per cent respectively. For single family houses the tax is not deductible.

The parliament is expected to consider the proposition late in the fall of 1984.

The minister for housing will later this year propose an adjustment (decrease) of the guaranteed interest levels for subsidized housing in order to avoid the extra burden on these dwellings which will occur otherwise.

Starting in 1984 a new state tax is introduced in Sweden called the "profit-sharing-tax". The revenues of this tax are funnelled into five wage-earners' funds. As to the housing market the new tax is levied upon private house-owning companies (non-profit companies and cooperatives are excluded and so are also private persons). The tax amounts to 20 per cent of a calculated "profit" since the assets and liabilities have been adjusted for inflation according to a complicated formula. It is still unclear how high the profit-sharing tax will be as a percentage of profit in these companies calculated in a normal way.

#### 1.10 Building Contractors and the Building Materials Industry<sup>12</sup>

Although the pricing of all new housing is subject to the stringent controls discussed above, the Swedish industry of building contractors is competitive and free of government controls. There are between 10 and 15 large building contractors which dominate the multifamily market, and a vast number of smaller contractors operating in the single family sector. In the multifamily market during the seventies the firms either carried losses or made small profit margins. Larger profit margins could be made in the building of commercial and industrial developments which were not subject to rent control measures.

In contrast to the contractors, the industries for most building materials are highly monopolized. Rates of return on working capital in various building materials industries seem to be higher than the average for all of Swedish industry. For example, the ready-mix concrete industry (in which firms have great spatial monopoly power because of distance constraints in the shipping of this material) and the wall paper industry, which is highly monopolized, have shown recent returns on working capital of 20 per cent and higher.

A working hypothesis for the recent price inflation in building materials (which exceeds the general inflation) is the decline in new construction and the increase

in modernization and reconstruction. This shift has greatly shrunk total building volume, forcing these industries to raise prices to cover fixed costs incurred in the past.

One disturbing aspect of the high degree of monopolistic market structure in the Swedish building materials industry is that price-setting in this industry can defeat the purpose of cost-covering rent control to keep rents low. Profits, which in a free market would accrue to landowners, could to a great extent pass on to the suppliers of building materials whose price setting behavior is unregulated.

## **2 SWEDISH POLICY ISSUES AND ALTERNATIVES FOR REFORM**

In this section we first discuss some policy issues within the institutional status quo. These issues center on various means of fine tuning the performance of the housing sector. Next we discuss, from the free market viewpoint, major alternatives for reforming the current institutional structure.

### **2.1 Swedish Policy Issues**

One area of major policy concern in Sweden is the interaction between macro-economic policy and the housing sector. The State and municipalities induce major changes in supply and demand as a result of their assistance and control policies. The induced changes in turn influence municipal and State revenues and thus have a direct bearing on fiscal balance at the local and national levels. Furthermore, Swedish subsidy structures are not at steady state and changes are continually introduced. There is, as well, the more routine problem of annually adjusting housing allowances, and tax rates. A major problem, therefore, is the macro-economic impact of the government's own housing policy as well as the impact of such policy on the housing market and the housing stock and the building contractors and building materials industries. Can these interactions be controlled and predicted in such a way that changes in the current public assistance structure can be introduced consistently and with stability?

An area of particular importance is the volume of building activity that should

take place, and the distribution of it by region and municipality. During the one million dwelling program, which came to an end in the midseventies, Sweden achieved its goal of 100,000 new dwellings per year, but overbuilding occurred in some regions. During this program, the State planned the distribution of the new stock among the municipalities for each budget year. Since then, targets are down to about 35,000 dwellings per year and the State is allowing municipalities to act with greater autonomy on the issue of how much to build. There are questions about the relative distribution of the planned stock between, say, Greater Stockholm and the rest of the nation, at a time when planners are predicting new growth in metropolitan areas after a period of stagnation.

Another issue is the rationing of new dwellings in a metropolitan area such as Stockholm. Even though only 10 per cent of the mobility is determined through this rationing process, the stock being rationed and the households accommodated (mostly new or dislocated households) are important parts of the market. What is the effect in terms of equity and efficiency, of the currently used priority system and how would this compare with alternative systems such as first-come, first-served?

The structure of government intervention is so complex in Sweden that it is difficult, if not impossible, to know what the combined effects of all the policies are. Is the government, on the whole, subsidizing ownership relative to tenancy, or vice versa? On the whole, are government policies stimulating the growth of cooperatives relative to other dwelling types? Are government subsidies increasing or reducing the gap in the disposable incomes of rich and poor household groups? The answers to these questions ought to be known, but Swedish government policies are so complex and their overlapping effects so difficult to disentangle that the answers are not known.

A summary of policy-oriented research issues for the 1980's can be found in Swedish Council for Building Research, 1983; pages 71-74.

## **2.2 Alternatives for Reform**

From the free market point of view, the Swedish institutions are extremely cumbersome and inefficient and thus in pressing need of reform.

There is a scenario of total reform which should be discussed first. This scenario is rooted firmly in the basic principles of competitive general equilibrium theory. At the same time, it deals fully with the Swedish ideal of the communal and collective ownership of part of the housing stock as a resource or an inter-generational merit good.

Under this scenario, the non-profit companies and cooperative associations would be decentralized into small and independent firms competitive with each other. These firms would decide freely the quantity and type of housing they should supply and they would charge free market prices, selling or renting to the highest bidder. Institutions of public queueing and swapping would be eliminated with households renting and buying directly from the suppliers by paying the going price. The government's role will be in carefully monitoring the profit of each company and then levying taxes, whereby these profits would be collected and redistributed as a social dividend to the tenants and those who bought housing. Thus, the social objective of no-profit in housing development is achieved without restricting mobility and simultaneously with an efficient allocation of households to dwellings. Under this free-market scenario, households would live in their most preferred location and dwelling and the market would be induced to supply the quantity and type of dwellings according to demand. Of course, there is room within this scenario for a system of housing allowances and homeowner tax subsidies to assist special groups. There is also room for a policy to subsidize construction and modernization in order to protect the supply of housing from the fluctuation of interest rates and to enable a steady state expansion of the stock, regardless of cycles in the general economy.

If such reform were to be introduced overnight, there might be chaotic adjustments and great upheaval. It is possible, of course, to introduce it gradually and according to a predetermined and preannounced plan so that adjustments by market participants will be also gradual, anticipatory, and well planned. A major legitimate concern under this scenario are the great changes which may occur in the locations of various groups in an area such as Greater Stockholm. It is a certainty that the price of dwellings in central Stockholm would greatly increase, with those in the suburbs losing value. In the long run, there could be intense redevelopment in central Stockholm. Low income groups could drift out to the suburbs in the short run, reconcentrating back in the center in the longer run after the stock has had time to adjust to higher densities.



Within the doctrines of free market economics, all these changes will be for the good of all except for one perplexing question. What would be the mismatch between the location of various groups and the accessibility of specialized public services to them? What would be the public sector costs of reestablishing such accessibility? These questions require careful investigation since the supply and distribution of public services is the pride and most successful aspect of Swedish urban planning.

There are other scenarios of piecemeal (or partial) reform which may also be seen as steps in a gradual fulfillment of the total reform scenario. The simplest of these may be to do away with the public queueing mechanism, allowing all suppliers of housing to directly let vacancies. Another step is to legalize all second hand (and currently black) transactions in the rental apartment market, thus reducing greatly the need to swap dwellings, and improving mobility for all by making it legal to directly rent any vacancy in this stock.

It is wise for Swedish politicians to show some interest in the benefits and costs of such piecemeal reform measures. It is not at all clear that the values of Swedish society are opposed to all such measures or that they would be badly compromised by them.

The costs of adjustment and transition (both social and private costs) need to be carefully evaluated and weighed against the benefits of greater private well-being and lower bureaucratic complexity. It is possible that Swedish institutions have deviated so drastically from a free market state that any major reform is too costly to undertake now. We feel, however, that this is unlikely and that Swedish society could greatly benefit from at least some major reform efforts.

It is not very likely that Sweden's politicians will follow the suggestion of deregulating the housing sector even though it may sometimes be tempting to do away with the existing patchwork and start afresh. One might say that for a housing system so highly influenced by rules, regulations, and institutions, uncommon to a free market, that situation is not really relevant as a point of reference.

In Sweden, the justification for the public regulation of the housing stock has been primarily one of equity and distributive justice among different social

groups and generations. This justification, however, is greatly tied up with other frequently discussed justifications stemming from the potential failures of a free market to supply and allocate housing. It is important that we consider these briefly. One justification is that there are market failures in the supply of housing: building capital is long lived and free market expectations of the future are inevitably inaccurate resulting in inefficient supply patterns. Even though government expectations of the future may be no better, public controls can enforce a more efficient pattern of supply reducing the need for inefficient free market speculation. Such government policies may be seen as acceptable second-best strategies. Municipal land controls may be a sensible strategy from this point of view, as might the system of construction subsidies which differ by dwelling type. A second justification is that the web of housing contains elements of the public infrastructure networks or is closely associated with such networks. This provides the rationale for master plans which treat housing supply in conjunction with public goods provision.

A third justification is that the externalities (social and economic) which arise from the supply of housing are very significant. Again, this view justifies the presence of careful master planning and some supply side subsidies. A fourth justification is the argument that the longevity of housing makes it an inter-generational private good. Since the preferences of future generations cannot be adequately represented in current markets, the government should step in to enforce a second best intergenerational Pareto efficiency. A fifth argument is that household mobility in a free market because of lack of information is an inefficient process which retards overall housing market efficiency. Government mobility controls and rationing mechanisms are therefore introduced partly in the belief that they are more efficient than market transaction processes.

The above arguments may have a limited role in justifying the current regulations of the Swedish housing market but we believe that the equity considerations are much more dominant. The central policy questions, therefore, are two: (1) what are the Swedish decision makers objectives regarding equity and redistributive justice? (2) are the current housing market regulations, the most efficient way of achieving these objectives or are they too complicated and costly?

### 3 MODELING

To carry out the policy analyses called for in the previous section, a mathematical model of the Swedish housing market at the metropolitan level is necessary. The system is so complex that any qualitative analysis will need to be strengthened by quantitative methods. What is needed is a quantitative policy model that provides unambiguous answers to complex questions.

In building a behaviorally based and empirically tractable model of the metropolitan housing market, it is instructive to consider the experience of urban modeling in the United States as well as prior work in Sweden (Gustafsson, et al., 1977; Hårsman, 1981; Snickars, 1982; Brownstone, et al., 1983).

We restrict our interest to economic models such as the National Bureau of Economic Research Model (Kain and Apgar, 1977), the Urban Institute Model (de Leeuw and Struyk, 1975) and the Chicago Area Transportation-Land Use Analysis System (Anas, 1983) since these three are the only empirically implemented and policy tested large scale models of the American housing market. The first two of these models have been applied to tests of the effects of housing allowances on the housing consumption patterns of recipient households. CATLAS, the Chicago model, has been applied to rigorous econometric testing of the effect of rapid transit investment in Chicago on household mobility, mode choice patterns and changes in housing values and new residential construction. It is possible to use the methodology and basic mathematical-econometric structure of CATLAS as a starting point for building a model for Sweden.

It is clear from the previous section of this paper that the nature of the Swedish housing market differs substantially from its American counterpart. For this reason, CATLAS can only serve as a useful starting point with many important adaptations necessary during the model development process. The purpose of this section is to anticipate and explain these adaptations, and to outline to the extent possible the form of the model that is likely to emerge.

### 3.1 The Demand Side

The major problem with modeling the demand side of the Swedish housing market is the complexity of the households choice process. This observation applies to existing households already in the market as well as, and perhaps more so, to new households being formed in the market. Because of the severe restraints on mobility, household formation and housing choice become a joint decision, greatly compounding the analytical effort needed to model the process.

The above difficulty aside, Swedish households face a complicated decision tree once in the housing market. At the outset, the major choice is whether to enter the "free" single family market or whether to seek rental or collective ownership in the multifamily stock. The choice to enter the single family or cooperative market depends largely on the income or wealth of the household and to a lesser degree on education, family size and other social variables. The expectations of households regarding future capital gains play an important role as well.

The choice to enter the rental market (or to relocate within or in and out of this market) leads to a more complex set of decisions. A household must decide among the several avenues available for obtaining housing in this controlled market. As described in the last section, the major choices are entering the government queue, swapping, entering the black market as a renter, or renting from a private landlord. There are other possibilities such as renting housing units bought by one's employer, who may find it profitable to provide such a service in order to attract skilled employees. Households already in the controlled market and wishing to relocate must consider whether they wish to enter the black market on both sides as an alternative to all of the above options. Choosing to enter the government queue is a reversible decision at the expense of waiting some time without results. Because of this, households most certainly make efforts to anticipate the government's decision to assign them to their desired housing unit. An important factor is the expected length of stay in the search mode (government queue, private search for a swap or other) which is traded off against attributes of the housing stock much more extensively than would be the case in a free housing market. A difficult part of the modeling process, therefore, is the household decision to relocate since such a decision involves significant transaction costs. One should note, however, that different search options are available for different submarkets. Another major difficulty is

modeling the households' anticipation of the government's probabilities to accept or reject them from the government queue.

The above decision process can be modeled as a nested logit model with several levels of nesting. From the data which we are using, location by municipality, housing tenure by single versus multifamily, housing type by number of rooms, by age and by standard are the levels of nesting which would be fairly natural to adopt. The nested logit model which could then be estimated would have to take into account the income tax structure, the housing allowance structure and the effect of these on household disposable income. Measures of municipal public service quality should be used to model the choice of location by municipality.

Data on black market transactions is scarce, and indeed experts widely disagree on the size of the Swedish black market. In facing this difficulty it is important to develop a theoretically complete model which may encompass black market transactions but can be estimated without observing the black market.

### 3.2 The Supply Side

The supply decisions in the single family market would be modeled as in CATLAS via a nested or hierarchical decision process. In the short run (one year in CATLAS) the decision is whether an existing dwelling should be offered for rent or kept vacant by the owner. This decision is determined primarily by comparing the maintenance and occupancy costs of dwellings to the same costs for vacant dwellings and obtaining a maintenance cost differential which is then compared to the rent of an occupied dwelling. Extrapolating this calculation into the future, owners of housing estimate the present value of future rentals that will result from an existing dwelling, taking into account that the dwelling will remain vacant some proportion of the time. From such present value calculations, owners of land decide whether to build new dwellings or whether to keep land vacant and whether to demolish existing dwellings and create land. The above nested supply model decision structure has been estimated with census data for the Chicago metropolitan area and is, in principle, applicable to the Swedish case as well.

There are, however, modifications that will be needed. It is important to

recognize that in Sweden the municipalities are the true suppliers of housing. The quantity and type of housing they supply depends only in part on the costs borne by the non-profit companies. It also depends on the political preferences of the electoral community and on the indirect costs of public infrastructure provision to be borne by the municipality itself. Housing provision has an impact on the tax revenues of municipalities, and vacancies that must be subsidized have a negative influence on the municipal budget. Since municipalities are few in number, modeling their behavior may require an oligopolistic competition approach adapted to the public sector. It should be remembered, however, that the central role of municipalities implies that good data exist in accessible form to describe the behavior of them as housing market agents.

### **3.3 Use of the Model in Policy Analysis**

The model discussed here can be used to test the policy issues of section II. In doing so, a layer by layer approach to uncovering the effects of each of the policies is needed.

A baseline policy simulation would examine how the market would operate given the same household preferences and the same housing stock with all current institutions (rationing, allowances, rent control, subsidies and the like) removed. Such a free market simulation would indicate certain efficiency and equity consequences when compared to the actual Swedish situation.

Following this baseline simulation, one can introduce each policy, or combinations of policies, in order to observe the marginal impact of each policy as well as the counterproductive or reinforcing interactions among the policies on the efficiency and equity objectives.

After such broad and sweeping policy tests are concluded, there should be enough insight developed to know which of the existing policies are worth fine-tuning and in which direction. It is then hoped that the model could be used to recommend realistic and politically acceptable marginal improvements on housing allowance and tax incentive formulae as well as possible marginal improvements of other institutions.

The use of the model in policy analysis should be considered during the formulation of the model framework. The reason is that a successful use of a quantitative model for policy design, and evaluation, presupposes a clear definition of policy variables already at the outset of the modelling activity. An attempt should be made at modelling policy schemes in the way they are enacted by the planning actors. An example may be the housing allowance system where eligibility rules and subsidy payment schemes are explicitly spelled out to be introduced directly in a model. Another example may be a special submodel for the formation of actual disposable income. Such a submodel will be quite complex since disposable income will depend on housing consumption. Also, the tax and subsidy systems have lagged effects which make a dynamic, or recursive approach the only satisfactory option.

The primary aim of the policy analysis in this modelling exercise is to study the combined effect of different policy actions. This is especially important in Sweden where the housing system is influenced by so many competing subsidy and intervention systems. The question is: in the final analysis, to what extent do the effects of the various controls reinforce or counteract each other? This question is impossible to answer without a quantitative model.

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**FOOTNOTES**

- 1        The brief list of references at the end of this paper bears no indication of the extensive unpublished material, the carefully documented public statistics and the wealth of specific information that can be obtained by interviewing public officials and experts.
  
- 2        In large measure this model is envisaged as an adaptation of CATLAS (The Chicago Area Transportation Land Use Analysis System; Anas, 1983) to the Swedish situation. Also see (Anas, 1982).
  
- 3        The sparse figures presented in this paper have been extracted from the official statistics of Sweden (Statistics Sweden, 1983).
  
- 4        Much of the information reported in this section is partly based on the material in (Sweden, 1982 and 1983).
  
- 5        This section relies in part on interviews with Bengt Turner and Rune Wigren of the Swedish Council for Building Research, Gävle, and Torsten Landgren of the Swedish Association of Municipal Housing Companies (SABO), Stockholm.
  
- 6        This section relies in part on interviews with Bengt Turner and Rune Wigren of the Swedish Council for Building Research, Gävle, Torsten Landgren of SABO and Sven Bergenstråle.
  
- 7        Sven Bergenstråle's recent independent research project on the effects of rent pooling sponsored by the Tenants' Association has documented the presence of significant rent differences for similar flats in different companies.
  
- 8        This section draws in part on an interview with Olle Svensson of the Stockholm Federation of Municipal Housing Agencies.
  
- 9        The figures in this section have been extracted or constructed from (Statistics Sweden, 1983).

- 10 The figures have been extracted or constructed from (Statistics Sweden, 1983).
- 11 The figures have been constructed from (Statistics Sweden, 1983).
- 12 This section relies in part on an interview with Bo Lindörn (and presentations by his staff) of the Swedish Price Control Board.