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**INTEGRATING  
STATE RENTAL HOUSING  
WITH THE PRIVATE MARKET:  
DESIGNING HOUSING ALLOWANCES  
FOR HUNGARY**

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## **EXECUTIVE SUMMARY**

Between the fall of 1990 and the spring of 1991 the Hungarian government will very likely make decisions that will fundamentally determine the shape of the nation's rental housing market for at least the next several years. These months are obviously when new ideas should be considered, especially those which realign the rental sector with the market principles guiding adjustments in the rest of the economy. Yet most of the debate is focussed on two administratively-oriented solutions: a wholesale privatization of rental units by selling them at deep discounts to their tenants, or retaining them as a special, highly-subsidized rent-controlled housing stock. This paper analyses a third alternative--reforming the rental sector along market lines while protecting lower income families from high rent payments through the implementation of a housing allowance program.

Under the third option, rents on social rental units are gradually increased to levels determined by the market. For the great majority of units this will be more than enough to cover fully operating and maintenance costs; services should actually improve. Occupants would still be permitted to purchase their units--but now at or near their market values, which would be greater because of the higher rents and better conditions. Those who would have to pay an unreasonable share of their incomes for rents would be protected by a housing allowance program which would subsidize the difference between what they can reasonably afford to pay and the rent of a good quality unit large enough to meet their needs. Those receiving the allowances, like other households, would be free to move from one social housing unit to another or into private rental housing: the allowance would travel with them. The management of social housing would be privatized and services improved--to give tenants something in return for their higher rents.

Key advantages of this system are that the rental sector is largely preserved, its value is enhanced, and subsidies are restricted to only those households who truly need them. The total subsidies, defined to include the value of rents not paid under controlled rents plus actual government expenditures, are very sharply reduced.

Thus, establishment of a housing allowance program, along with complementary actions, holds the promise of a fundamental and sustainable reform of the rental housing system. Obviously, however, adopting this program would be a very large step; and government officials, members of Parliament, and citizens would want to see a detailed analysis of such a system before embracing it.

This paper is designed to fill this void by presenting a careful description and analysis of a housing allowance system proposed for Hungary.

Using a data set especially developed for this study by the Central Statistics Office a large number of alternative housing allowance designs have been simulated. All of these designs, however, employ the same "housing gap" formula under which each household whose income is low enough to qualify for these benefits receives a subsidy payment equal to the difference between the cost of a good quality unit of a reasonable number of rooms

for a family of different sizes and the share of the household's income that it can reasonably be expected to spend on housing (values of 10 to 20 percent of income were explored). The subsidy is computed independently of the actual rent of the unit. Therefore, households who occupy smaller or lower quality units than the program standards get the same grant as those in the opposite circumstances and in effect pay a lower share of their incomes for housing. Low income renters living in private rentals as well as those in state-owned units could receive a housing allowance (although our data set only includes state rentals).

Two sets of simulations were undertaken: one for the first year in which housing allowances are introduced and one for the third year--the point at which rents paid on state rentals should be approaching market levels. These "years" may in fact turn out to be longer periods, depending on administrative and political problems encountered.

In Year One the administered rents in effect are increased by 100 to 200 percent. In Year Two, rents are shifted to a set percentage of market-determined rents, and in Year Three they go to a higher share of market rents. While the study did work with real estate brokers to develop estimates of current (summer 1990) market rents, these rents are for the very small private sector and the rent structure is expected to change dramatically over the next few years as more rental units are made available and as the lower income families in state rentals, with less purchasing power than current renters of market-rate units, enter the market.

The main findings for the Year One simulations are:

- Participation rates (i.e., the percentage of renters who are eligible to participate), the size of subsidy payments to participants, and total program costs are all quite sensitive to the share of income which households must contribute to rent.
- Program costs are not high. In the most extreme case--imposition of a 200 percent rent increase above 1990 rent levels, and a household contribution rate of 10 percent of income--program costs amount to Ft.4.7 billion or 19 percent of the total rental revenue from the stock. Under a 100 percent rent increase, total subsidies are only Ft.1.3 billion.
- Nevertheless, because the subsidies are focussed on the poorest renters, they make a significant difference on the economic situation of participants. Typically, payments account for 25-30 percent of unit rents.
- Subsidy payments are distributed among participants in ways that show a very strong targeting on need. Eighty percent of the subsidies go to households in the lower half of the income distribution; half go to those with eight or fewer years of schooling; and two-fifths are received by households without a working family member.

- The share of income which households not eligible to receive a housing allowance must spend on rent is not extreme, even for those who are "overhoused". Under a 200 percent rent increase, such households would spend about 15 percent of income on housing.

The cases simulated for Year Three differ principally in the share of income participants must spend on housing (values of 10 to 20 percent were used) and where rents on state rentals are set in relation to 1990 private market rents (values of 10 to 30 percent were tried). The case of rents set at 10 percent of 1990 private market rents involves, on average, the same rent increase as the case of a 100 percent increase in rents in Year One, although the structure of rents by location and quality level is quite different. We believe that in 1990 prices by Year Three the overall structure of rents will be about 30 percent of 1990 private market rents. In other words, our best estimate--which is subject to great uncertainty--is that if rents on state units are raised to the 30 percent level they will be near the market level, because a likely increase in the supply of rentals over the period will drive rents down and because the much more limited purchasing power of families living in state rentals will limit the extent of the rent rise on these units.

The results for Year Three can be summarized as follows:

- Participation rates in the models with market-type rents are generally high--in several cases around 90 percent--and are sensitive to both the share of income participants must contribute to rent and to the level of rent; but after a point, and holding participants' contributions constant, increasing the rent level has only the effect of increasing subsidies, i.e., net-of-subsidy rent revenues do not increase.
- Program costs are much higher than in Year One as the gap between actual rents paid and market rents is closed. However, under the program designs more likely to be adopted, housing allowances remain self-financing in the sense that the increase in total revenues is greater than the total subsidy.
- Generally, targeting has the same patterns as in the Year One models, i.e., more needy households participate at higher rates and receive larger subsidies than more affluent households. But, as participation approaches 100 percent and higher income renters become participants in greater numbers, target efficiency is diminished. But even in these cases, the subsidies remain well-targeted on the poor.
- Overhoused households have very strong incentives to move to smaller units. These incentives increase with the share of income which households must contribute to rent ("t") and the rent level.

Our overall conclusion is that housing allowances are a key element in the solution to the problem of reforming the state rental sector so that it operates more efficiently and subsidies are reduced and provided only to lower income households. We also think that the kind of transition process we have outlined offers a workable model. Nevertheless,

while a simple increase in administratively set rents of even 200 percent coupled with allowances poses no special problems, enormous uncertainty surrounds introduction of the market rent-housing allowance system. The uncertainty encompasses administrative procedures, the responses by households and suppliers of additional rental housing to higher prices, and the political acceptability of introducing market rents.

## 1. Hungarian Rental Housing Policy at the Crossroads

Between the fall of 1990 and the spring of 1991 the Hungarian government will very likely make decisions that will fundamentally determine the shape of the nation's rental housing market for at least the next several years. These months are obviously when new ideas should be considered, especially those which realign the rental sector with the market principles guiding adjustments in the rest of the economy. Yet most of the debate is focussed on two administratively-oriented solutions: a wholesale privatization of rental units by selling them at deep discounts to their tenants, or their retention as a special, highly-subsidized rent-controlled housing stock. This paper analyses a third alternative--reforming the rental sector along market lines while protecting lower income families from high rent payments through the implementation of a housing allowance program.

In 1988 the rental sector represented about 20 percent of the nation's housing stock and is heavily dominated by the approximately 800,000 state rental units, about half of which were concentrated in Budapest--the only city in which as many as half of households rent.<sup>1</sup> Rents have been administratively set on a per square meter basis, with variation by quality level, only minimal adjustment for location within a settlement, and no adjustments among cities and towns of different sizes. Rents are a fraction of their estimated market levels and have been consistently less than the amount necessary to cover even operating costs. The state has made up some of this shortfall through direct subsidies, and rental housing has also been subsidized indirectly through the state-owned management companies (IKVs) devoting to housing maintenance the excess of rents on commercial space owned by the state above the costs of maintaining this space. In 1990 these subsidies will total about Ft.10.2 billion (Ft. 3.6 billion in direct subsidies and Ft.6.6 billion from commercial rents), or Ft.1,000 per unit per month--more than the rent for a

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<sup>1</sup> J. Hegedus and I. Tosics, "The Hungarian State-Rental Sector: Its Development and Present Problems" (Budapest: Metropolitan Research Ltd., 1990), p.3 and 9. These figures exclude about 150,000 rental units belonging to specific enterprises and other special forms of ownership or control.

typical 52 square meter unit with "comfort".<sup>2</sup> Even with these subsidies, however, the stock has steadily deteriorated.

An unknown number of private rentals do exist, and the number apparently has been increasing steadily since ownership of rental units was made fully legal in 1989 with the abolition of the one family-one house regulation. Private rentals include both the normal rental of private units and sublets of part or all of state rental units (although only subletting of rooms is officially sanctioned).<sup>3</sup>

The law defining the responsibilities and powers of local governments, passed by Parliament in the summer of 1990, gave ownership of the state rental stock to the governments of the areas in which the stock is located.<sup>4</sup> The law appears to give local government complete control of the disposition of these units, probably beginning in 1991. This total control may, however, be circumscribed by the Housing Act that could be considered by Parliament in 1991. Under this act the Ministry of Social Welfare could, for example, be given the power to set conditions under which units could be sold, e.g. minimum or maximum sales prices as a percentage of market value.

With or without central government directives, two alternative futures for the social rental stock have been widely discussed. In one future most units are sold to their current tenants. The advantage of this path to local governments is that it shifts the burden of current and deferred maintenance as well as rehabilitation to the occupants, who now own their units. The disadvantage is that in order to sell many of the units, prices will have to be set at extremely low levels, lower than even the 85 percent discount from market value at which they can presently be purchased. The low sales price results from a combination of limited purchasing power by many tenants and the poor condition of the units. Low prices means the state will forfeit a very valuable asset in its rush to avoid further subsidies for operations, maintenance, and rehabilitation.

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<sup>2</sup> Figures are unpublished figures from the National Planning Organization, 1990. See Annex A for definitions and cost figures for state rental housing.

<sup>3</sup> Under certain conditions full units can be sublet with special permission from the local authority. These include renting by official occupants working outside Hungary and workers assigned to posts outside of their home town.

<sup>4</sup> "Law on Local Government (Act No. LXV of 1990), Hungary" (Washington, DC: The Urban Institute, translation, 1990).

The second widely perceived option is to continue rents on a controlled basis, with local governments somehow finding the funds to continue the subsidies. Rents on commercial space may be decontrolled in 1991, which would permit some further cross subsidization of residential rents from commercial rents.<sup>5</sup> Both of these options have the virtue of protecting sitting tenants from immediate adverse developments--higher rents or loss of their rights of occupancy (described later).

Neither of these options would result in a vibrant rental sector. Under the first, the rental sector would be largely eliminated. Future households who could not afford to buy units would be forced to rely on the private rental market. Some of the additions to the private rental stock would come as household-owners who initially moved to better units and rented their initial unit. Other additions could come from new construction. In either case, the share of newly forming households and households relocating to pursue economic opportunities who could afford these rents is an open question. An additional problem with the first option is that many families who are "forced" to become owners will lack the incomes to adequately maintain their units.

Under the second option, the social rental sector remains but the stock will continue to deteriorate unless local governments are willing to provide much more in subsidies than this stock has been allocated in the past. Occupants will still continue to exhibit low mobility rates from state housing, however, because moving will mean the loss of their deep subsidies. Moreover, the existence of strict rent controls in the public sector will discourage new construction in the private sector, even with private sector rentals currently being exempt from the controls.

However, there is a third option, not yet widely discussed in Hungarian public life. This is to gradually increase the rents on social rental units to levels determined by the market. For the great majority of units this will be more than enough to cover fully operating and maintenance costs; services should actually improve. Occupants would still be permitted to purchase their units--but now at or near their market values, which would be greater because of the higher rents and better conditions. Those who would have to

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There is some question as to whether the commercial space in rental buildings and fully commercial buildings is being transferred to local governments. This will be resolved through legal interpretation of the Act on Local Governments.

pay an unreasonable share of their incomes for rents would be protected by a housing allowance program which would subsidize the difference between what they can reasonably afford to pay and the rent of a good quality unit large enough to meet their needs. Those receiving the allowances, like other households, would be free to move from one social housing unit to another or into private rental housing: the allowance would travel with them. The management of social housing would be privatized and services improved--to give tenants something in return for their higher rents.

Key advantages of this system are that the rental sector is largely preserved, its value is enhanced, and subsidies are restricted to only those households who truly need them. The total subsidies, defined to include the value of rents not paid under controlled rents plus actual government expenditures, are very sharply reduced. And the homeowners and rental markets become unified, in the sense that units will be valued the same regardless of tenure.

Thus, establishment of a housing allowance program, along with complementary actions, holds the promise of a fundamental and sustainable reform of the rental housing system. Obviously, however, adopting this program would be a very large step; and central and local government officials, members of Parliament, and citizens would want to see a detailed analysis of such a system before embracing it.

This paper is designed to fill this void by presenting a careful description and analysis of a housing allowance system proposed for Hungary. The balance of the paper is in four parts. Chapter 2 provides some additional information on the social rental sector. Chapter 3 describes the proposed housing allowance system. Special attention is given to the outcomes for participant households who are in different housing circumstances--occupying a unit of a quality below the standard set by the program, or occupying a unit larger or smaller than that established as the number of rooms a family of its size requires. It also discusses important questions about how the new system would be phased in so as not to deliver too great a short-term shock to families now in social housing. Here also the relationship between housing allowances and other aspects of Hungarian housing policy are discussed.

Chapter 4 presents the results of statistical simulations done of several different program designs, i.e., designs that differ in how many households can participate, what

share of income a household must spend on housing to participate, the level of rent covered by the payments. These computations have been done with a household-level data file for 1989 prepared for this purpose by the Central Statistics Office. Outcomes considered include how different types of households (defined by income, household composition and age of household head) fare under the program, the number of participating households, overall program costs, and the total increase in rental revenues from both participants and non participants. In Chapter 5 we present our conclusions.

## 2. Highlights of the State Rental Sector

There are several salient problems with the current social rental housing system:

- Subsidies are not focussed on those least able to pay the full cost of housing but rather are dispersed broadly across all occupants of state rentals;
- Subsidies are badly measured, thereby placing the state in the position of both spending too much money and not being aware of the real size of the outlays;
- Rental income is far too low to maintain the stock;
- The low rents charged in social rental housing create an artificial shortage as households want to purchase more of this cheap but intrinsically valuable commodity; and,
- Units are allocated by administrative decisions so that some households live in overly large units while others, who could be willing to pay more, are badly cramped.

These problems flow directly from the specific characteristics of the Hungarian social rental housing system. Indeed, because of the property rights of tenants, it is almost a misnomer to consider these units to be rentals.

The most notable feature of the state rental sector is that tenants have property rights in their unit. One avenue for obtaining this interest is by making a mandatory "key money" payment to the government at the time of initial occupancy. In effect, tenants obtain a "right of occupancy" to the unit, a right that can be inherited by one's children. This right was officially recognized beginning in 1981, and local councils pay tenants vacating their units several times their initial investment to encourage them to move to other housing and to give the council the right to allocate the unit to new tenants, rather than have the initial tenant sell the right to someone else.<sup>6</sup> It is estimated that about 30 percent of the tenants of state rental units "purchased" (bought or exchanged) their unit in

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<sup>6</sup> Councils offer from 3 to 10 times the occupant's initial payment for the right to allocate the unit, depending on the unit's location and condition. Most units returned to the council, at least in Budapest, are those in the worst condition. Instead, most units are sold in the gray market. Nationally, during 1981 to 1986 only 0.6 percent of units were returned to the local councils annually; only 0.2 percent in Budapest (Hegedus and Tosics, "Hungarian State-Rental Sector...", p.9).

the gray market--thereby using the alternative route to acquiring property rights.<sup>7</sup>

To be more precise about the magnitude of the gray market payment, the value of the payment (V) is the discounted capitalized difference between the market rent on the unit (R<sub>m</sub>) and the state-charged rent (R):

$$V = (R_m - R)/(1+r)^1 + \dots + (R_m - R)/(1+r)^n$$

where r is the discount rate, and for simplicity we have assumed that the appreciation and inflation rates are the same. In the simplest case where R, R<sub>m</sub>, and r are constant over time

$$R_m = Vr + R.$$

The value commanded by a unit in the gray market is reportedly only about half of the value of an equivalent unit offered for sale. This reduction is greater than can be accounted for by the deduction of the state rental payments and appears to be accounted for by (a) the uncertainty about the strength of these rights in the future (which would increase the discount rate); (b) the high transactions cost involved in selling a unit; and, to a lesser degree, (c) the inability of the purchaser to borrow from banks for a gray market purchase (bank financing was available only to a limited degree for purchase of existing units in general). In particular, it is clear that if the state permitted rents to rise to market levels, the value of the occupancy right would essentially disappear.<sup>8</sup>

Another notable feature of the current system has been standing offer to sell a unit to its current occupant. Until 1989 half of the tenants in a building had to want to become owners in order for a unit to be sold, but beginning in that year individual units could be sold. According to state guidelines, from which local councils may deviate, for older units that have not been rehabilitated in the past fifteen years, the sales price is set at 15 percent of market value; the lowest discount in multifamily housing is for units rehabilitated in the past five years which sell at 40 percent of market value.<sup>9</sup> Purchasers

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<sup>7</sup> Hegedus and Tosics, "Hungarian State-Rental Sector...", p.10.

<sup>8</sup> Another way to look at this is that, because they acquired their units through the gray market, 30 percent of the occupants of state housing are currently paying effective rents (actual rents plus the opportunity cost on their equity in the unit and depreciation but less capital gains) that are much higher than the nominal levels set by the state.

<sup>9</sup> Discounts on single family units are lower.

can make downpayments of as little as 10 percent of the discounted price and complete payments over 10-15 years on an installment basis, with the implicit loan carrying a 3 percent interest rate (versus a current mortgage interest rate from the national savings bank of 25 percent). These terms constitute a very strong incentive to purchase. Nevertheless, only a few percent of the stock has been sold.

One effect of the substantial property rights of tenants is a lower rate of residential mobility than otherwise would be the case. This is primarily due to the complexity of selling in the gray market. The net result, however, is less turnover among rental units than is the case in most countries and hence less opportunity for young families, for example, to find housing.

The poor condition of many state rental units is another hallmark of the system, and a reason for few sales. Tenants fear costly rehabilitation if they buy -- costs government will pay if they rent. Until the late 1960s the state budget provided no assistance in addition to the low rents for basic maintenance in the state rental sector. These amounts rose to appreciable levels in the early 1980s but the Government's budget for 1991 proposes to eliminate them, as local governments assume responsibility for the state rentals in their communities.<sup>10</sup> The result of historically low maintenance expenditures was a systematic depreciation of the housing stock. One current estimate indicates that in Budapest alone there are 105,000 units in need of substantial renovation, with an expected cost of Ft. 140 to 160 billion.<sup>11</sup> Revenues from rents and state maintenance subsidies have increased significantly in recent years and have been augmented by cross subsidies from commercial properties that are also managed by the IKVs. It is not clear, however, whether these larger revenues have been used to fully maintain the stock or have been used at least partially to support major renovations--an alternative that may be economically rational in many cases. In any event, the poor condition of much of the stock and sitting tenants' concerns about the cost of rehabilitation, along with very low rents, have blunted interest in purchasing state rentals. The units sold have been in the best locations and in

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<sup>10</sup> Hegedus and Tosics, "Hungarian State-Rental Sector...", pp. 13-14.

<sup>11</sup> J. Hegedus and I. Tosics, "Summary of the Conference on 'Alternatives for the Public Rental Sector'" (Budapest: Metropolitan Research Ltd, 1990), p.3.

good repair.<sup>12</sup>

The final feature of rental housing deserving comment is the limited targeting of this highly subsidized stock to low income families. The full value of subsidies to occupants is the difference between the market rent of a unit and the actual rental payment, not government outlays.<sup>13</sup> Here two of several available indicators of the distribution of units and subsidies are presented. First, Table 2.1 shows the distribution of households by occupation categories between renters and owners and, for renters, the percentage of each occupation group living in an exceptionally large unit. The data show those with the highest prestige occupations--managers, intellectuals and white collar workers--are disproportionately renters, a fact that may be related to the combination of the importance of the rental stock and the concentration of officials in Budapest. Moreover, it is this same group, along with shop floor managers and the self-employed, that have succeeded in occupying the largest units.<sup>14</sup>

Second is the information available from the data set prepared for this study on current administratively-determined rents and estimated market rents. The former are from surveys done by the Central Statistics Office, and the latter were prepared by the study team (both are described in the first part of Chapter 4). Shown in Table 2.2 is the difference between market and current rents for renters classified in several ways. Because we want to emphasize the variation among various types of households, all of the differences have been normalized by the average difference for all renters.

Several patterns stand out from the figures in the table.

-- Benefits increase steadily with household income, i.e., benefits are perversely

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<sup>12</sup> For example, in Budapest's fashionable VIth district, the IKV director told the authors that all the better units have been sold, except those protected from sale because they are in areas designated for historic preservation.

<sup>13</sup> Formally the benefits can be analyzed as a form of rent control. In the analysis of rent controls it has been pointed out that the difference between market and controlled rents may overstate the benefit to the occupant, if the tenant is forced to consume less housing than it would prefer. For a full explanation see E. Olsen, "An Econometric Analysis of Rent Control," Journal of Political Economy, 1972, pp. 1081-1100.

<sup>14</sup> Additional supporting evidence on these patterns is presented in V. Milor, "The Political Economy of Housing in Hungary," (Washington, DC: Paper prepared for the World Bank, 1990), pp. 5-6. The information presented indicates that blue collar workers systematically live in units which have fewer amenities, as well as being smaller.

distributed.

-- Those with the highest level of education receive the largest subsidies under the current system, presumably reflecting the fact that the best educated held the highest positions in the party and government. Those who had attended vocational school also received an above average subsidy.

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**Table 2.1**  
**Occupation of Head of Household in State Rental and**  
**Owner-Occupancy Sectors, Hungary 1988**

	rental sector -----	homeowner -----	among renters % with 3+ rooms -----
managers, intellectuals	6.1	4.9	15.0
white collar worker	14.8	9.2	10.8
shop-floor managers	1.7	2.0	5.0
skilled worker	17.5	21.4	4.6
semi-skilled worker	8.2	9.6	4.0
unskilled worker	4.1	3.9	4.5
agricultural workers	.4	5.6	-
self employed	1.3	2.7	11.2
retired	39.1	32.8	5.1
dependent	2.3	1.8	2.9
vacant units	4.3	6.3	2.9
<b>totals</b>	<b>100</b>	<b>100</b>	<b>6.3</b>

Source: Hegedus and Tosics, "Hungarian State-Rental Sector...", Table 8, p. 17.

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**Table 2.2**  
**Normalized Differences Between Estimated Market Rents and**  
**Present Rents for Occupants of Social Housing**

household type -----	benefit index* -----
<b>household income</b>	
lowest decile	79.1
2nd	89.7
3rd	94.2
4th	94.1
5th	99.3
6th	104.3
7th	106.9
8th	110.1
9th	116.3
highest	107.4
<b>education of household head</b>	
8 years or less	90.2
vocational school	103.4
secondary school	97.7
college	113.0
<b>No. of children for families with children</b>	
one	102.0
two	108.6
three or more	121.4
<b>settlement type</b>	
Budapest	113.7
Big cities	93.8
county seats	84.4
towns	74.6
villages	48.1

\*Benefit index is the average difference between market rent and current rent for households in a group divided by the average of the same difference for all households.

Source: CSO survey data and authors' estimates of market rents described in Chapter 4.

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**Table 2.3**  
**Results of OLS Regression of the Difference**  
**Between Market and Administered Rents**

independent variables	coefficient
constant	11.609*
<b>household income quintiles</b>	
highest	.323*
4th	.261*
3rd	.208*
2nd	.144*
<b>location</b>	
Budapest	.530*
large cities	.356*
county seats	.232*
<b>number of children</b>	
one	.010
two or more	.122*

R2 (adj.) = .263

F statistic = 129.3

d.f. = 3221

Notes: The dependent variable is the natural log of the difference between market and administered rents.

Omitted groups are households in the lowest income quintile, living in towns and villages, and without children. One category must be omitted in regression models employing multilevel qualitative independent variables to permit estimation.

\* coefficient significant at .01 level or higher.

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-- The subsidies are well targeted in terms of providing more support to larger families--a clearly pronounced objective of the system.

-- Renters in Budapest are especially heavily subsidized and those in the smallest settlements receive much less assistance because there is no differentiation in rents among the settlements.

Because some of these results may be spurious because of the confounding of location, income, and other factors when the variation in benefits is analyzed one variable at a time, we also estimated a simple regression model in which the dependent variable is the natural log of the difference between estimated market and administered rents (Table 2.3). These statistical results confirm and make starker the contrasts already noted. For example, renters in the highest income quintile receive benefits that are 32 percent greater than those of similar renters in the lowest income quintile. Also, renters in Budapest have benefits 53 percent greater than renters in towns and villages.

That the targeting should be so poor is understandable in light of the rules in effect for setting rents in which rent levels are not only kept far below market levels, but there is only modest differentiation among units by location within a community, no differentiation between communities, and, although rents are assessed on a per square meter basis, there are limits on the number of square meters on which one pays rent in the case of very large units. Moreover, although there is supposed to be an income test for initial occupancy of a state rental unit, even if it were rigorously applied, there is no subsequent income recertification.<sup>15</sup>

The foregoing certainly suggests the need for very major revisions in the state rental housing program. This paper foresees a program under which rents are raised to market-determined levels to support essential maintenance and renovation, to allocate units efficiently, and to provide an incentive for the development of private rental housing to serve a wide spectrum of households. Clearly numerous issues will be involved in such a transformation of state rental housing. Key to the new rental system is institution of a housing allowance system that protects lower income families as rents move upward. The structure of the housing allowance system and its place in the new system is discussed in the next chapter.

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<sup>15</sup> The rules for setting rents are summarized in Annex A.

### **3. The Housing Allowance System and Its Relation to Other Issues of Housing Policy**

Housing allowances are payments provided directly to households for the purpose of assisting them in paying their rents. Participation in an allowance program is conditioned upon the household having a low income; hence, allowances provide protection to the most vulnerable households from the rising rents which are integral to transforming the state rental sector.

A household participating in an allowance program is at liberty to choose any unit it wishes. If it decides to move to another unit, the payments go with the household, i.e., these are tenant-based, not project-based subsidies. Because they go to the tenants, it means that participants induce landlords into competing for their patronage: if families will not rent a landlord's units because of excessive rents or poor quality, they go vacant. This kind of competition, combined with substantial privatization of the management of state rental projects, is essential over the medium term in helping reorient the rental sector.

Housing allowances are a widely used subsidy tool. Most European nations, several Canadian Provinces, and the United States employ allowances.<sup>16</sup> The Federal Republic of Germany has an entitlement housing allowance program funded by the federal government which is available to both renters and homeowners. The Federal Republic is implementing a similar allowance program in the five new eastern German provinces.<sup>17</sup>

Hungary instituted a simple housing allowance program at the beginning of 1990 to insulate certain households from rent increases. Under this program pensioners and

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<sup>16</sup> For an overview of alternative systems various systems, see E. Jay Howenstein, Housing Vouchers: A Comparative International Analysis (New Brunswick, NJ: Rutgers University, Center for Urban Policy Research, 1986); and, M. J. Oxley, "The Aims and Effects of Housing Allowances in Eastern Europe," in Wm. van Vliet (ed.), Housing Markets and Policies under Fiscal Austerity (Greenwood, IL: Greenwood Press, 1988). On Germany, see Wohngeld: Reihe Ratschlaege und Hinweise (Bonn: Bundesministerium fuer Bauwesen, Staedtebau, und Raumordnung, n.d.). On the Dutch system: Hugo Priemus, Housing Allowances in the Netherlands: Product of a Conservative or Progressive Ideology? (Delft: Delft University Press, 1984). On the Canadian system, Marion Steele, Canadian Housing Allowances: An Economic Analysis (Toronto: Ontario Economic Council, 1985).

<sup>17</sup> "Information Regarding the Development of the Housing Sector in the GDR". (Bonn: Ministries of Housing and Finance, Federal Republic of Germany, 1990).

households with at least three children and monthly incomes of under Ft.4,300 per capita were fully exempt from the rent increases implemented in February.<sup>18</sup> Households have to apply to the local office of the Ministry of Social Welfare (Health Department) to participate. Although systematic data on participation are not available, a large number of tenants--perhaps 200,000--have applied. The state makes payments to the company (IKV) managing a participant's project so that the company's revenues are not reduced. In short, housing allowances are a tool that is somewhat familiar to Hungarian policy makers as well as widely used in Europe.

The balance of this discussion of allowances proceeds in three sections. The first briefly sets out the underlying objectives in introducing the allowance system. The second provides more details on the type of system envisioned for Hungary. Finally, the third section deals with several of the more important issues that will arise in implementing an allowance program.

### **Objectives of a Housing Allowance Program**

We see five objectives in implementing an allowance system.

- (1) Protection of the poor, through housing allowances or alternative schemes, is a sine qua non of introducing market rents.
- (2) Achieve integration of the state and private rental sectors, so that the two sectors compete and families can move freely between the two in response to better services and cheaper rents. Integration of the two sectors will prevent the development of social housing as an economically segregated "housing of last resort" which could develop if the social stock continues to deteriorate and families who can afford to do so move from it.
- (3) Use the price mechanism to allocate housing services. This will result in a reduction of overhousing and in the demand for additional space and better quality by many households at the present low prices. Many higher income renters will likely purchase units outside of the state rental system. The objective is to have no rent controls.
- (4) Reduce subsidies to the rental sector and target the remaining subsidies on households unable to afford market rents without assistance.

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<sup>18</sup> There was also a high monthly income limit of Ft 13,000 for pensioners.

(5) Ensure a system in which maintenance of the rental stock is independent of arbitrary subsidy amounts determined by the state.

### **The Mechanics of Housing Allowances**

The questions addressed here are: who could participate in the housing allowance program, how would their subsidy be calculated, and what incentives does the allowance program have for participant behavior?

**Participation.** Eligibility would be determined by the household's income. At least initially the program would be limited to renter households, but those renting private accommodations as well as tenants of state rentals would be eligible to participate. Private renters include unit subletters of state rental units.<sup>19</sup> The eligibility of those renting in the private and state "markets" is seen as being essential for equity reasons and for fostering competition in the housing sector.

The program would be an "entitlement" program, i.e., any renter household who meets the program income limits and the minimum rent payment condition (described below) could apply for and receive assistance. As such, the program should be insulated from political interference in determining who participates.

**Subsidy payments.** The formula for computing payments is of the "housing gap" type, i.e., subsidy payments are designed to fill the gap between what a household can reasonably pay and the cost of an adequate unit. The specific approach analyzed here employs a very simple formula so that program administrators will easily grasp its implications and participant households will respond to the powerful behavioral incentives embodied in it.

The monthly subsidy payment ( $S$ ) is computed as

$$S = MSR - tY.$$

MSR is the "Maximum Social Rent," i.e., the rent sufficient to rent a good quality unit in the market. There are several key elements in this definition. First, "good quality" is defined as a unit classified as having "comfort", i.e., of minimum size and having a

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<sup>19</sup> Room renters are not eligible to participate. Possibly later, the program could be expanded to cover homeowners.

toilet, bathroom but not central heating.<sup>20</sup> Second, the MSR varies by the number of rooms to which the participant household is entitled based on the household's size and composition. In principle, "composition" can take into account the ages, sex, and family relationships of household members.<sup>21</sup> Third, MSRs are set separately for different cities; at least differentiation between Budapest and other urban areas appears necessary. The MSR does not vary within a city, however.

Fourth, while the MSR can be defined to include housing-associated utility payments, utilities are excluded from rents used in computing MSRs in this analysis. It is easy to exclude analytically and administratively, since most households pay their utilities directly rather than having them included in their rents. The reason for the exclusion is to achieve equity in this regard between homeowners and renters: if renters were granted assistance with utilities, there would be pressure for homeowners to receive similar assistance which would expand the cost of the program very substantially.<sup>22</sup>

MSRs are based on empirical information on the actual distribution of rents in each housing market. The MSR must be set at a sufficiently high level that it is possible for most participants to have a strong possibility of renting a unit for no more than the MSR. Note that participants are permitted to rent units renting for more than the applicable MSR; however, if they do, they pay all rent above the MSR.

"I" is the share of income a household can reasonably be expected to spend on housing. Based on the experience of other countries, values of .15 to .30 (the latter including utilities) are typical for middle income households.<sup>23</sup>

"Y" is the household's net monthly income from all sources. It should include first and second economy incomes, as applicable, of each household member. Deductions or "adjustments" to total income are possible for certain purposes, e.g. the number of children

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<sup>20</sup> See Annex A for definitions of the four levels of comfort.

<sup>21</sup> The results reported in Chapter 4 for simulated programs use a simple rule to assign households to unit sizes based solely on the number of persons in the household.

<sup>22</sup> However, if allowances are given to homeowners if the program were expanded, the utilities should be included in the MSR for both groups.

<sup>23</sup> S. Malpezzi, S. K. Mayo and D. Gross, "Housing Demand in Developing Countries," (Washington, DC: World Bank Staff Working Paper Number 733, 1985).

or elderly persons in the household.<sup>24</sup> Although possible in principle, we have not made use of such adjustments in constructing the simulations reported in the next chapter. Incomes are typically recertified annually; therefore, eligibility is checked and the subsidy payment is recomputed each year. However, if there is a dramatic decrease in income during the year, say because the primary earner becomes unemployed, income can be recertified at the household's request.

To receive a subsidy a household must spend at least a specified share of income on housing; 5 to 10 percent. This minimum requirement is established to ensure that households will tend to live in minimally adequate housing. The MSR is set at a level to permit occupancy of good quality. The program has not included a requirement that program participants live in housing meeting minimum standards, for example, meeting the definition of a unit "with comfort," because of the large share of the stock which fails such standards. However, it is important to create some pressure for households not to live in very poor quality housing; this pressure is required to offset the very strong incentives embodied in the payment scheme to seek out lower rent units (described below).

Subsidy payments equal the MSR when the household has no income, and subsidies decline as income rise. The "tax rate" on additional income (the household contribution rate,  $t$ ) is fairly low and thus should not be a strong disincentive to reporting additional income or to incremental work effort. This phasing out of subsidies ( $S = 0$  at  $Y = MSR/t$ ) is a definite improvement over the current Hungarian housing allowance program in which a household receives all or none of the subsidies depending only on whether its income is above or below the income cutoff.

These points are illustrated in Figure 3.1 which shows the relationship between subsidy level and incomes. On the horizontal axis two maximum subsidy levels are indicated by points A' and B'--both show the subsidy paid when the household has no income; the subsidy is the MSR. On the vertical axis, points A and B indicate the

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<sup>24</sup> As an alternative to adjusting income in this way, several countries adjust the parameter  $t$  by household size and income level. Such adjustments tend to make the payment schedule complicated and to cause subsidy payments to shift over time in ways that participants do not understand. In some cases the formulas are so complex that administrators are only given tables from which to read subsidy levels that depend on the household's particular circumstances. One important effect of this complexity is that participants respond only weakly if at all to incentives embodied in the payment schemes.

Figure 3.1  
Relationship Between Incomes and Subsidy in a  
Gap-Type Housing Allowance

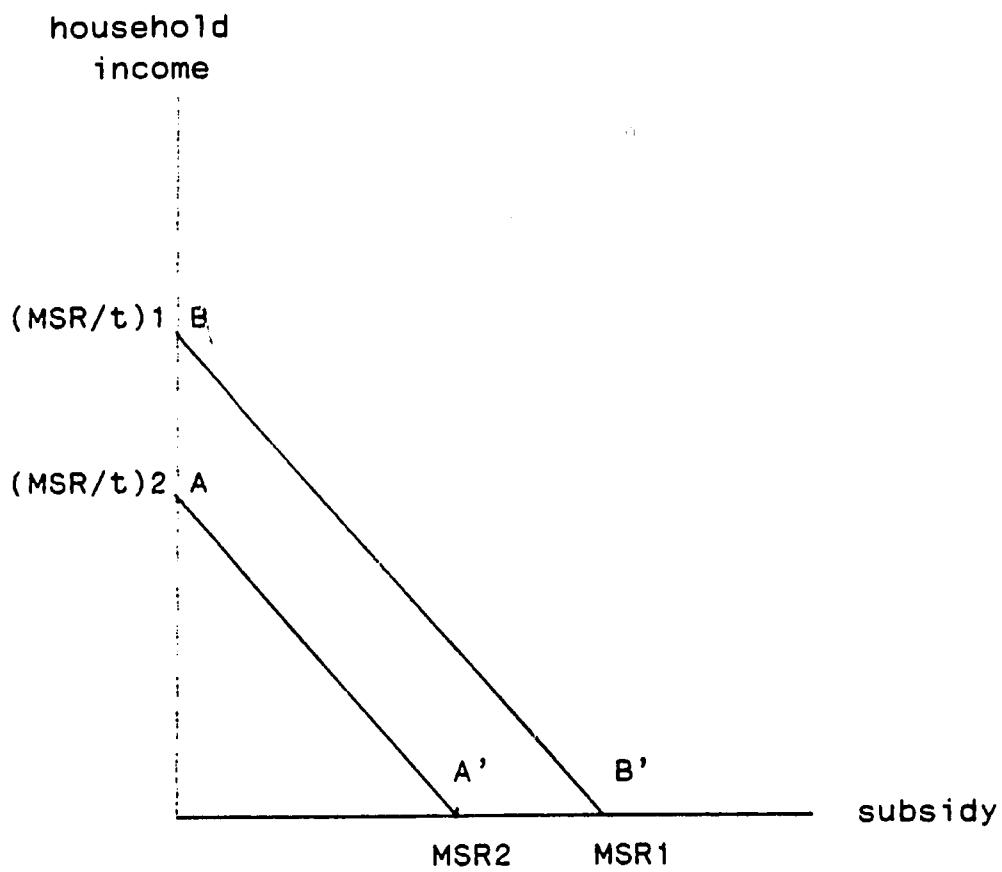
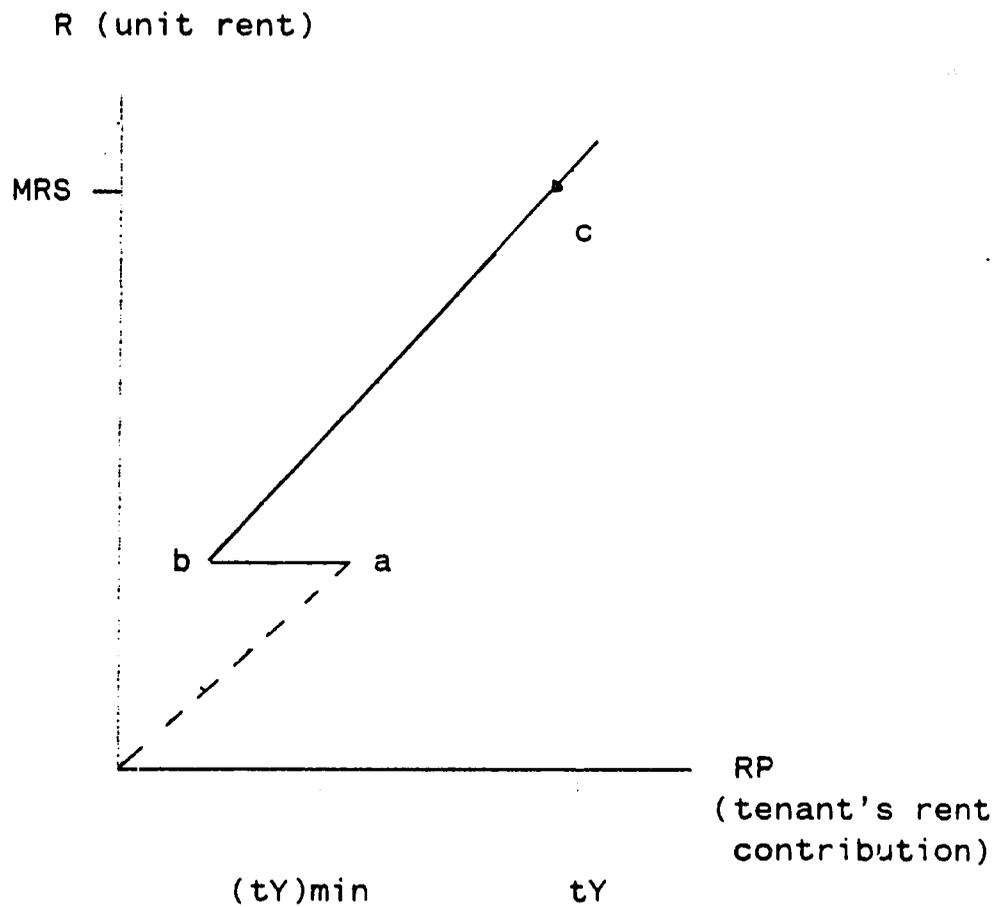


Figure 3.2  
Relationship between Actual Rent and Rent Paid  
by Participants in a Housing Allowance Program



maximum income a household can have and still receive a subsidy under two combinations of MSR and  $t$ . For point B, the MSR is higher than the corresponding value for point A.<sup>25</sup> Along the lines AA' and BB' the size of the payment rises by  $t$  times every forint reduction in income. Holding the MSR constant and raising  $t$  causes the intercept on the Y axis to fall, with the line pivoting on the MSR value on the horizontal axis which remains fixed; a change in  $t$  could, for example, results in a line joining A and B'.

In the actual program, the income eligibility limit for each household size in each housing market will be determined as MSR/ $t$  for the particular group. In the interest of simplicity, however, the limits will be announced as simple forint limits so households will have a reasonably accurate idea as to who is eligible.

It is especially important in the Hungarian context to distinguish among the subsidy payments in three initial housing situations. To explain these cases, two additional variables need to be defined:  $R$  is the actual rent charged for a unit, and  $RP$  is the rental payment net of subsidy made by the program participant.

Case 1:  $R = MSR$  and  $RP = tY$ . The participant selects a unit renting for exactly the MSR and pays exactly  $tY$  for it.

Case 2:  $R < MSR$  and  $RP = tY - (MSR - R)$ . This situation illustrates the case, for example, of a pensioner living in a "half comfort" unit or a family in a unit smaller than the one to which it is entitled, which rents considerably below the applicable MSR. In this instance, the participant pays less than the standard share of income for rent. In essence, society realizes that this person is living in substandard housing and should not be expected to pay a normal share of income for the unit. The housing allowance is paid in cash to the family provided they pay the minimum defined share of income for housing.

Case 3:  $R > MSR$  and  $RP = tY + (R - MSR)$ . In this case a family may occupy a well-located unit that is larger than that for which it qualifies. For example, the family is entitled to a single room unit but occupies three rooms.<sup>26</sup> This family must pay all of the rent above the MSR and more than the standard share of income for housing. This is the household's choice. (As discussed below, transition rules will be needed for households finding themselves in this situation at

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<sup>25</sup> For a detailed graphical presentation of housing allowances under a gap formula, see Chapter 3 of S. Kennedy and M. Finkel, Report of the First Year Findings for the Freestanding Housing Voucher Demonstration. (Washington, DC: Office of Policy Development and Research, U.S. Department of Housing and Urban Development).

<sup>26</sup> The number of rooms is defined exclusive of the bathroom and kitchen.

the time the combination of rent increases and housing allowances are implemented.)<sup>27</sup>

Figure 3.2 illustrates the relationship between R (the actual rent for the unit) and RP (the rent paid by the household) for a household of a given size and income. Up to point "a", which is the point at which rent accounts for the minimum share of the household's income necessary for it to satisfy the program minimum, RP and R are identical; i.e., the family does not participate in the program. Assume that the household moves to a better (higher rent) unit renting for a rent the same as "a" on the vertical axis. RP falls by the amount of the allowance payment, i.e., by the amount "ab" in the figure. Thereafter, increases in R result in a forint for forint increase in RP. At point "c", R equals the MSR and RP equals tY; the line segment "bc" is case 2 and point "c" is case 1, described above. Case 3 is above point "c". Note that if we drew this same figure for a household with a higher income, points "a" and "b" would be to northeast of the points now shown in the figure; and the new line "bc" would be lower but parallel to this equivalent line in this case.

The main point of these three cases is that housing allowances offer a method of protecting the lowest income families, while embodying sufficient flexibility to influence those assisted to make their housing choices based on actual market rents.

**Incentives for Participants.** The housing gap formula as just described incorporates four clear incentives to participants. First, those participants who initially occupy a unit larger than the standard under the program rules for their size and type of family receive a subsidy payment computed with the MSR for the smaller unit. As the participant must pay all additional rent above the MSR, it will have a strong incentive to move to a smaller unit; the incentive is in direct proportion to the rent above the MSR it must pay.

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<sup>27</sup> As a numerical example of case 2 and 3, consider the case in which  $tY = 500$  and  $MSR = 800$ , then

R	$ MSR - R $	RP
400	400	100
1,200	400	900

Second, there is a powerful incentive to the participant to find a unit which satisfies its needs at the lowest rent; similarly, it will resist rent increases for the unit it occupies, especially those above the MSR. This is the case because participant gets to keep all of any savings it realizes in reducing its rent (recall that the subsidy is determined independently of rent actually paid).<sup>28</sup> These funds can be spent on other goods, and in this sense part of the housing allowance can become an unconditional income grant. The "shopping incentive" should be an important factor in restraining rent increases as rents are freed to be market determined.

Third, there is an incentive for the participant to increase its housing consumption because its total income (regular income plus housing allowance) rises. The size of the consumption increase is determined by the income elasticity of demand for housing services. A large body of empirical work places this value at about 0.5, e.g., a 10 percent increase in income results in a 5 percent increase in housing consumption.<sup>29</sup> A significant increase in consumption has also been observed under housing allowance programs which included the same shopping incentive as just described; hence, some increase in housing consumption should be expected.<sup>30</sup>

The final incentive is for program applicants to understate their incomes and overstate their household sizes; particularly attractive is understating the number of adults with incomes and overstating the number of dependents. To the degree they are successful in either area, they will receive larger subsidy payments.

Between the understating income and overstating household size, the incentive is greater to overstate household size, since an increase of one adult could increase the

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<sup>28</sup> The ability to find a cheaper unit is limited by the program requirement that the household spend at least 10 percent of its income on housing.

<sup>29</sup> Malpezzi, Mayo, and Gross, *op. cit.*, and S. Mayo, "Theory and Estimation of Housing Demand," *Journal of Urban Economics*, vol. 10, no. 1, 1981, pp. 95-116.

<sup>30</sup> F. Cronin, "Consumption Responses to Constrained Programs," in R. Struyk and M. Bendick (eds.), *Housing Allowances for the Poor* (Washington, DC: The Urban Institute Press, 1980). This estimate is from the Housing Demand segment of the U.S. Experimental Housing Allowance Program. A major difference between this case and the current situation in Hungary is that the U.S. participants nearly always were spending much more than "t" percent of their income on housing at the time at which they joined the program. In Hungary, participants will have in the very recent past been spending much less than "t" on housing.

"program standard unit size" and hence the participant's subsidy by the difference in the MSRs for the two unit sizes. In contrast, the subsidy payment increases only by "t" percent of the income underreported; with the value of t set as low as .15 or .20, the gains from modest underreporting are quite small. Defenses against tendencies for applicants misreporting these basic data are discussed in the next section.

### **Implementation Issues**

In this section we discuss a series of issues which will arise when administrators move to make a reality of the conceptual program. First, we deal with how the program might be phased in. Secondly, we discuss technical problems of the housing allowance program. These include such items as the measurement of household income, setting the Maximum Social Rent, and the difficult issue of tenants' rights. Third, we analyze some broader issues of rental housing policy in relation to housing allowances.

The general concept guiding implementation is that the program parameters and rules would be established by the central government, through law and regulations issued by the Housing Office (Ministry of Social Welfare). In the larger settlements, the program would be administered by the local government, i.e., it would take applications for participation, verify incomes, and determine subsidy payments. For small settlements where training officials in program administration would not be efficient for the small number of participants, the county level field office of the Housing Office would administer the program directly. In all cases, however, those administering the program would be strictly bound by centrally-determined rules, unless a formal exception was received from the Housing Office.

#### **Introducing Allowances**

Phasing in the System. An initial three year phase-in period seems reasonable; certainly going much more quickly than this does not seem realistic in the Hungarian context. We propose that at the end of this period all rents be set at about 30 percent of today's market rent levels. As described in Chapter 4, current market rents are over ten times the rents in social housing. However, this is an artificial situation: supply of rental housing until very recently was restricted to the development of state rentals and the current demand for private rentals is concentrated among foreigners and higher income

Hungarians. The result is rents higher than the incomes of a substantial share of all current renters. Clearly this is not a stable situation. Over the next few years supply of private units should expand, and price increases as state rentals move into the market will be limited by effective demand. Given the rapid changes in the rent structure expected, our proposal is to move to about 30 percent of today's market rents in three years and then decide on next steps. There is simply too much uncertainty to propose a more definitive plan at this point.

The first principle of the phase-in is that the entire program and schedule be announced at the outset. This is essential to remove fear of the unknown and to give adequate time for making adjustments to those households who will be forced to move to smaller units when rents are raised. While the exact nature of the housing allowance program depends in part on reactions to the simulation results presented in the next chapter, a three year program is illustrated below.<sup>31</sup> Note, however, that in practice each of the "years" may turn into a longer period, depending on administrative and political problems encountered.

Year 1: In July 1991 a 100-200 percent increase in rents of state rental flats is implemented. The housing allowance system is introduced, with a household contribution of 10 percent of income required. The MSR is set as the rent on the average size (in square meters) of units with "comfort"; different size units apply to households of different sizes and composition. Any household spending over 10 percent of its income on housing can receive a payment as long as its income is less than MSR/t. For example, under a 100 percent rent increase for a household of the type whose "program standard unit" is 60 square meters, the MSR is Ft.1,920 and the income cutoff is Ft.19,200 per month.

Year 2: During the first six to nine months of year two (beginning July 1992), all units come under new one year leases which lock in the new rent for the length of the lease. One-sixth to one-ninth of the units would be scheduled each month, so that not all leases would expire at the same time. The timing of the new lease for a particular unit is determined by lottery. The rent specified in the lease is set based on its market rent (R). Generally, rents go to 15 percent of this rent. "t" is set at .15. In this and subsequent years, the household must occupy a unit

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<sup>31</sup> We emphasize the illustrative nature of this schedule. The current uncertain situation regarding the responsibility for housing policy between central and local governments makes any more concrete proposal impossible.

whose rent is equivalent to at least 10 percent of its income. As discussed above, this is to help insure participants occupy units meeting minimum standards.

Year 3: Beginning with this year, rents of all units are set at 30 percent of estimated market rents. "t" is set at .15 or .20. Decisions on subsequent adjustments are made during year three.

During the phase-in period, half of all state rentals that become vacant will be rented at market rates; the balance will be reserved for low income families and will have initial rents based on the rules just described. One advantage of having a significant number of uncontrolled rentals will be to facilitate monitoring changes in the structure of market-determined rents.

The choice of 30 percent of the 1990 market rents on private units is based on our analysis of these rents in relation to the share of income households could spend on housing, i.e., effective demand. (This is discussed further in Chapter 4.) In fact, the 30 percent of 1990 private rents is a target, and in Year Two the realism of this target will have to be reassessed in light of the distribution of rents on private units at that time.

#### **Technical Problems**

Measuring household incomes. Obviously a key program parameter is the income of the household applying for the subsidy. The income reported by the applicant affects both its eligibility for participation and, if it is eligible, the size of its subsidy payment. Initiating the program with procedures that are designed to encourage full reporting of applicant incomes is clearly important. The initial information for the certifying income can be the income tax record (if members of the applicant's household have filed one<sup>32</sup>), an income report from employed persons' employers, or the Social Security Fund payments for retired persons. All three sources might be employed for some multi-generational households, with self-employed and salaried workers. Households applying for allowances must give their consent for the Housing Office to obtain the necessary data from the Tax and other Offices.

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<sup>32</sup> A person need not file an return if his annual income is under Ft.50,000. Because of several tax exemptions, the present system is not well-suited to be the primary source of income verification data.

Even with these starting points, there is reasonable concern about the ability to measure incomes accurately. People change jobs, receive substantial in-cash payments for episodic work, and receive interest income from hard-to-monitor sources. In many industrialized countries such problems have not proven insurmountable, although all countries recognize the problem and take steps to minimize it. In Hungary, the presence of second economy incomes is an obvious problem. This is an issue deserving detailed attention as implementation continues.

Another area requiring attention is the household's wealth. It may be that, particularly among the elderly, there are low income households who have substantial assets. In some countries the imputed income from assets is computed at the rate of interest available on pass book savings accounts at commercial banks. To the extent that data are available on the relationship between incomes and assets, they should be explored prior to implementation to determine if eligibility tests need to take wealth as well as income into account.

Beyond strong attempts at discovering full incomes at the time of application and during the annual income recertification procedure, substantial penalties should also be assessed against participants found to misreport their incomes. Such penalties should be announced to program applicants and could include repayment of overpayments (with interest) for as much as three years and ineligibility for the program for a period of time. Hopefully, as citizens become more used to the new income tax and see a closer relation between taxes paid and services received--thanks to responsibilities and revenues assigned to local governments--fewer attempts will be made to hide income. Overall, there is a good chance that underreporting can be minimized through the combination of careful checking of applicant's incomes, accomplished in part through a rigorous training program of in-take workers, and significant penalties for cheating.

Household Size. Applicants have incentives to overstate the number of persons in their household in order to claim a higher unit size and, hence, subsidy payment. Under the present administration of state rentals, it has been easy to cheat in this area. Again, procedures will have to be devised to discourage misreporting.

Setting the Maximum Social Rents. Program administrators in the Housing Office will have to set a MSR for units of different sizes (measured by number of rooms) in

Budapest and in possibly as many as three or four other city size groups. Moreover, the MSR should be updated on a regular basis; certainly annually in a country with Hungary's 1990 inflation rate. How will they do it? The MSR is set for each housing type (size and settlement type) at a specific percentile of the rent distribution of units which meet the program's minimum housing quality standard (a unit having "comfort"). While there is no simple formula, in practice the percentile is based on several considerations:

-- the share of all renters who are eligible and likely to participate in the program; the greater the share, the larger the share of the rental stock that should rent at or below the MSR.

-- if encouraging participants to move to a unit meeting the minimum quality standard is a high program priority, then the MSR will be set at a higher level.

-- if residential mobility is expected to be low because of limited housing supply and therefore many participants living in "half comfort" and "no comfort" units are likely to remain there, then the MSR might be set at a lower level to minimize the cost of the program.

Because it is always difficult to reduce benefits once participants have begun receiving them, a wise policy is to set the MSR initially toward the lower end of the range thought to be reasonable; if too many participants are judged to rent units costing more than the MSR or participants do not show as much housing improvement over time as desired, then the MSR can be raised.

What data will be employed in making these estimates? When the housing allowance system is fully established, one of its supporting components will be an annual or bi-annual market survey which will collect data on rents, utility payments, dwelling quality, size, and other attributes for at least several cities.<sup>33</sup> In the first year or two a different procedure may be needed, as there may be a very limited number of units renting at market-determined rents and these units may be heavily concentrated in the upper end of the market. In this case the MSRs will be approximated through asking experts in the real estate market to estimate the value or sales price of units of different qualities and number

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<sup>33</sup> These data will be used directly in setting the MSRs. This survey could be expanded to include a sample of homeowners as well and thereby could be used in monitoring overall market trends and the housing circumstances of different types of households—an essential task during the transition of the housing sector and Hungary from a command to market economy.

of rooms in alternative locations (Budapest divided into several areas, and three or four towns of smaller sizes). The value data will be converted to rents using rent to value ratios for a sample of private rental units. This procedure has been followed in doing the simulations described in this paper and appears to be quite serviceable.

Paying for Housing Allowances. In the next chapter we show that within the current state rental sector housing allowances are "self financing," meaning that the increase in rental revenues exceeds the cost of the allowance payments--often by a considerable margin. It is possible, however, that over time the allowances will not "pay for themselves" because low income households renting units from private landlords will become participants in increasing numbers. In this case, subsidies will have to be provided by government.

Three clear options exist for financing this new program. First, it could be completely funded by the central government, on the grounds that it is the level of government which most logically funds this type of "social safety net" program. Housing allowances will redistribute income, both between communities as well as within them. Central funding and use of the same program in all areas of the country ensures equitable treatment for households in this critical aspect of consumption.

Second, a prominent role for local government appears to be called for by the Local Governments Act which assigns them primary responsibility for housing. Moreover, they, as owners of the state rental units, will be the recipients of much of the increased rental revenue. On this basis, a sharing of the cost of the program between central and local government seems warranted. The specific sharing rates should be determined in light of the expected increases in revenues--a topic addressed in Chapter 4.

Finally, the third option is for local governments alone to pay for a housing allowance program. This has the appeal of local control, since some cities could opt not to fund allowances; but it has the distinct problem of introducing perhaps sharp inequities in the quality of life of lower income households based simply on where they happen to live.

### **Relation to Broader Housing Policy Issues**

Tenants' Property Rights. The issue of how to treat the rights of current tenants for continued occupancy of their units is possibly the most vexing housing problem confronting

Hungarian policymakers. Implementation of the allowance system could be consistent with several approaches to this problem, but we will not review them here. Rather, we briefly described what we perceive to be the best option--in the sense of striking a realistic balance among competing interests.<sup>34</sup>

This option begins with two premises: (a) it is not possible to reliably determine how current occupants obtained their flats and it is therefore impossible to assign accurately different degrees of property rights; and (b) the general principle for selling units and buildings in the future is to charge market prices. As a consequence, any provision for a sales price discount applies to all (but only) current occupants of state rental units. In recognition of the rights now possessed by the tenants, current occupants will be offered a 20-30 percent share of the value of the flat.

This equity can be accessed in one of two ways during the two year period during which the housing allowance program is being phased in. First, the tenant can purchase the unit for 70-80 percent of its market value. Purchasers can apply for the same mortgages available to other home purchasers and under the same conditions.<sup>35</sup> (The installment sales at 3 percent interest are ended.) Second, and alternatively, the tenant may decide to give back the flat to the community (but continue to occupy it); in this case the household will receive 20-30 percent of the market value in cash or in the form of a state bond which can be used by the same household as cash for home purchase. (Use of the bonds would contain the increase in general purchasing power--and hence inflation--caused by the state making these purchases.) After this two year transition period, tenants lose their property rights, including the right to transmit the unit to an heir.

Tenant Protections. As described, occupants of state housing in Hungary have enjoyed extraordinary protections against losing their units. Failure to pay rent, which has

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<sup>34</sup> This position is enunciated in J. Hegedus and I. Tosics, "Reform of the Housing System." (Budapest: Metropolitan Research, 1990), and in R. Buckley et al., "Housing Policy Reform in Hungary" (Washington, DC: The World Bank, draft, 1990). For a more general discussion of selling social housing, see H. Katz and R. Struyk, "Selling Eastern Europe's Social Housing Stock: Proceed with Caution" (Washington, DC: The Urban Institute, report 6062-3A, 1990).

<sup>35</sup> If such loans continue to be subsidized, the tenants would be eligible for these subsidies as would any other purchaser.

been very rare,<sup>36</sup> can in principle subject the tenant to being removed to low quality "emergency housing".<sup>37</sup> For all practical purposes, however, such cases have not arisen.

The substantial increase in rents for most units associated with the shift to market-determined rents will increase the incidence of rent arrears. Dealing effectively with such situations will have a fundamental impact on the sustainability of the program: those not paying will ultimately have to be removed from their units. However, there are more and less humane ways to deal with this problem--one that applies to all renters, not just to housing allowance recipients.

One possible system is as follows. First, when the rent increases are introduced and incorporated in his lease, each tenant has a period of four to six weeks to declare that he is not able to pay the higher rent. In this case, he is given a period of six to twelve months from the date of the lease to find a more suitable unit. The local council would provide such help as it can by operating a clearinghouse among both tenants who want smaller units and those seeking larger units. Second, if the tenant is unable to find the unit during the stipulated period, he will be forced to move to poorer quality unit which the local council will have the responsibility for finding.<sup>38</sup> The eviction process would be initiated by the management agent who would report to the owner (the local council) the fact that the tenant is still in the unit at the completion of the grace period. The council is then responsible for initiating and pursuing the legal procedures necessary to permit the household to be moved. As long as the tenant remains in the unit, the council must pay the higher rent to the management agent on behalf of the household.

If the local council acts with alacrity and determination in helping to find units and implementing the eviction procedures, the foregoing is a workable solution. However, under political pressure local governments may be laconic in carrying out these duties, in which case an ever increasing number of renters will join the ranks of those declaring they

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<sup>36</sup> For example, in Budapest during the years 1986-1988 rent arrears were less than 1 percent of the rent roll. Hegedus and Tosics, "The Hungarian Rental Sector..." Table 8, p.27.

<sup>37</sup> Under this situation the tenant is repaid the difference between the key money on the flat which he leaves and the new flat occupied.

<sup>38</sup> If the household finally decides to pay the higher rent, he must then pay the higher amount for the preceding period. Also, note that because property rights would have been resolved as described earlier, no repayment of key money would be necessary.

cannot pay market rents. Obviously problems for the local council will also materialize if it cannot find a sufficient number of cheaper units to which to relocate those households unable to pay the rents of their current units.

Privatization of Management. Rents in social housing will be increased several times over the next few years. It is reasonable for tenants to expect some increase in services in exchange for these large rent increases; indeed, willingness to pay higher rents may depend on improved services. It is, however, an open question as to whether the monopolistic IKVs will meet this challenge, even with the financial resources available for maintenance and operations rising substantially. Even if there were some improvement, it may well be less than that possible if firms were competing to be managers of individual buildings or projects.

Promotion of real competition in the rental market requires that tenants dissatisfied with the services they receive or the rent they are charged have the realistic possibility of moving to another unit. At present the rental housing market is very tight in Budapest and in some other cities as well. These conditions make it difficult for households to exert pressure through the threat of changing units. Hence, some alternative way, at least in the short term, of introducing competition among housing managers is needed.

One plan for organizing the introduction of private management to social housing is as follows.<sup>39</sup> The local council as the owner of the stock enters into contracts with companies for the management of "housing projects," i.e., projects are individual buildings or groups of buildings large enough to permit reasonable economies, perhaps 100-150 units in each project. The local council selects the management company for each project through a competition in which the council selects three or four firms (possibly including the IKV) to compete to manage the project. In a meeting of the project's tenants, the companies each outline their plans for managing the project, i.e., the services to be provided, based in part on the information on expected revenues and budget provided to them by the local council. The tenants would then select the company by vote. For the first two or three years, this type of competition would be repeated annually, with the tenants presumably turning out companies that perform poorly.

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<sup>39</sup> This is described in greater detail in Annex B.

The company would be paid a management fee defined as percentage of rent collected; the fee is established in advance of the competition. Revenues in excess of expenses negotiated with the local council and the company's fee go to the council as the owner. The council would decide whether to use the net revenues received to rehabilitate or replace buildings in poor condition; presumably these decisions would be made on a financially sound basis, i.e., on whether the post-rehabilitation market rents (including allowance payments) would cover the cost incurred. The council would also have to determine what to do with project whose market rents do not cover costs.<sup>40</sup>

Private management should be phased-in over a several year period. Beginning with a few projects under private management and gradually adding more has the distinct advantage of allowing time for new firms to form and for the staff of the local councils to develop experience in selecting firms, running the competitions, negotiating contracts, and controlling the management companies under contract. To make the outcome of such a plan successful in the early years will likely require the provision of substantial technical assistance to both the local council and the nascent private management companies.

Social Segregation. Although the MSR is designed to permit program participants to occupy a substantial share of all housing units with a "comfort" quality level, this does not mean that they will be able to rent units in the best areas or best buildings without paying a rent above the MSR, and thus be spending more of their own income to live in these very desirable units. It is possible, therefore, that over time greater income segregation among buildings and neighborhoods could evolve than is presently the case.

Clearly, the first step should be to determine the current degree of income integration in different neighborhoods; such data are not now available. With this baseline information in hand, trends could be monitored. If tendencies toward increased inequality develop, they can be combatted through action by the local council. In particular, the council could establish a higher MSR for certain areas of its city. The number of such "exception rents" would be limited so as to restrain program costs and to achieve only the desired share of lower income households in such areas.

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<sup>40</sup> This number is expected to be small. Since there is no debt service on the buildings, revenues only have to cover operating and maintenance costs.

## **Conclusion**

The foregoing suggests that some of the details of the housing allowance program will depend on other aspects of the housing policies Hungary adopts. The introduction of an allowance system while conceptually straightforward will be administratively demanding in the first several years. The Housing Office will have the lead in working out the details, including procedures for certifying incomes and establishing Maximum Social Rents, and in providing training and technical assistance to local councils for its implementation.

#### 4. Simulation Results

This chapter presents our findings from simulating a housing allowance in Hungary. Because there has been little prior work done on housing allowances, it has been important to experiment in these simulations with a range of combinations of the key parameters. All the results, however, are for the "housing gap" model described in Chapter 3. In addition, uncertainty about some of the data inputs made some additional sensitivity analysis prudent. As a result of these two factors, there is quite a large volume of findings to summarize.

The principal data employed are from a household-level data file containing information of each household's demographic and economic situation, the type and size of the housing occupied, and expenditures on housing. The file also indicates where the family lives--in this analysis, for units located outside of Budapest size of community was important, while within Budapest districts of the city were placed in three groups. The file, which contains about 3,200 observations on households living in state rental units, was prepared by the Central Statistics Office especially for this project, based on income and expenditure surveys conducted in 1989.<sup>41</sup> Each observation on the CSO file represents the same number of households in the Hungarian population; so the tabulations are self-weighting.

The presentation is in three parts. First, the cases analyzed are outlined, including various assumptions that we made. Second, the results for the first year of implementing the allowance are described. Recall that in the first year the administratively set rents are

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<sup>41</sup> See Annex C for a further description. Note that these data were found not to be representative of the state rental housing stock when compared with distributions for the number of rooms and unit sizes from program data. In particular, the CSO data substantially over-represented smaller units especially those with 1.5 rooms. No explanation for these differences was available from CSO staff. Reweighting the data on state rental units to be consistent with the program data was considered. However, this was not done because it was feared that this would introduce serious biases into the income distribution--the distribution to which CSO paid the greatest attention when creating the data set. Another problem with the CSO data was that they systematically overstated the floor space of rental units. The floor space figures, which do not enter into the computation of the MSR for Year Three but do for Year One (as described later in the text), were replaced with the average floor for units with a specific number of rooms using data on the state rental stock independently compiled. Annex C provides details on these problems.

simply increased by 100-200 percent on all units. Third, the results are presented for the third year of the phase-in period. (Again, these "years" may turn out to be longer periods.) In discussing the results, particular attention is given to the profile of participants and the impact of the program on different types of households.

### **Outline of the Analysis**

Because the simulations differ between those for the first year of implementing allowances and those for the third year, in which market-determined rents are used to set rents, the two sets of simulations are described separately. There are, however, a couple of points in common to all the simulations. One is that they only include state rental flats; units tied to jobs and private rentals are excluded. The results presented are inaccurate to the extent that renters of private accommodations are eligible to participate in an allowance program. However, at the current time not even the general size of the private rental market--legal only since 1989<sup>42</sup>--is known.

The second common feature of the simulations reported here is they all assume a 100 percent participation rate among eligible households. In other countries participation rates are considerably lower. In the Netherlands, for example, a 75 percent participation rate is reported, which is considered very high by international standards.<sup>43</sup> Despite this information we elect to use an assumption of full participation for three reasons: the reportedly high, but not carefully documented, response to the simple housing allowance program introduced in Hungary in February 1990; our desire to produce conservative estimates of the cost of introducing an allowance system; and, the presumption that a non trivial number of households with incomes above the eligibility limits will succeed in becoming program participants by understating their incomes. In short, we expect a high "take up" rate in general, and that participation by some households with incomes above the program income limits will offset the lack of participation by those households who decided not to apply for the program for whatever reason.

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<sup>42</sup> This refers to the "free private rental" sector, different from the "administratively regulated private rental sector" which existed from 1952 with strict central control of rents.

<sup>43</sup> See H. Priemus, *op. cit.*

The First Year. For Year One, twenty-seven different cases were analyzed, nine in depth. These cases are composed of three variants on each of three key parameters:

Rent increases of 100, 150 and 200 percent; this range was included in part to see how sensitive the results were to changes in R as well as to explore the feasibility of a rent increase larger than 100 percent in the first year.

"t" values of .10, .15 and .20; exploration of this parameter is essential as it directly affects eligibility as well as the subsidy payments.

Income increases between 1989 and 1990 of 15, 20, and 25 percent were simulated.

Increasing incomes to 1990 levels was necessary because the rent schedule for state units was increased for units with "comfort" by 25 to 45 percent in February 1990.<sup>44</sup> It was important to update rents for this current rent schedule as the baseline for computing changes in the rent burdens of households as rents were increased to market levels; otherwise, the increases would have been artificially inflated. While the size of the rent increase was known with precision and could be applied to individual units, the increase in household incomes was not. The three values selected for increases in nominal incomes are believed to bracket reality; all imply a decline in real incomes during 1990 when inflation was running at an estimated 30 percent annual rate. All nine of the cases examined in detail employ the conservative assumption of a 15 percent increase in household incomes. Utility payments were also updated to 1990 based on price increases announced since the surveys were completed. Hence, all the results presented apply to households as of 1990.

In fact, as described below, the results are quite insensitive to the different increases in household incomes in 1990. Therefore, the discussion concentrates on the nine cases defined in Table 4.1 that are formed by three household contribution rates and three rent increases.

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<sup>44</sup> In addition, at this time tenants were made completely responsible for repairs and improvements to the interior of their units--a cost formerly shared with the state management companies (IKVs). There are no estimates of the cost passed to the tenants from this action, but it is believed to be significant.

**Table 4.1**  
**Summary of Year One Cases Simulated**

household contribution -----	dR=100% -----	dR=150% -----	dR=200% -----
10%	case 1	case 2	case 3
15	case 4	case 5	case 6
20	case 7	case 8	case 9

Note: All cases use a 15 percent increase in 1990 household incomes.

Several other parameter values are important for determining eligibility and computing subsidies. First, program income eligibility is determined as MSR/t. Second, for the first year, the requirement that households must spend a minimum share of its income to participate is not applied, as it may make poor households living in very low quality housing ineligible. In the short term, these households would have almost no opportunity to shift to better (higher rent) units. Third, no special adjustments of reported income have been employed in computing subsidy amounts. This refinement can be added at a later stage, should it be deemed important.

The MSR is set as the rent of a unit with "comfort" of the size the household was judged to need. Table 4.2 shows the number of rooms households of different sizes were assigned under the program. In the table the maximum and minimum values are taken from the unit assignment schedule that has been the standard for assigning households to state rental units. The housing allowance "program unit size" is the mid-point between the maximum and minimum values.<sup>45</sup> One person households are assigned a 1.5 room unit--the

<sup>45</sup> The MSR was actually computed based on the average number of square meters in units of each room-size category (as reported in independently compiled data) multiplied by the new rent level for a unit with comfort. Further, the MSR was set at the 40th percentile of this distribution of rents. Note, however, that because of the bias in the CSO data mentioned in the first footnote in this chapter, that this rent distribution differs from that of the actual stock. The

same size as two person households. This size, rather than a single room, has been assigned on the ground that it will permit an elderly widow to remain in the same unit occupied by her and her husband at a reasonable rental contribution. Of course, adopting the tighter one room standard would result in lower subsidies.

**Table 4.2**  
**Schedule Used in Assigning Households of**  
**Different Sizes to Units Under the Housing Allowance**

household size	number of rooms		
	under social housing		under the housing allowance
	minimum	maximum	
1	1.0	2.0	1.5
2	1.0	2.0	1.5
3	1.5	2.5	2.0
4	2.0	3.0	2.5
5	2.5	3.5	3.0
6	3.0	4.0	3.5
7	3.5	4.5	4.0
8	4.0	5.0	4.5
9(a)	4.5	5.5	5.0

a. Under current rules, the local council is instructed to use its discretion in assigning units to very large households.

Market Determined Rents. Obviously, the most crucial difference between these Year Three simulations and those for Year One is the use of estimated market rents. Fortunately, there is a lively, if limited, private rental housing market and a large private sales market in Hungarian cities which made it possible to obtain at least a provisional

impact of this difference on the results is discussed in Annex C.

estimate of market rents. The team believed that it was necessary to obtain rents differentiated along four dimensions: size (square meters of floor space), number of rooms, quality ("comfort") level, and location. In fact, ten size categories, seven number-of-rooms categories (increasing by one-half room increments), five degrees of comfort, and five locations (three within Budapest, other cities, and villages) were defined.

Estimates of rents on private rentals in these categories and on the sales prices of the same unit type were obtained from eight brokers. Sales price information was obtained because more brokers are knowledgeable about sales prices than rents. These data were used following the procedure described in Annex E to develop rents on a compressed number of unit types compared to the large number implied by the categories listed in the previous paragraph. Obviously, a good deal of judgment was involved in deriving this distribution; however, we believe that the distribution should be generally representative of current market conditions.

Estimated 1990 market rents for a two room unit (plus kitchen and bathroom) for different comfort levels are presented in Table 4.3. These figures indicate very large differences by location--a factor only slightly reflected in the present administratively determined rent structure. For example, market rent levels in cities are only about 80 percent of those in the Budapest "B" districts and 60 percent of those in Budapest "A" districts. Similarly, there are sharp differences with quality level, particularly in the best districts of Budapest. The ratio of the rents of the highest to lowest quality levels are shown in the last row of the table: for most of Budapest and cities the ratio is about 2.0; for Budapest "A" the ratio is substantially higher (2.5), and it is somewhat lower in villages (1.82). In contrast to this range, the ratio in the administratively set rents is 4.9. Hence, compared to the private market, the current system massively underadjusts rents for differences in location and overadjusts for differences in quality.

**Table 4.3**  
**1990 Market Rents for a Two Room Unit**  
**by Quality Level and Location**  
**(forints per month)**

<u>quality level</u>	location				
	Bp.-A	Bp.-B	Bp.-C	Cities	Villages
comfort & central heat	31500	23625	20475	18900	12600
comfort & modern heat	28350	21263	18428	17010	11340
comfort & traditional heat	26775	20081	17404	16065	10710
half comfort	20475	18428	16380	14333	11261
no comfort	12600	11340	10080	8820	6930
ratio: highest to lowest quality	2.50	2.08	2.03	2.14	1.82

Notes: "Bp." stands for Budapest. Definitions of the districts included in each part of Budapest are in Annex E. Definitions of "comfort" levels are in Annex A. Units with "full comfort" are the first two categories shown listed in the table.

Source: authors' calculations based on data provided by real estate brokers. See Annex E for details.

There is, of course, a fundamental concern about these estimates of market rents. They imply market rents ten times or more greater than current administratively-set rents. Because the private rental sector is small and still developing rapidly, rentals are in short supply; and renters in the private market are drawn heavily from the foreign and higher income Hungarians. Consequently, the observed market rents may overstate those that will be in effect in even a couple of years once supply has had a chance to respond to

demand.<sup>46</sup> As noted in Chapter 3, it is for this reason that during the three year phase-in period we have set  $.3R$  as the target, where  $R$  refers to 1990 market rents. By Year Three supply will respond holding down rent increases; moreover, the limited effective demand by many renters in state rentals will prevent rents in these units going up much beyond the  $.3R$  level, a level at which the mean ratio of rents to income is about  $.25$ . It may well be that in the fourth or fifth year, all rent controls can simply be eliminated. Obviously, it will be essential to monitor very carefully rent patterns and trends among private rentals during the first few years allowances are introduced.

The MSR is based on the distribution of market rents for units "with comfort". The values assigned to the MSR critically affect housing subsidy levels, the rents actually paid by participants from their own resources, and the share of all renters who are eligible to participate. To explore the impact of different MSR levels, results for three different MSRs have been simulated: those with the MSR set at the 40th, 50th and 60th percentile of the distribution of rents of units with comfort. Separate MSRs are used for units of different size (number of rooms) and for two geographic areas: within Budapest and outside of Budapest.<sup>47</sup>

Estimates are made for two values of the household contribution rate, "t" (.15, .20). In considering this range of values for "t" one should recall that the MSR excludes utility payments. In 1990 utilities accounted for about 5 percent of the income of households likely to participate in a housing allowance program.<sup>48</sup> The government has announced its plan to raise energy prices to market levels during the 1991-1993 period. Hence, utility

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<sup>46</sup> There are a couple of special aspects of the current private rental market, particularly in Budapest, that are worth noting. First, because there is a shortage of high quality hotel rooms, there is a substantial (and lucrative) market in very short-term apartment rentals to tourists. As hotel capacity is built up, this market will diminish and these units, estimated by some to constitute 20-25 percent of the private rental market, will become available to Hungarians. Second, the prohibition against individual foreigners owning property also has pushed them into the rental market. When they are able to purchase, these households will also leave the rental market.

<sup>47</sup> In an actual operating program, it would probably also be necessary to differentiate further among settlements of different sizes outside of Budapest. On the other hand, retaining Budapest as a single market area is appropriate, since Budapest is indeed a single housing market, and the single MSR structure is neutral in affecting participants' choice of selecting a small, well located units or a larger unit in the suburbs for the same rent.

<sup>48</sup> See Annex Table D.1.

costs as a percent of income will very likely rise. In determining which value of "t" is preferred for the housing allowance program, one should remember that total housing expenses will be the payment for housing (roughly "t") plus utilities at 8 to 10 percent of income.

In these simulations, participation in the program is conditioned on the household spending a minimum share of income on rent to ensure minimum housing consumption. This share has been set at 10 percent, except for the case in which  $t=10$ , when it has the value of 7 percent.

All analyses assume a conservative 15 percent increase in household income in 1990. The results are for 1990; that is we simulate what the situation would have been if rents in state rental units had been fully shifted to market levels in 1990. Alternatively, these results can be thought of as being for the final year of the phase-in period, and that over the period real incomes had not changed from their 1990 levels.

There is an important limitation to this analysis in that it does not take possible housing adjustments into account. One certainly expects many "overhoused" families to reduce their housing consumption in response to sharply higher prices. This should be particularly true of lower income families in this situation, since remaining in a larger unit will have even greater adverse consequences for them (as a percentage of income) than for higher income families. Indeed, based on 1980 survey data, Daniel and Semjen report a sharp increase in willingness to move of households living in state rentals in response to large (250-500 percent) rent increases.<sup>49</sup> The phase-in procedures outlined earlier are designed to encourage exactly this type of adjustment; even so, in a tight rental market such as Budapest, housing search will be difficult. Unfortunately, we have not been able to include shifts of households among dwellings in the simulations. To the extent that overhoused participant families do move to smaller units, the estimates of the ratios of household rent payments to income we present are overstated.

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<sup>49</sup> Z. Daniel and A. Semjen, "Housing Shortage and Rents: The Hungarian Experience," Economics of Planning, vol. 21, no.1, 1987, pp.13-29.

## Year One Results

The principal findings for the simulations of the first year during which housing allowances are being phased in can be summarized as follows:

- Participation rates (i.e., the percentage of renters who are eligible to participate), the importance of subsidy payments to participants, and total program costs are all quite sensitive to the share of income which households must contribute to rent, i.e., "t".
- Program costs are not high. In the most extreme case--imposition of a 200 percent rent increase above 1990 rent levels, with  $t=.10$ --program costs amount to Ft.4.7 billion or 19 percent of the total rental revenue from the stock. Under a 100 percent rent increase, total subsidies are only Ft.1.3 billion.
- Nevertheless, because the subsidies are focussed on the poorest renters, they make a significant difference to the economic situation of participants. Typically, payments account for 25 to 30 percent of unit rents.
- Subsidy payments are distributed among participants in ways that show a very strong targeting on need. Eighty percent of the subsidies go to households in the lower half of the income distribution; half go to those with eight or fewer years of schooling; and two-fifths are received by households without a working family member.
- The share of income which households not eligible to receive a housing allowance must spend on rent is not extreme, even for those who are "overhoused", i.e., living in units for which  $R > MSR$ . Under a 200 percent rent increase, such households would spend about 15 percent of income on housing.

In presenting the results in detail, findings for all participants under alternative program designs are given first. We then describe how different types of households are treated, and finally we contrast outcomes for participants and non participants.

Variations with Program Design. The simulations explore the variation in outcomes with changes in three key assumptions: the share of its income a participant household must contribute to rents ("t"), and the size of the rent increase administratively imposed in the first year.

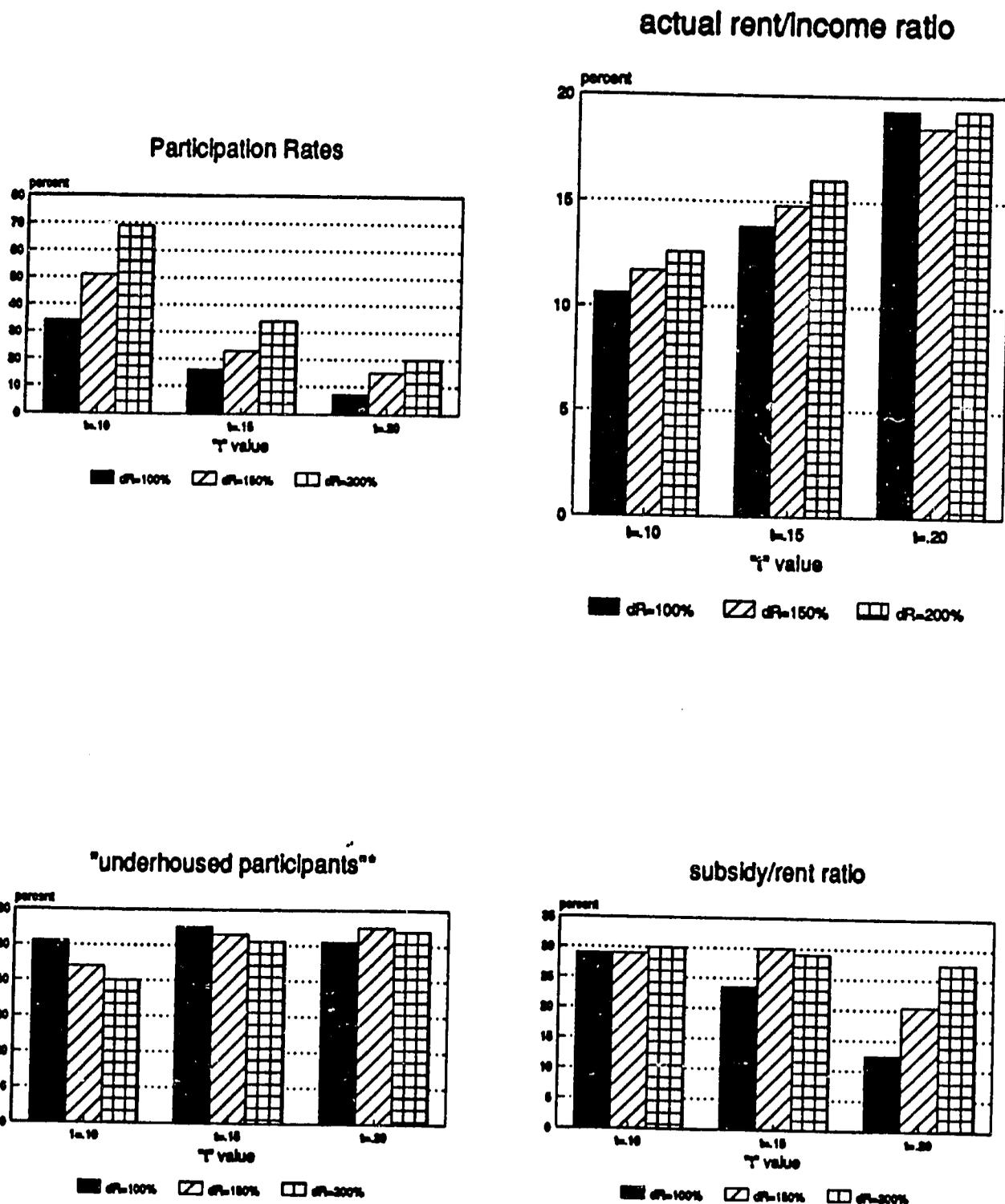
We begin with an examination of the impact on participation and average per beneficiary subsidy level of changing the size of the rent increase and the value of "t". These results are summarized in Figure 4.1.<sup>50</sup>

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<sup>50</sup> Detailed data for Year One results are presented in Annex Table D.2.

Figure 4.1

Year One Outcomes of Housing Allowances  
Under Different Household Contribution Rates  
and Assumed 1990 Rent Increase



\*families with R < MSR

Participation rates--the share of all renters of state flats who are eligible for and assumed to join the program--decline sharply with increases in the value of "t". For the case of a 200 percent increase in rents, the range is from 69 percent ( $t=.10$ ) to 20 percent ( $t=.20$ ), or from 503,000 to 142,000 participant households. This general result is expected since the income limit for participation is determined by  $MSR/t$  for each household size; still, the magnitude of the reduction is striking. Participation is also sensitive to the size of the rent increase. For example, participation rates of a rent increase of 200 percent are about twice as high as those of a 100 percent rent increase. For program designs with a high "r" value and a 100 percent increase in rents, participant rates are quite low--7 percent for  $t=.2$ , and 16 percent for  $t=.15$ . On balance, participation is more sensitive to changes in  $t$  than in the size of the rent increase.

The chart in the upper right-hand corner of the figure shows the ratio of participants' actual rent payments to incomes under different program designs. For example, in the case of  $t=.10$  and a 100 percent rent increase (the first bar in the chart), participants, average rental payment after subsidy is about 10 percent of income. The chart clearly demonstrates the way in which the housing allowance program can insulate participants from spending an increasing share of their incomes on rents as the overall rent structure rises. Participants are largely protected by the  $MSR$  rising with the rent increase. For  $t=.10$ , as the rent increase doubles from 100 to 200 percent, the average participant's rent payment to income ratio increases by 19 percent, i.e., rents rise from 10.6 to 12.6 percent of income. Given that the  $MSRs$  have been increased proportionately, most of this increase is due to changes in the composition of the participant population, and the extent to which they are over- and underhoused. The degree of the insulation is more evident when one realizes that in the absence of the housing allowance program a 200 percent rent increase over 1990 rents would cause the average participant to spend 18 percent of its income on housing (under  $t=.10$ ).

Actual, after subsidy rent payments are the average for households who are overhoused, those underhoused, and those living in the "program standard unit" for a household of their size. Many participants are currently living in smaller and lower quality units than the program standard. The lower left-hand chart in Figure 4.1 shows that about half of participants are occupying units that are smaller or of lower quality than the

program standard (these are units for which  $R < MSR$ ).<sup>51</sup> As shown in Chapter 3, these families receive a cash "credit" equal to the difference between their unit rent ( $R$ ) and the MSR, which is subtracted from  $tY$  in computing the "actual rent paid." On balance, however, the extent of the overhousing outweighs underhousing for the eligible population defined for  $t=.10$ ; consequently, actual rents account for more than 10 percent of income on average. On the other hand, the populations defined at the higher values of " $t$ ", the balance is slightly in favor of underhousing; and the actual rent income ratios are slightly below the value of " $t$ ".

The chart in the lower right-hand corner of the figure shows the average ratio of subsidies to rents for participants for each of these cases. There is a very general pattern of subsidy rates declining with higher values of " $t$ ". This is expected since as " $t$ " rises the participant must contribute more of its own income to rents (prior to any reduction for living in a unit below program standards). The pattern is not a simple one, however, because the increase in " $t$ " also reduces the income limit for participation thereby lowering the average income of participants and raising the average subsidy payment. For the 100 percent rent, as the value of " $t$ " increases, the higher required household contributions dominates the "deeper subsidy" effect; and subsidies decline as a share of rents. But for the higher rent increases, the "deeper subsidy" effect is more pronounced; and there is little decline in the subsidy-to-rent level at higher values of " $t$ ".

The magnitude of subsidy payments is masked by the data in the charts on subsidies as a percentage of rent. For the case of  $t=.10$ , under the 100 percent rent increase the average participant receives Ft.5,164 annual subsidy payment. Under a 200 percent rent increase the average subsidy increase to Ft.9,853 and the number of participants doubles. However, because higher income households are brought into the program as the MSR is increased, subsidy payments as a percent of rents remain essentially constant.

These observations lead to the obviously important point of the overall costs of implementing the allowance program. Data on the aggregate cost of a housing allowance program under various designs are given in Table 4.4. The message is straightforward:

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<sup>51</sup> Households which have  $R=MSR$  are categorized as "overhoused" in these tabulations, i.e., the emphasis is on identifying households unambiguously underhoused.

none of the designs being considered is very expensive in Year One. The most costly design--a 200 percent rent increase with a household contribution rate of 10 percent (t=.10)--would cost about Ft.4.7 billion. This represents only 28 percent of the

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**Table 4.4**  
**Aggregate Subsidy Levels and Subsidies as a Percent**  
**of the Increase in Rents Under Alternative Program Designs**

A. subsidies in Ft. billions

dR	t=.10	t=.15	t=.20
----	-----	-----	-----
100%	1.3	.4	.1
150	2.7	1.0	.4
200	4.7	1.9	.9

B. subsidies as a percent of the increase  
in rent revenue

dR	t=.10	t=.15	t=.20
----	-----	-----	-----
100%	15.6	4.8	1.2
150	21.7	8.0	3.2
200	28.2	11.4	5.4

Note: results based on assumption of 1990 increase of household incomes of 15 percent.

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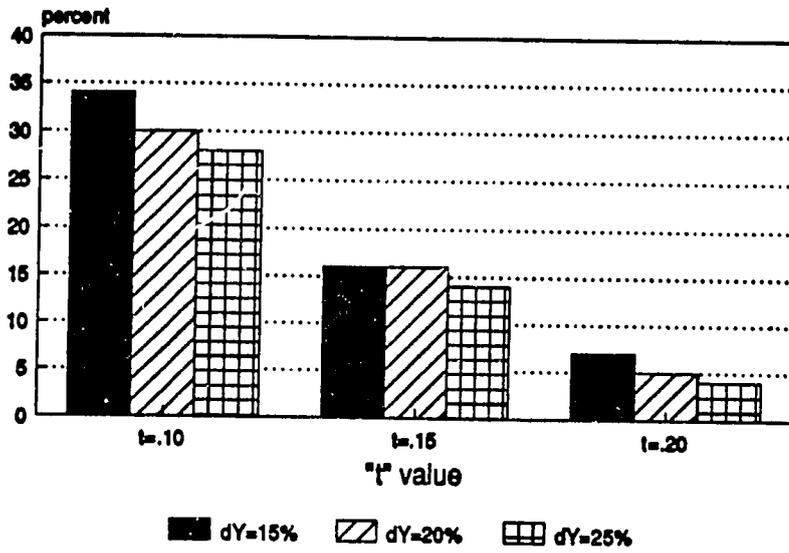
increase in rental revenues of Ft.25 billion. This suggests that allowances could easily be financed from rent increases at least in Year One. (As noted earlier, these revenue and subsidy figures are for state rentals only; the addition of renters in private units would raise subsidy costs but leave revenues on state units unchanged.)

Figure 4.2 presents the same charts as the previous figure for participation rates and ratios of actual rent to income, but this time the extent of the 1990 increase in household income is varied from 15 to 25 percent, while the rent increase is held constant at 100 percent. The striking finding is how little impact differences in income growth of this

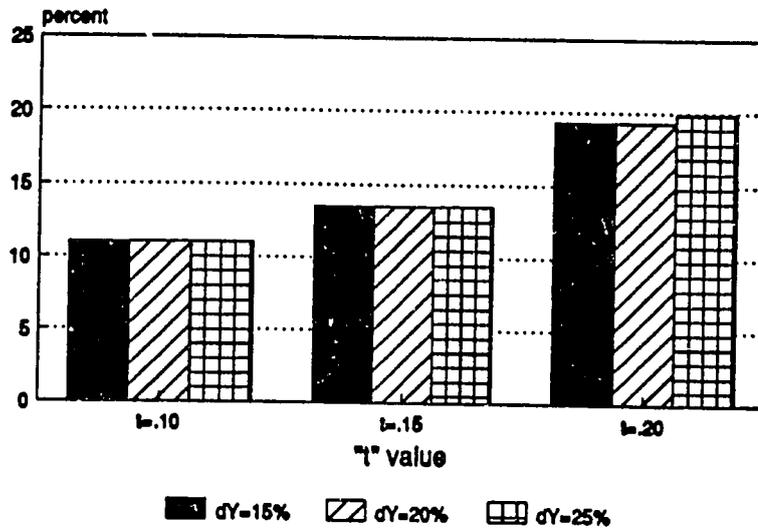
Figure 4.2

Year One Outcomes of Housing Allowances Under Different Rent Increases and Housing Contribution Rates

Participation Rates



actual rent/income ratio



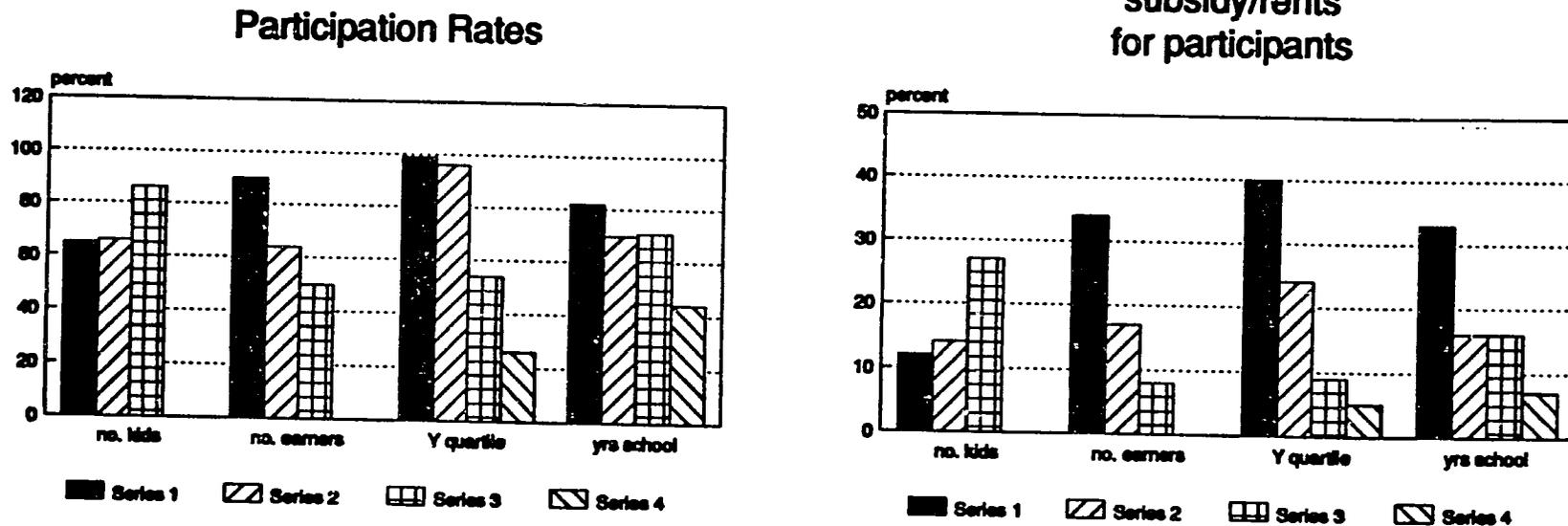
magnitude have on the results. Importantly, this also indicates, at least over this range of rent changes, that a 10 percent increase in real household income during the next few years would not alter the results very much, including total subsidy payments. For example, for the case of  $t=.10$  and a 200 percent rent increase, a 10 percent increase in real incomes decreases total subsidies from Ft.4.7 to Ft.4.0 billion, or about 15 percent.

Patterns for Different Types of Participant Households. The foregoing gives the "big picture," but how are the elderly or families with three or more children treated under the housing allowance program designs just presented? Table 4.5 presents several key indicators for the case in which  $t=.10$  and the rent increase is 200 percent above 1990 levels for participant households classified in eight different ways. (Additional information is provided on three additional cases in Annex Table D.2.5.) While there is some variation in the outcomes for different household groups depending on program design, in general the broad patterns of results are quite robust; therefore, concentrating on a single case here permits a simplification in presentation without distorting the findings. The principal pattern revealed in the data in Table 4.5, and Figure 4.3 which uses some of these data, is that housing allowances are well targeted on households most in need. An examination of participation rates, the average ratio of subsidies to rents, and the percentage of total subsidy payments among household groups all show that lower income, less educated groups receive most of the benefits. In particular,

- Households in the lowest two income quartiles receive 80 percent of all subsidies; those with less than eight year of education receive half of the subsidies. Participation rates for these groups are all over 80 percent for this program design.
- The overlapping groups of individuals living alone, those without a family member in the labor force, and those over age 65 are very major beneficiaries. Those without an economically active household member account for 58 percent of all subsidies; those over age 65 for 33 percent.
- Among households with children, the greatest beneficiaries are those with three or more children; similarly among non elderly households, those under age 35 receive the largest benefits.

Figure 4.3

Targeting of Year One Program Benefits to Different Types of Households



Categories:

no. kids: families with 1, 2 and 3 or more.

no. earners: 0, 1, 2

Y quartiles: defined on basis of all households, lowest, 2nd, 3rd, and highest.

yrs school: Less than eight, vocational, high school, college.

**Table 4.5**  
**Results Under a Housing Allowance Program with 200 Percent**  
**Rent Increase in Year One and t=10**

	all households			
	participation rate (%)	subsidy/ rent(%)	actual rent/ income (%)	percent of total subsidies
<b><u>Household type I</u></b>				
no kids	69.9	22.2	12.5	68.7
one child	64.9	11.9	11.3	12.7
two children	65.6	13.5	10.9	11.9
three or more	86.0	26.6	10.3	6.7
<b><u>Household type II</u></b>				
couple	57.6	10.9	11.7	37.9
single parents	75.4	16.8	12.8	6.7
individuals	93.9	48.2	12.0	50.2
other	62.1	13.0	13.1	5.1
<b><u>Age of household head</u></b>				
<35	70.0	19.5	10.0	20.0
36-50	57.9	11.2	11.3	19.0
51-65	.2	17.0	13.1	27.5
65+	88.5	34.4	13.1	33.6
<b><u>Economically active</u></b>				
active	56.2	11.7	11.1	41.7
non active	90.4	33.3	13.5	58.3
<b><u>No. of earners</u></b>				
none	90.4	33.6	13.5	57.8
one	64.0	16.8	11.2	24.5
two or more	50.4	8.3	11.0	17.6
<b><u>Income quartile</u></b>				
lowest	99.9	40.4	12.1	50.7
2nd	95.5	23.6	12.3	29.8
3rd	54.1	9.2	13.0	13.0
highest	26.3	4.7	10.5	6.4

<b>Schooling</b>				
8 yrs or less	82.0	33.1	11.3	51.6
vocational	70.2	15.9	13.0	26.1
secondary	70.8	16.5	10.5	12.4
college	44.3	7.3	12.6	10.8
<b>Settlement type</b>				
Budapest	69.1	20.8	11.0	57.8
big cities	75.8	18.7	14.5	15.7
county sites	68.2	14.0	15.0	10.2
towns	63.2	16.7	11.7	13.0
villages	64.7	17.8	10.4	3.3
<b>Average</b>	69.0	18.8	12.0	--

**Notes:**

Both household type variables include all households; so, for example, households with "no kids" includes persons living alone as well as families.

Income quartiles are defined for all households, owners and renters.

Schooling is defined as the highest school completed.

Results are for the case in which 1990 household incomes increase by 15 percent.

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**Participants vs. Non Participants.** The discussion thus far has concentrated on how a housing allowance would affect program participants. Equally important for reasons of equity and political acceptability are program impacts on non participants. Because whether a family is "overhoused" fundamentally effects the outcomes for participants, we thought it wise to divide non participants as well between those who are underhoused and those who are overhoused. Thus, four groups of renters are being considered:

- part+under h      participants who live in a unit where the rent is less than the MSR
- part+over h      participants who live in a unit where the rent is greater than the MSR

nonpar+under h	non participants who live in a unit where the rent is less than the MSR
nonpar+over h	non participants who live in a unit where the rent is greater than the MSR

Notice that this is a relative definition of being over and underhoused: it depends on where the MSR is set relative to the rent of a family's unit.

We have selected four cases to explore the effects on non participants, with values for "t" of .1 and .2, and rent increases of 100 and 200 percent (results for all cases are in Table D.2.4). From the previous results it is clear that these cases give the full range of outcomes for the Year One program.

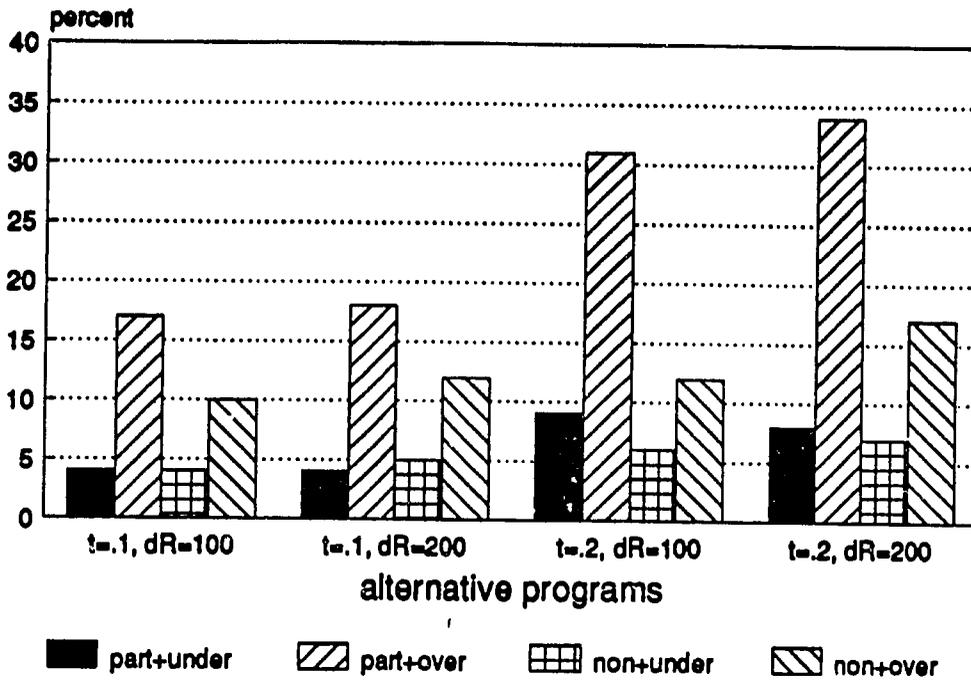
The most important impact on non participants is the increase in the share of income they must spend on rent. The upper chart in Figure 4.4 shows the share of income households in each of the four groups defined above would spend on housing under each of the four program designs. The lower chart shows the distribution of households among the four groups under each design, i.e., the four "bars" sum to 100 percent. The classification of households among the four groups changes under each program design for two reasons: the definition of who is eligible to participate changes with shifts in both "t" and MSR, i.e., the amount of the rent increase; and, the definition of over- and underhoused changes with the MSR.

Three points stand out in examining the upper chart. First, overhoused families, whether program participants or not, will have much higher rent-to-income ratios than their underhoused counterparts. Second, among the overhoused, lower income families, i.e., those who participate in the program, will experience the greatest burden because they receive allowances based on the MSR not their actual rent. Third, the burden on overhoused non participants never becomes extreme, because these are higher income households. In the extreme case ( $t=.2$ , and a 200 percent rent increase), the rent-to-income ratio for overhoused participants is 34 percent; that for overhoused non participants is about 17 percent. However, under this program overhoused participants are only about 9 percent of all renters, while overhoused non participants are 56 percent of all renters (lower chart). Only under the program design in which  $t=.1$  and a 200 percent increase do overhoused

Figure 4.4

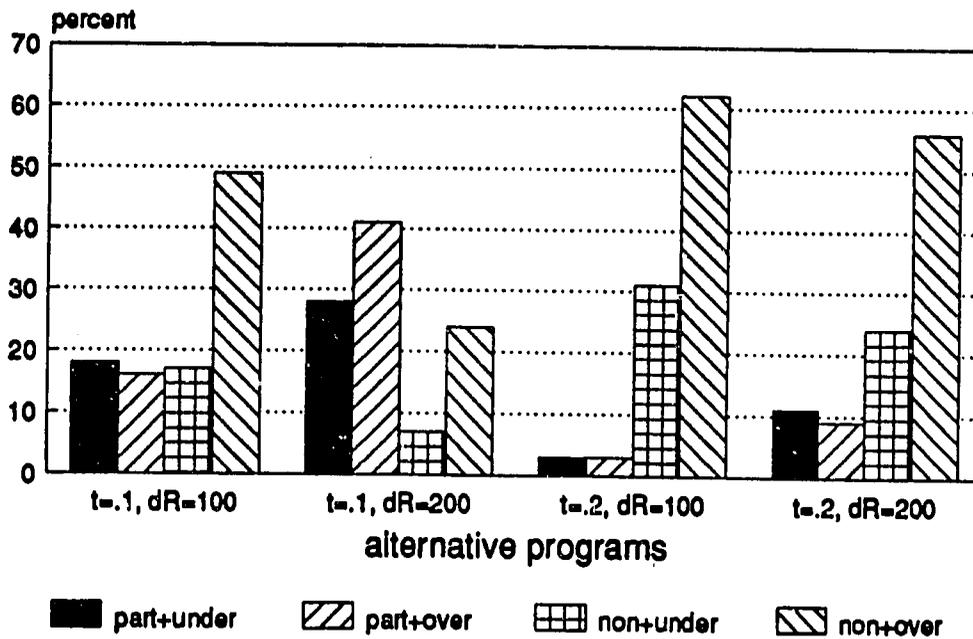
Ratios of Actual Rent Payments to Income  
for Four Groups of Households Under Alternative Program Designs

actual rent/income



overhoused=R>MSR

distribution of households among  
the four groups



overhoused=R>MSR

participants constitute over 20 percent of renters; and even here the average rent-to-income ratio is only about 18 percent.

Full housing cost burden includes both rent and utility payments.<sup>52</sup> If we add utility payments of 8 to 10 percent of income to the percent of income spent on rent by the overhoused families, the burdens become very substantial, particularly for overhoused participants. For this group total housing expenses range from 30 to 50 percent of income (Table D.2.4). For overhoused non participants, the range is 17 to 23 percent.

Obviously, there will be great pressure on overhoused participants to shift to smaller, and possibly lower quality, units. This makes sense, since in effect to sustain them in their current housing would require a continuation of the very high government subsidies that they now receive. On the other hand, it is essential that these lower income families be given the maximum opportunity to move in a timely way. For this reason it is difficult to overemphasize the need to announce the full program of rent increases and housing allowances at the beginning of the phase-in period.

### **Results Under Market-Determined Rents**

Because of the much higher rent levels in Year Three, as rents approach market levels, the results for Year Three differ in important ways from those for Year One. Overall, the results of the Year Three simulations can be summarized as follows:

- Participation rates in the models with market-type rents are generally high and are sensitive to both the value of "t" and to the level of rent; but after a point, and holding "t" constant, increasing the rent level has only the effect of increasing subsidies, i.e., aggregate tenant contributions remain fixed.
- Program costs are much higher than in Year One as the gap between actual rents paid and market rents is closed. However, under the program designs more likely to be adopted, housing allowances remain self-financing.
- Based on cost and participation information, we can conclude which combinations of parameters are superior in the sense of achieving greater after subsidy payment revenues while sustaining substantial participation. To reach the quasi market level of rents it appears better to increase rents and

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<sup>52</sup> As noted above, beginning in 1990, tenants are also responsible for improvements within their units. These costs should in principle be included in the total housing cost figure.

the value of "t" in alternate steps; if rents only are increased more consistently subsidies rise quickly while there is little increase in after subsidy revenues to the sector.

- Generally targeting has the same patterns as in the Year One models, i.e., more needy households participate at higher rates and receive larger subsidies than more affluent households. But, as participation approaches 100 percent and higher income renters become participants in greater numbers, target efficiency is diminished. Similarly, if participation rates are very low, equity issues enter, since only few poor households participate.
- Overhoused households have very strong incentives to move to smaller units. These incentives increase with the share of income which household's must contribute to rent ("t") and the rent level.
- Household incomes and the distribution of incomes set a limit to the increases in rent levels which can be imposed for a given range of household contributions because subsidies account fully for the rent increases. In the future, with an increasing dispersion of the income distribution or real growth in household incomes, further rent increases would result in additional net (after subsidy) revenues to the rental sector.

The discussion proceeds in two parts. In the first, effects of different program designs on program participation and costs are the focus. In the second, the impacts of the same designs on different groups of households are explored.

Variations with Program Design. The basic results for nine program designs or cases are shown in Figure 4.5. These cases involve  $t=.10$ ,  $.15$ , and  $.20$ , and rents set at 10, 20, and 30 percent of the 1990 private market rents; in all cases the MSR is set at the 40th percentile of the distribution of rents for units with comfort. The case of  $t=.10$  and rents increased to 10 percent of 1990 private market rents involves approximately the same average rent increase as the Year One model of  $t=.10$  and a 100 percent rent increase (but the impacts are quite different).

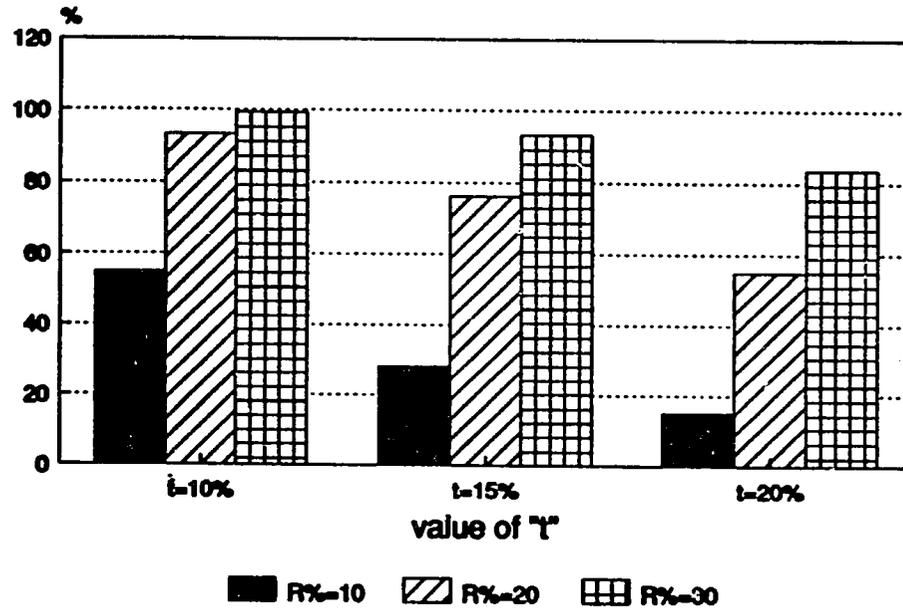
Looking first at participation, one is immediately struck by the high participation rates in prospect for  $t= .10$  or  $.15$  and rents at 20 or 30 percent of 1990 private market rents. Participation is between 78 and 99 percent of all renters. Even under  $t=.2$  and rents at 30 percent of 1990 private market rents, participation exceeds 80 percent. In brief, with the magnitude of the rent increases being discussed, the great majority of households will receive a subsidy.

The chart in the lower right-hand corner of Figure 4.5 shows the average magnitude

Figure 4.5

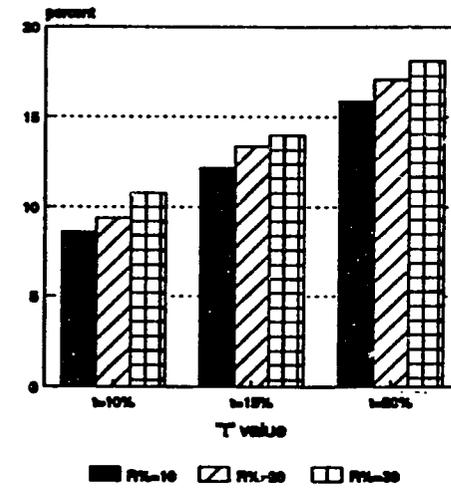
Year Three Outcomes of Housing Allowances  
Under Different Rent Increases and Household Contribution Rates  
(MSR is at 40th percentile)

Participation Rates

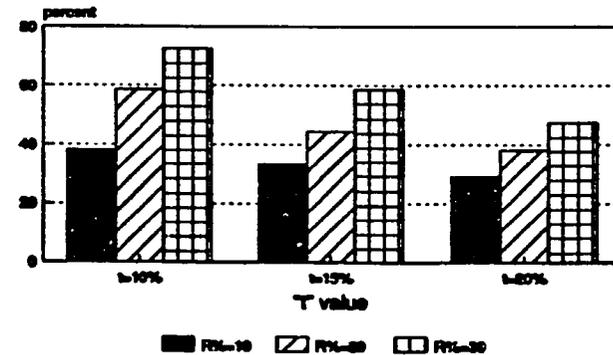


R% => as a % of market rent

Rent/income ratio  
(for participants)



Subsidy/rent ratio\*  
(for the participants)



\*calculated on the basis of sums

of these subsidies as a percent of the rent charged for the unit. For  $t=.15$ , subsidies pay for 42 percent of rents when rents are set at 20 percent of 1990 private market rents, and 49 percent when rents are set at 30 percent of the 1990 rents.

The actual rental payments made by participants in relation to their incomes are shown in chart in the upper right-hand corner of the figure. Overall, they pay somewhat less than the value at which "t" is set because of the predominance of underhoused families among participants. It is worth noting that the proportion of underhoused families is much greater with the higher market rents than under the 100-200 percent increase in administratively-set rents discussed above, because of the change in the rent structure when rents are market determined. The effect of housing allowances in protecting these families from higher housing expenditures is amply illustrated by this chart.

As noted in the first part of this chapter, program designs with MSRs set at the 40th, 50th, and 60th percentiles of the distribution of rents for units with comfort were simulated. The results for varying the MSR show little impact on the patterns just described. This may well be due to the limited variation in rents for common unit types, which has been produced by the method employed for estimating market rents. Even if the current pattern of market rents is quite compressed within this range, however, it may be that over the next two years a greater dispersion will develop. For this reason it is essential that rent patterns for private units be carefully monitored in the future.

The high participation and rent levels just described imply substantial aggregate subsidies, and this is borne out by the figures in Table 4.6. The subsidy amounts shown in the table generally dwarf those of the maximum Year One subsidy cost of Ft.4.7 billion. For  $t=.15$  and rents set at 20 and 30 percent of 1990 private market levels, subsidies are Ft.11.4 and Ft.27.4 billion, respectively. Under these cases, subsidies account for 34 and 53 percent, respectively, of total rent collections. Even at these rates, however, housing allowances continue to be self-financing, i.e., the rents are large enough to pay for allowance payments and leave considerable income left over for operation and maintenance.<sup>53</sup> For reference, 1990 rents are estimated at Ft.8.3 billion plus about an additional Ft.10 billion in other support, or a total of Ft.18.3 billion. For the most relevant

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<sup>53</sup> Again, note that this could change as participants living in private units are added to the program.

**Table 4.6**  
**REVENUES AND SUBSIDIES OF YEAR THREE PROGRAMS**

<b>Cases</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
<b>value of i</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>20</b>	<b>20</b>	<b>20</b>
<b>rent increase*</b>	<b>1R</b>	<b>.2R</b>	<b>.3R</b>	<b>1R</b>	<b>.2R</b>	<b>.3R</b>	<b>1R</b>	<b>.2R</b>	<b>.3R</b>
<b>Total actual paid rent</b>	<b>13.2</b>	<b>15.1</b>	<b>14.1</b>	<b>15.3</b>	<b>22.0</b>	<b>22.7</b>	<b>16.1</b>	<b>26.4</b>	<b>29.9</b>
<b>Total subsidy (billion)</b>	<b>3.5</b>	<b>18.3</b>	<b>36.0</b>	<b>1.4</b>	<b>11.4</b>	<b>27.4</b>	<b>0.6</b>	<b>7.0</b>	<b>20.2</b>
<b>Total market rent (b.)</b>	<b>16.7</b>	<b>33.4</b>	<b>50.1</b>	<b>16.7</b>	<b>33.4</b>	<b>50.1</b>	<b>16.7</b>	<b>33.4</b>	<b>50.1</b>
<b>Subsidy/Market rent</b>	<b>20.9</b>	<b>54.7</b>	<b>71.9</b>	<b>8.5</b>	<b>34.3</b>	<b>54.7</b>	<b>3.9</b>	<b>20.9</b>	<b>40.3</b>

\*rent as percent of 1990 private market rents

cases--total market rent (revenues) and net revenues (revenues less subsidy payments) exceed this level in all cases except those for which rents are set at 10 percent of 1990 private market rents. In short, there is additional revenue available for upkeep and repairs after paying for the housing allowance.

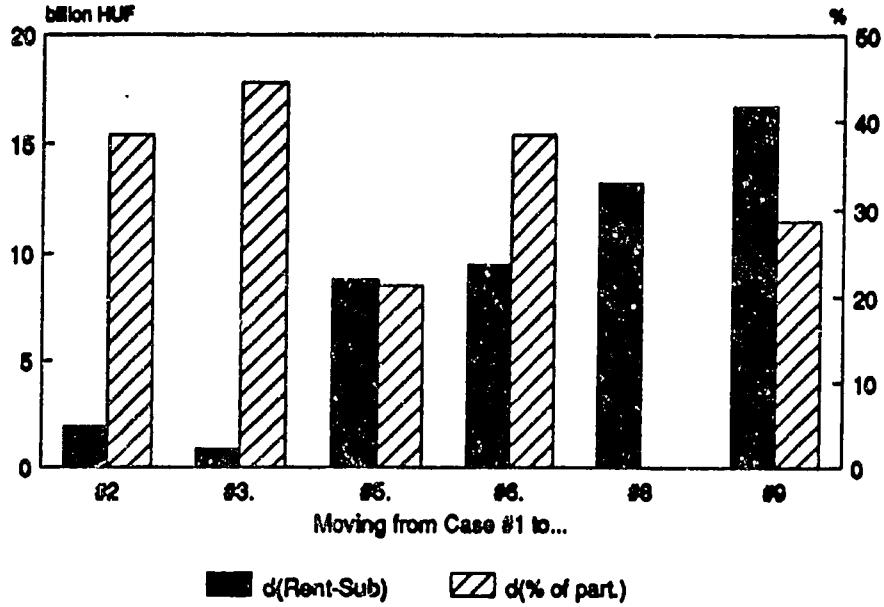
There is an important pattern revealed by the data in Table 4.6. For changes between some program designs, there is little increase in amount participants contribute to rental payments; correspondingly, there is a large increase in subsidies. This is the case for each shift between rents set at 20 and at 30 percent of 1990 private market rents (i.e., between case 2 and 3, 5 and 6, and 8 and 9). From the perspective of increasing net-of-subsidy revenues, setting rents at 30 percent of 1990 private market rents would be a mistake.

But two other considerations are important. First and foremost is the objective to unify the private and public rental markets. To do this, rents on state units must be eventually increased to the market level. Hence, even if the last increment in rent increases produces no incremental net revenues, it would be justified. Second, participation rates may be importantly effected by the last increase in rents, and the government may wish to offer assistance to these households.

Another way to think about this point is in terms of the transition from Year One to Year Two and finally to Year Three. Consider Figure 4.6 which shows changes in net revenues (solid bar and left-hand vertical axis) and program participation (shaded bar and right-hand vertical axis) relative to case 1, i.e.,  $t=.10$  and rents at 10 percent of 1990 private market rents. In Chapter 3 we discussed a shift in Year Two to case like Case #5, i.e.,  $t=.15$  and rents set at 20 percent of 1990 private market rents. Given that we are at case #5 in Year Two, we can analyze which solution is best for Year Three. Cases #2 and #3 are judged to be inferior to the others because they imply a massive increase in participation (and attendant administrative costs) with little net revenue gain, indeed a loss in average revenue per unit in the program. Case #8 may also be questionable as it means a substantial increase in rent burdens for non participants and no expansion in the share of households protected by housing allowances. In contrast, both case #6 and #9 improve net revenues and increase participation, but in rather different proportions. Both set rents at 30 percent of 1990 private market levels; case #6 sets  $t=.15$ , while case #9 sets  $t=.20$ . The

Figure 4.6

### TRANSITION OPTIONS



Cases	t	R%
#1	10	10
#2	10	20
#3	10	30
#4	15	10
#5	15	20
#6	15	30
#7	20	10
#8	20	20
#9	20	30

choice between the two would appear to largely a political question, based on the share of income participants can reasonably be expected to spend on housing and how much after-subsidy revenues are viewed as necessary for the maintenance and rehabilitation of these units.

Differences Among Households. A key question addressed earlier concerns how well subsidies are focussed on lower income and other "deserving" households. Figure 4.7 shows the participation rates of households differentiated by income quartile, highest year of schooling completed by the head of the household, and the number of children in families having children. Overall, the results are similar to those reviewed for Year One. There is, however, an important difference: as total participation rates reach very high levels, the ability to differentiate among groups is eliminated. Cases 2, 3, and 6 have the highest total participation rates, and one can see that the differences in participation rates by income class, schooling, and number of children are sharply reduced.

Despite the reduction in participation differentiation, however, the subsidy payments are still well targeted, as illustrated in Figure 4.8 which shows the percentage of total subsidy payments going to households in each income quartile. The high percentages going to the lower two quartiles is clear. In addition, notice that there is some reduction in this share for the cases with the highest participation rates. In particular, for the three cases with participation rates in excess of 90 percent--#s 2, 3, and 6--the height of the bar for the lowest income quartile is shorter than in the other cases and the height of the bars for quartiles 2 and 3 higher.<sup>54</sup>

Lastly, we turn briefly to outcomes for four groups of households: underhoused participants, overhoused participants, underhoused non participants and overhoused non participants. Figure 4.9 shows the distribution of all renters among these groups and the ratio of actual rent payments to income for two cases: case #5,  $t=.15$  and rents at 20 percent of 1990 private market rents; and, case #9,  $t=.20$  and rents at 30 percent of 1990 private market rents.<sup>55</sup> The distribution of renters among these four groups is not very sensitive to parameter changes in this range (see lower chart). On the other hand, there

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<sup>54</sup> Full details are provided in Annex D.

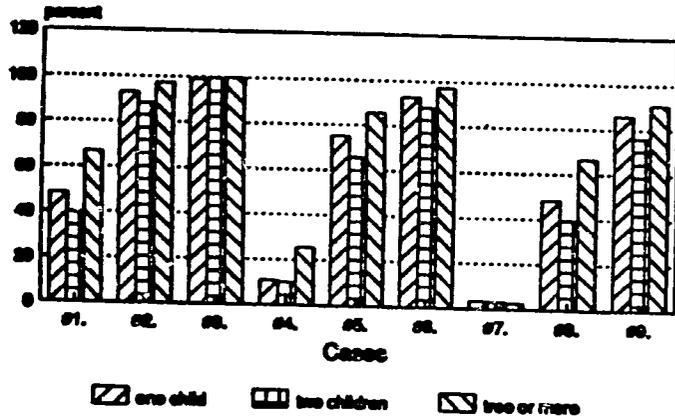
<sup>55</sup> Annex D provides data for all nine cases.

are substantial changes in the ratios of rents to household income caused by the shift to a higher "t" value and rent level. Much more seriously affected are overhoused households, both participants and non participants. Among overhoused participants, the ratio of rent payments to income increases from 23 to 31 percent--a very strong inducement for them to seek cheaper accommodations. In contrast, the rental payment to income ratio for overhoused non participants at the higher level is still under 20 percent: among underhoused the ratio is only 12 percent. Hence, even under the case in which rents move approximately to market level (30 percent of 1990 private market rents), non participants will not bear an extraordinary rent burden.

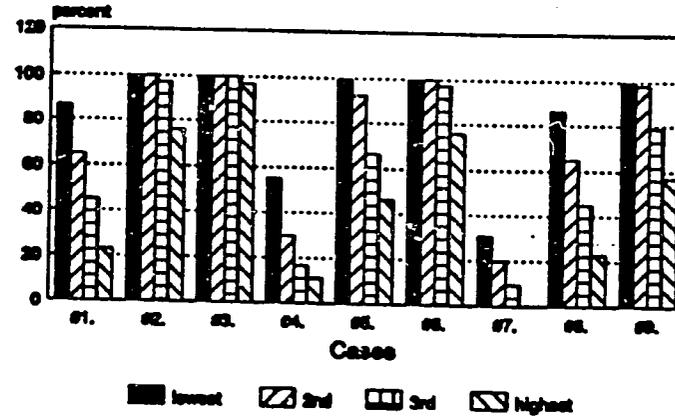
Figure 4.7

Participation Ratios by Household Type  
Year Three

Participation rates  
(Number of Children)



Participation rates  
(Income quartile)



Cases	t	R%
#1	10	10
#2	10	20
#3	10	30
#4	15	10
#5	15	20
#6	15	30
#7	20	10
#8	20	20
#9	20	30

Participation rates  
(Schooling)

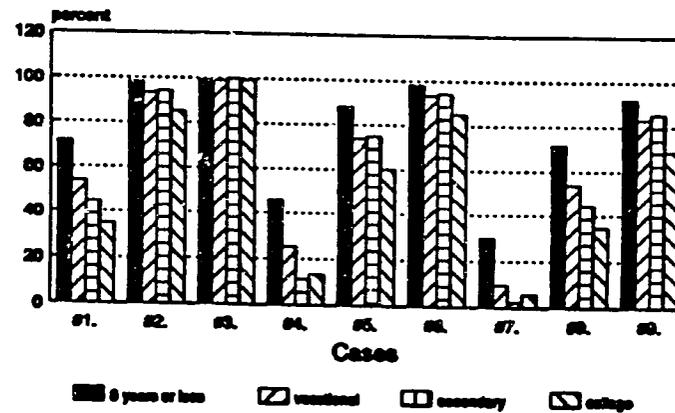
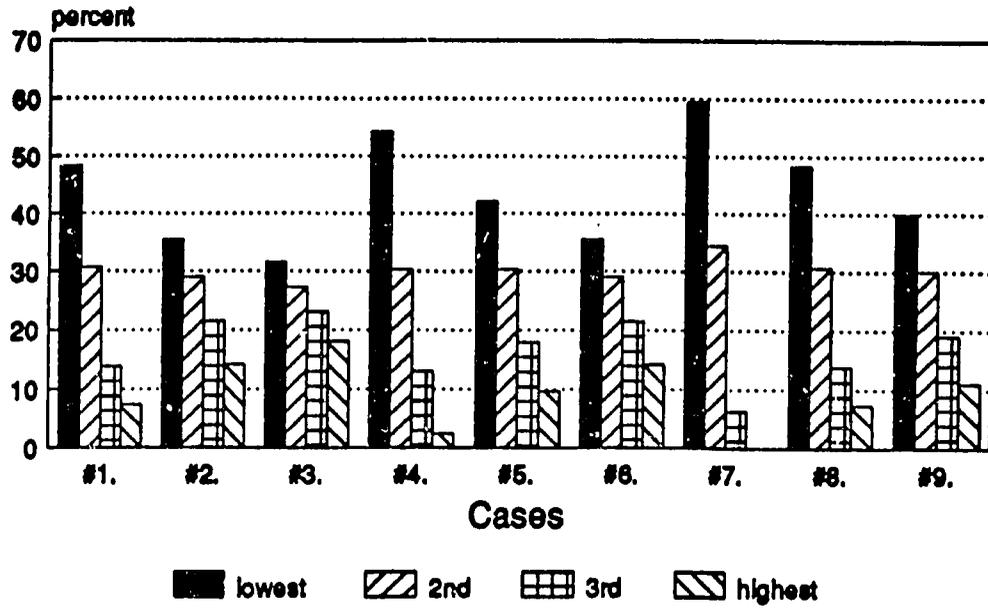


Figure 4.8

## Subsidy Distribution by Income Quartile Year Three

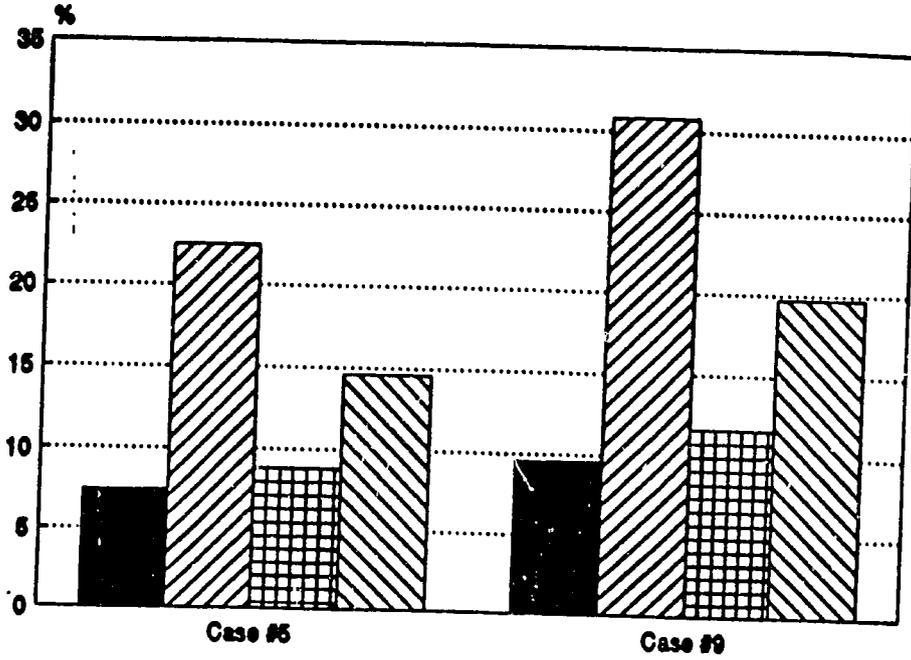


Cases	t	R%
#1	10	10
#2	10	20
#3	10	30
#4	15	10
#5	15	20
#6	15	30
#7	20	10
#8	20	20
#9	20	30

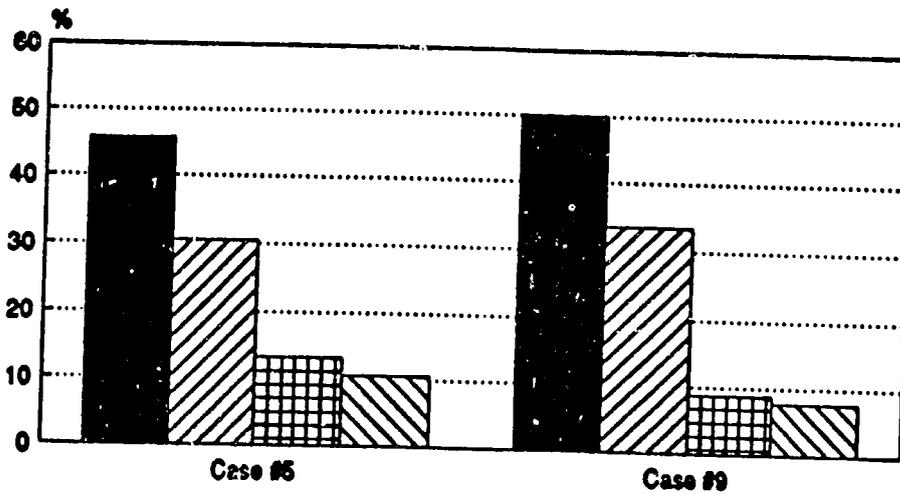
Figure 4.9

Rent-Income Ratios for Underhoused and Overhoused Participants  
Year Three

Actual Rent/Income



Distribution of Households Among  
the Four Groups



part + under    
  part + over    
  non + under    
  non + over

part/non => participate/ non participate

under/over => underhoused/overhoused

## 5. Conclusions

Our general conclusion is that housing allowances are a key element in the solution to the problem of reforming the state rental sector so that it operates more efficiently and subsidies are reduced and targeted to lower income households. We also think that the kind of transition process we have outlined--including dealing forthrightly with the knotty problem of the property rights of current tenants--offers a workable model. Moreover, a simple increase in administratively set rents of even 200 percent coupled with allowances appears to pose no special technical problems, although politically such rent increases may be difficult. In contrast, enormous uncertainty surrounds introduction of the market rent-allowance system. The uncertainty encompasses administrative procedures, the responses by households and suppliers of additional rental housing to higher prices, and the political acceptability of introducing market rents.

Some who have reviewed this plan believe that it would be wise to demonstrate the introduction of market rents and housing allowances in one or two cities other than Budapest first and then, after the results of this experiment were available and integrated into revised procedures, begin a general shift to market rents. This is a reasonable argument, but we doubt that Hungary has the luxury of the several years needed for such an experiment before the problems of the rental sector must be dealt with more generally. Indeed, as suggested at the beginning of the paper, it is likely that local governments will soon undertake some solution to huge subsidy requirements which have just been assigned to them (along with the state rental housing stock). Without strong national leadership, these initiatives could be highly wasteful. A "middle path" would be to have two cities or districts in Budapest begin each stage of the phase-in process six months before other settlements. Adjustments could then be made in a timely way to the early administrative problems encountered.

Introduction of housing allowances is simply a tool to facilitate the creation of a unified rental housing sector in which rents on all units are market determined. The aim is at the end of the phase-in period, rents for identical privately and publicly owned units will be the same. The rent level should be sufficient to induce private individuals and firms to provide additional rental housing as it is needed. A serious concern is the relationship

between this rent and households' ability to pay rents at this level.

Near the end of the transition period--as we have outlined it, perhaps at the middle of the second year--there will have to be a frank assessment of the relationship between the level of rents on private units and the ability of households in state rental units and the government (through the housing allowance system) to fully meet these rents. In other words, there may be a substantial gap between the third year phase-in target market rents (30 percent of 1990 market rents) and actual 1993 market rents. It may be that at this point the target market rents still represent the most that households not receiving housing allowances are viewed as being reasonably able to spend and that government will view the gains from higher MSRs as limited, in the sense of having to incur large expenditures for a limited supply response. In this case, the phase-in period could be extended by one or two years and some direct incentives given to increase the supply of rental housing. Such inducements could include favorable treatment of profits from rental properties under the personal income tax, ensuring the availability of market rate finance for the development or purchase of existing rental properties, and direct subsidies for development. These actions are certainly not recommended at this time. We discuss this scenario to emphasize the extent of the uncertainty ahead and to suggest the necessity for being prepared for alternative developments.

Related to the foregoing, it is imperative that a program be established to collect and analyze the data necessary for monitoring the evolution of the rental sector. At present there is essentially no knowledge on the size of the private rental sector, whom it serves and what rents are charged. Especially important is to track its growth over time and the concomitant changes in the profiles of units, rents, and occupants. We emphasize the need for creativity in conducting the necessary surveys. For example, where profits to renting are high, it is often the case that owners of single family and row houses, or even large apartments, modify them so as to be able to rent a small flat. Often such units are added without official permission to avoid the cost of building permits and other fees. Nevertheless, they can be an important segment of the rental market, particularly the low rent part of the market; unless special efforts are made, standard surveys will miss such units. During the period of extraordinarily rapid developments in the sector over the next few years, surveys should be conducted at least annually and even twice as often if at all

possible. The Housing Office should include the cost of such surveys in its budget and work closely with the Central Statistics Office to ensure the right information is collected.

Two further concerns about the introduction of housing allowances along with market rents are that rents on state units will rise without any improvement in services and social segregation will inevitably develop as higher income families command the better (higher rent) units. Inflation in rents is definitely a potential problem. To offset the inflationary pressure, the housing allowance is designed to give participants a very strong incentive to resist rent increases and to look for less expensive units: they get to keep every forint they save on rent. But, more importantly, we have proposed a fundamental change in the management of state rental housing so as to produce competition among private managing agents with the tenants deciding annually which among several firms will maintain their building. This competition should yield significant increases in services.

There are also ways to thwart the tendency for social segregation caused by differences in purchasing power. As argued earlier, local governments can offset this tendency by issuing a number of allowances which carry a higher MSR and which can be used only in a certain neighborhood or even buildings having high rents.

Lastly, the implementation of the housing allowance-market determined rent system is a politically difficult task in Hungary. The substitution for rent controls and costly housing production programs with the better targeted housing allowances was carried out in western housing systems ten to twenty years ago, in most cases with success. However there are important differences between the situation these countries faced and the present Hungarian circumstances:

-- In most western countries it was not difficult to introduce housing allowances as they brought relief for low income tenants who were paying a higher proportion of their incomes for rent than that required under the allowance program. In Hungary, due to the parallel huge increase in rents on state units, most tenant's rent payments will increase, even for those receiving a housing allowance payment. For this reason the introduction of the system will need very careful explanation and justification.

-- Western countries introduced housing allowances when the pressures of housing shortages had decreased, i.e., when housing policy had become primarily a question of income redistribution rather than a shelter issue.<sup>55</sup> This is not fully the case in

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<sup>55</sup> A J. Heidenheimer, H. Hecló, and C. T. Adams, Comparative Public Policy (London: St. Martin's Press, 1983).

Hungary where the planned shift from supply to demand subsidies is justified on grounds of economic efficiency as well as income redistribution. Especially in Budapest the adequacy of supply should be carefully examined.

-- Western countries implemented housing allowances when their central-local government power structure was settled: local governments had substantial decision making freedom but the necessity of central state intervention was also accepted, especially in the social sector in providing assistance to low income families. In Hungary the present tendency is to withdraw all central budget subsidies related to the housing sector, shifting the housing problem and also all decision making power from the central to the local level. In this situation there is very little economic and political will for the introduction of a centrally regulated system in housing-- even if it is quite different from all previous central subsidy systems.

Nevertheless, it is quite obvious that the deepening economic and social crisis in Hungary will lead to especially serious problems in the public rental sector in the absence of major reform. Current tenants should be made aware that without a housing allowance program the shock of moving to market rents would be even greater for them. Housing allowances can be considered as the best available solution to make raising rents possible. But allowances have other attractive features. The program is flexible, in that it can be implemented centrally or as one option within a housing block grant offered to local governments. At the same time, it is politically neutral: because of its redistributive effects, it is accepted by the liberals; and, because its application of free market principles, it is also acceptable to the conservatives. Housing allowances, if implemented carefully, can increase sector efficiency and decrease inequality simultaneously.

## **ANNEXES**

## **Annex A**

### **Selected Regulations for and Facts About State Rental Units in Hungary**

**A. Flats are grouped into the following categories according to their level of comfort (conveniences):**

**1. Flats with 'full comfort' must have each of the following:**

- room (at least 12 sq.m.), kitchen, bathroom, toilet (in the bathroom or separate)
- utilities (electricity and water supply, outlet water collector)
- warm water supply (all possibilities including individual stove)
- central heating system (all possibilities where the source of heating is outside the rooms).

**2. Flats with 'comfort' must have each of the following:**

- room (at least 12 sq.m.), kitchen, bathroom, toilet (in the bathroom or separate)
- utilities (electricity and water supply, outlet water collector)
- warm water supply (all possibilities including individual stove)
- individual heating system (all possibilities where the source of heating is inside the rooms: electric oil or gas heater).

**3. Flats with 'half comfort' are flats which are not satisfying the criteria of comfort flats but have each of the following:**

- room (at least 12 sq.m.), kitchen, bathroom or toilet
- utilities (at least electricity and water supply)
- individual heating system

**4. Flats 'without comfort' are flats which are not satisfying the criteria of half-comfort flats but have each of the following:**

- room (at least 12 sq.m.), kitchen, and toilet outside the flat
- access to water
- individual heating system

**5. All other building structures, which satisfy the criteria for buildings but do not satisfy the criteria for flats without comfort, are called temporary lodgings.**

**B. All units are subject to maximum rents when size (square meters) exceeds stated maximums: for 1 or 2 room units, the maximum is 80 sq.m.; for each additional room the maximum increases by 20 sq.m. (as explained above, rents are set on a per square meter basis by comfort level).**

C. Tenants generally pay costs of heat, electricity, and water and sewerage in addition to rent. Also, since the beginning of 1990, tenants are responsible for all maintenance and improvements within their units (such as installation of a private toilet); previously, government in principle paid one-half of those charges. Heat charges for central systems are computed on a cubic meter basis and water and sewerage charges on a per room basis. Water and sewerage costs are Ft 200-250/unit/month.

D. The income limit at initial occupancy for state rental flats is Ft 4,800 per capita per month. Incomes are never recertified.

E. At initial occupancy, for a unit allocated by the municipal council (rather than obtained through the "gray market"), the tenant pays key money equivalent to 10 percent of the value of the unit. Very low income households can obtain "social allowances" for part or all of these payments. This payment confers a "right of occupancy" on the tenant.

F. Some basic data on the Hungarian state rental housing stock:

1. State rental flats according to comfort-categories in 1989

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full comfort	42.6
comfort	38.9
half-comfort	5.5
without comfort	13.0

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2. State rental flats according to the number of rooms in 1989

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one-room flats	18.7
two-room flats	47.9
three or more rooms	33.4

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3. Rent norms in state rental flats (Ft/sq.m.)

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	till Jan 1990	from 1 Feb 1990
full comfort	15.00	22.00
comfort	12.00	15.00
half-comfort	7.50	7.50
without comfort	4.50	4.50

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4. The value of maintenance works done inside the flat (previously paid by IKV, since 1990 paid by the tenant) according to comfort-categories (Ft./sq.m.)

full comfort	7
comfort	11
half-comfort	6
without comfort	6

5. Incomes and expenditures of housing maintenance in Billion Forints

	1989	1990
<b>Incomes</b>		
rents for flats	5.7	7.2
rents for non residential premises	4.4	6.6
state subsidy	8.5	3.6
<b>TOTAL</b>	<b>18.6</b>	<b>17.4</b>
<b>Expenditures</b>		
operation costs	5.1	5.4
upkeep	6.2	5.3
timely maintenance	1.7	1.7
maintenance backlog	4.7	5.6
<b>TOTAL</b>	<b>17.7</b>	<b>18.0</b>

## **Annex B**

### **CREATING COMPETITION IN THE MANAGEMENT OF RENTAL HOUSING IN HUNGARY**

Rents in social housing will be increased several times over the next few years as rents move to market-determined levels and the state rental sector is integrated into the overall housing market. It is reasonable for tenants to expect some increase in services in exchange for these large rent increases. It is, however, an open question as to whether the monopolistic and openingly disparaged IKVs (Ingatlankezele Vallalat) will meet this challenge, even with the financial resources available for maintenance and operations rising substantially. Moreover, some improvement were achieved, more might have been possible if firms were competing to be managers of individual buildings or projects. In short, it is essential to introduce competition into the management of the social rental housing stock as a way of increasing housing services to the maximum extent possible.

Since some this stock will eventually be sold to private investors, the situation described below of public ownership and private management may be a transitional arrangement. But at least in the near term, local councils will be the owner of the state stock, and it will be they who contract with firms to manage state rental projects.

The introduction of competition among housing suppliers is especially critical in the housing sectors of Eastern Europe because of the limited scope for renters to express effective demand. In particular, in situations of significant housing shortage, the possibility for dissatisfied renters to "vote with their feet" by relocating to another unit is constrained. Hence, there is the need for renters to be able to change management companies more readily than is the case in the countries of Western Europe. Eventually in Hungary, as more rental housing is developed, competition among suppliers will be generated by households moving to better managed buildings.

The balance of this outline description first sets out a proposal for shifting to a competitive system for selecting management firms and then gives some additional details in a discussion of the proposal.

**The Proposal:** The reform in housing management would have four main elements.

1. A management contract would be given by the local government to a firm for each building or project (i.e., a group of buildings). Each project would be large enough to make its management economically efficient; perhaps a minimum size of 100 units.
2. Local government would select three or four firms to compete for the management contract for each project. Representatives of these firms would appear at a meeting of the tenants and outline their management plans for the project. The tenants would then vote on which firm to hire. The management fee to be paid to the company would be fixed in advance of the competition.
3. For the first two or three years, there would be a new competition each year, with the winning firm receiving a one year contract. The short duration of the contract will keep the pressure on the firm to provide good services; if it does not, the tenants will not select it in the next year.
4. Management contracts should be phased-in over a several year period, perhaps beginning as early as the middle of 1991. One option would be to introduce the new system first in a two or three districts of Budapest and a middle-sized city. Building the experience gained during the first year in these places, the system could be more widely introduced in the second year. Prior to the introduction, there would have to be an aggressive campaign to inform potential entrepreneurs of these opportunities and the chance for both these entrepreneurs and IKV staff to attend workshops on efficient housing management and financial control.

**Discussion:**

-- The primary reason for using the "project" as the basic unit for which management companies are selected is to encourage small entrepreneurs to compete for these contracts. Because management companies require little capital equipment to perform routine maintenance and operations, this is an ideal "incubator" for small firms. If necessary, the local council could work with commercial banks to make loans for equipment to the new firms, with loan payments deducted from the management fee.

-- The local council will enter into a contract with the management company. The local council sets the fee that the company will receive as a percentage of the rents collected at the project. Because the firm has the responsibility for collecting rents, basing its fee on rent collections, rather than on the rent roll, gives it an added incentive to collect rents. (The local council should have a good idea of the expected rent roll in advance of making the contract.)<sup>1</sup>

The percentage of rents going to the management fee is expected to vary among projects. For projects in poor condition, which command lower rents, the fee would be a higher percentage of rents. Similarly, higher rent projects and projects in better condition (which therefore require less maintenance) the fee would be a lower percentage of rents.

The local council, as the owner, receives all revenue above running and maintenance costs and the management fee. The management company negotiates its annual budget for each project for running and maintenance costs with the local council in advance.

-- The foregoing envisions a situation in which rents are sufficient to cover the costs of operation and maintenance and the company's fee. If rents were less than this amount, then local government could either fix a lower budget (but presumably not fee) with the company or make up the shortfall in income from its own resources, i.e., it could subsidize the project. A strong incentive for providing a fully adequate budget, aside from protecting the property from deteriorating, is to be able to hold the management company accountable: when the company is told at the outset that its resources are insufficient to do the job, it may be very difficult to criticize poor performance. If rents are moved to market levels over a few year period, only a small share of projects should not have rent rolls large enough to cover these costs; indeed, in general rents should be rather greater than these costs, since there is no payment for capital costs in the negotiated budgets.

-- In a fully developed system, the management company would set the rent for vacant units. It would try to set the rent at the market level: setting it too high would leave the unit vacant for some months, and the company would lose money (its percentage of rents not collected); in setting the rent too low would also "lose" money because the company's fee is computed as a percentage of actual rents.

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<sup>1</sup> The fees paid to each company for each project should be a matter of public record so that unusual amounts can easily be identified and questioned.

During the transition to a market-oriented rental system, rents could be subject to various controls.

-- Rents on commercial space in the building accrue to local government. The management company maintains these areas along with the rest of the building. (The local government will enter into separate contracts for the operation of buildings that are fully occupied by commercial use.)

-- One anticipates that the tenants would choose among three or four competing firms. The IKV would be permitted to compete for the contract on any project. The contracts awarded to the IKVs would be the same as those given to other companies; and, hence, the IKVs would be subject to the same incentives as other firms.

As part of the process of tenants selecting the management company the tenants might also have a direct voice in deciding on whether certain services would be included in their rents. These would typically be labor-related services (as opposed to those requiring significant capital investments) that could be easily priced and implemented. Services could be added or deleted compared to the package offered by the management companies. (The budget of the management company would have to be renegotiated by the company and local government if the service package were changed.)

-- It may well be that many of the new firms will be founded by former managers of IKVs.

-- After a few years longer term contracts could be given by the local council to firms that had proven to be competent and efficient managers. Longer term contracts might be especially desirable for projects undergoing moderate rehabilitation in order to provide some continuity during the construction phase.

-- As the owner of the property, the local government would make the decision about which properties to rehabilitate. In principle, these decisions should be based on financial calculations with post-rehabilitation rents being sufficient to cover amortization of the investment. (Lower income households would be substantially protected by the housing allowance program.) Similarly, local government should decide to retire those projects from the stock which are in very poor condition and whose rehabilitation is not economically feasible. Such retirements, however, would have to be done in the context of a broader strategy of providing additional rental

housing.

**Technical assistance:**

Management companies. There may be a substantial number of Hungarians who have the necessary knowledge of building systems to be able to manage maintenance and related operations in multifamily housing buildings. On the other hand, there will very likely be a deficiency in other skills, particularly those for efficiently organizing and deploying staff resources and for financial planning and control.

To fill this vacuum, technical assistance from an international donor should be marshalled. Under this program a group of Hungarians would be trained as trainers and then conduct courses in major cities around the country prior to beginning the transition to a mixed system housing management by private and public firms.

Local government. Clearly local government agencies have a pivotal role in the operation of a mixed public-private system of management of the social housing stock. The staff of these agencies must have a strong working knowledge of the cost of maintaining projects, be able to recruit management companies and negotiate realistic management fees, judge the quality of services being delivered by the management companies, and enforce contract provisions as necessary. These are demanding tasks and new tasks for local government. Provision of courses and workshops for the officials who will have these responsibilities will be essential to an effective system. Again, these courses should be held before initiation of the new system.

## Annex C

### Description of the CSO Data Set

#### 1. The initial sources for the data set

The CSO data set was based on two separate surveys. One is the 1989 'household survey' containing the data for 12,000 households in all settlement types in Hungary. Households taking part in this survey had to keep a diary for a predetermined two month period in 1989, recording all income and expenditures of all members of the household. For another two months of the same year they had to estimate their total incomes and expenditures. Lastly, following the end of the year (in March 1990, around the deadline for income tax reports) households had to report their larger expenditures during 1989 (real estate transactions, building, buying of high value goods, etc.), a list of the assets in the household's possession and the agricultural production and consumption of the household. The data set based on these household reports was weighted so as to be representative of the age distribution of the whole Hungarian population (see e.g. Lakasstatistikai Közlemények, KSH, Budapest 1989).

The other main source of the CSO data set used in our research was the detailed 1987 income survey. The results of this survey were first updated to the 1989 year by the way of microsimulation. This updating included applying adjustments for income underreporting that CSO had developed using time budget studies. Then the total net household income item of this survey was joined to the previously mentioned household survey on a probabilistic basis.

The integration was carried out in a matrix, one dimension of which were the quantiles formed on basis of personal income per capita and the second of which were socioeconomic strata formed on the basis of the economically active-inactive character of the households, the number of children, the status of the head of family in the occupational hierarchy and the urban-rural type of residence. This matrix consisted of 336 cells, corresponding to the combination of the 14 quantiles and the 24 socioeconomic strata. The task was to allocate the records of the 1989 household budget survey, by omitting and multiplying some of them in such a way that the transformed records should be distributed among the 336 cells the same way as in the updated income survey file serving as an etalon. This task was solved by random selection within a given cell. The cell structure of the file created this way well approaches that of the sample taken as basis. As a result the sample size grew from 12 to 17 thousand. The World Bank supported and monitored the matching process.

This special method to create the initial data set (joining two independent data sets through a statistical matching process) was necessary because household surveys have no reliable data on income – low income families are over-represented while the two upper income deciles are strongly under-represented (higher income families were much less willing to accept the task of continuously recording their incomes and expenditures). Income data are much more reliable and comprehensive (especially regarding second economy incomes) in the income survey in which also the non-response rate is much lower (it is only about one-fourth of that of the household survey). The income survey has, however, no data on consumption patterns and some other important characteristics of households. The merging of the two data set was for this reason unavoidable. (In fact, only the total household income was used from the income survey, because the more detailed variables on income sources were not corrected for underreporting in time; total household income is, however, clearly one of the key variables for the whole analysis.)

Because of the statistical matching of the two data sets, the representativeness of the new data was reduced. According to the CSO staff, higher income households became somewhat over-represented and also the representativeness according to settlement categories became questionable (which was not among the main strengths of the original data sets either).

## 2. The CSO data file: the merged data set and variables used in the analysis

The full, merged CSO data set was too big to work with on the personal computer employed for this project. For this reason we asked only for a reduced number of variables and as the first step of the analysis we selected tenant households for further investigation.

The main groups of variables used in the analysis were as follows:

1. Household and area identifier variables
2. Household characteristics (composition, demographic variables, economic activity, educational level, income)
3. Household spending on rent and utilities
4. Dwelling characteristics (type, size, comfort level)

## 3. Biases in the CSO data, correction for unit size distribution

Comparing the CSO data set on Hungarian public rental housing with data on the total stock of the dwellings (data obtained from the FUTI database on all Hungarian public rental units), we discovered two substantial differences: (a) the CSO data set over-represents the share of one-and-a-half room units; and (b) average floor space data in the CSO data set proved to be biased upwards compared to the whole public rental stock.

These differences are shown in Tables C.1 - C.3.

**Table C.1**

**The composition of the rental housing stock according to the number of rooms**

Percentage	Public rental housing	
	Total stock	CSO Sample
one room	32.8	24.2
one and a half rooms	16.6	40.6
two rooms	36.4	27.2
two and a half rooms	6.9	4.8
three or more rooms	7.3	3.2
Total: percent	100.0	100.0
Total: number of units	745531	3229

**Table C.2**

**The composition of the rental housing stock according to comfort categories.**

Percentage	Public rental housing	
	Total stock	CSO Sample
full comfort	42.6	49.6
comfort	38.9	38.4
half comfort	5.5	4.9
no comfort	13.0	7.1
Total:	100.0	100.0
Total: number of units	745531	3229

**Table C.3****Comparison of the average floor space of the size-categories of the dwellings**

Square meters	Public rental housing	
	Total stock	CSO Sample
one room	35.0	40.0
one and a half rooms	45.3	55.0
two rooms	58.2	65.0
two and a half rooms	71.4	75.0
three	79.7	82.5
three and a half or more	120.0	90.0

In the CSO household survey the definition of 'rooms' and the method of calculation of floor space corresponded to the usually applied methods. Thus the most probable explanation of the identified biases concerns the re-weighting process in connection with the merging of the two data sets.

One important step in modeling housing allowances is the estimation of the MSR. In this respect among the two biases discovered in the CSO data set the over-representation of the share of one- and-a-half room units seems to be the less problematic (MSRs are calculated according to the number of rooms); the other problem (too large average floor space data in the CSO data set compared to national averages for the rental sector) is much more difficult to handle.

One possibility to correct the biases would have been to re-weight the CSO sample according to unit size distribution of the whole rental housing stock. However, this would have negatively affected the reliability of the data set according to other variables, especially household income. That means that the sample would have lost one of its most important features, i.e., that it correctly represents the income distribution of tenants. For this reason we decided to maintain this distribution and not re-weight the data to correct errors in the unit size distribution.

The data in this report are based on the assumption that the CSO flat size data are biased and must be replaced with the average flat size data for the whole rental stock in Hungary. Thus we replaced the second column in Table C.3 with the first one. This correction leads to the under-estimation of the real size distribution of rental units - because the proportions of number of room categories have not been corrected and the CSO sample over-represents smaller flats. We obtain the following results for the nine models simulated for Year One using the data set with adjustment just described.

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**Table C.4**

**Summary of the models:**

**Participation rates, total costs, rent/income ratio**

Models	1	2	3	4	5	6	7	8	9
value of t	10	10	10	15	15	15	20	20	20
rent increase (dR)	100	150	200	100	150	200	150	200	250
Participation rate (%)	34.0	51.4	69.0	16.5	23.2	34.0	6.7	14.5	19.5
Total subsidy (billion HUF)	1.3	2.7	4.7	0.4	1.0	1.9	0.1	0.4	0.9
Total Market rent (b. HUF)	16.7	20.8	25.0	16.7	20.8	25.0	16.7	20.8	25.0
Subsidy/Market rent %	7.7	12.8	18.8	2.6	4.9	7.7	0.6	2.0	3.7
Rent/Income (%)	8.4	9.9	11.0	8.8	10.8	12.6	9.0	11.1	13.1
(Rent+Utility)/Income	15.0	16.5	17.7	15.5	17.4	19.2	15.7	17.8	19.8

**Notes:**

First year models with income increase 15 %.

Rates are calculated using total sums, not the averages of rates.

Rent is the actual rent (rent minus subsidy).

Market rent is the total rent.

Old rent/income ratio: 4.5 %

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**Table C.5**  
**Summary of the models: Participation rates, total costs, rent/income ratio**

<b>Models</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
<b>value of t</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>20</b>	<b>20</b>	<b>20</b>
<b>rent increase (dR)</b>	<b>100</b>	<b>150</b>	<b>200</b>	<b>100</b>	<b>150</b>	<b>200</b>	<b>150</b>	<b>200</b>	<b>250</b>
<b>Participation rate (%)</b>	<b>58.4</b>	<b>77.2</b>	<b>86.8</b>	<b>27.9</b>	<b>42.0</b>	<b>58.4</b>	<b>17.5</b>	<b>24.4</b>	<b>34.6</b>
<b>Total subsidy (billion HUF)</b>	<b>3.5</b>	<b>6.6</b>	<b>10.4</b>	<b>1.5</b>	<b>3.0</b>	<b>5.2</b>	<b>0.7</b>	<b>1.6</b>	<b>2.9</b>
<b>Total Market rent (b. HUF)</b>	<b>16.7</b>	<b>20.8</b>	<b>25.0</b>	<b>16.7</b>	<b>20.8</b>	<b>25.0</b>	<b>16.7</b>	<b>20.8</b>	<b>25.0</b>
<b>Subsidy/Market rent %</b>	<b>20.9</b>	<b>31.8</b>	<b>41.8</b>	<b>8.8</b>	<b>14.3</b>	<b>20.9</b>	<b>4.3</b>	<b>7.6</b>	<b>11.4</b>
<b>Rent/Income (%)</b>	<b>7.2</b>	<b>7.7</b>	<b>7.9</b>	<b>8.3</b>	<b>9.7</b>	<b>10.8</b>	<b>8.7</b>	<b>10.5</b>	<b>12.0</b>
<b>(Rent+Utility)/Income</b>	<b>13.8</b>	<b>14.4</b>	<b>14.6</b>	<b>14.9</b>	<b>16.4</b>	<b>17.4</b>	<b>15.3</b>	<b>17.1</b>	<b>18.7</b>

**Notes:**

First year models with income increase 15 %.

Rates are calculated using total sums, not the averages of rates.

Rent is the actual rent (rent minus subsidy).

Market rent is the total rent.

Old rent/income ratio: 4.5 %

In order to get a picture of the magnitude of the differences in the simulation results introduced by this adjustment, Table C.5 presents the same data as Table C.4 but this time without the adjustment of unit size to the national average.

The non-corrected version of MSR leads to a much more costly program of housing allowances (see the increase in total subsidy).

#### 4. Variable adjustments to update the data

The original data refer to the 1989 situation. In the course of the last two years, however, there were some administrative changes (rent-regulation changed, etc) and we had also take into account the effect of inflation. We made the following adjustments regarding the most important variables.

##### a) Rent: upper and lower limits

In the rent regulations authorities are given the latitude to modify the centrally defined rent level in case a particular flat is very good or very bad. The maximum rent increase is 25 percent (upper limit), while the maximum rent decrease is 50 percent (lower limit). For all rental units in our sample we calculated the rent with the officially used method on the basis of the characteristics of the flat and compared this calculated rent value with the reported rent. In case the latter was higher than the upper limit for the given category, we replaced it with the upper limit; and we made the same with the lower limit.

##### b) Rent: rent increases introduced in February 1990

Rents were increased in February 1990. The level of increase was differentiated according to comfort category: for full comfort categories it was 45 percent, for comfort categories 25 percent, and there was no increase in half-comfort and no-comfort categories. We adjusted the 1989 rents according to these rules.

##### c) The introduction of water and sewage payment

In 1990 a separate payment for water and sewage was introduced (previously this was part of the rent), with regional differences, representing the actual price of these items. We calculated the amount of this payment on the basis of tables given by the Ministry of Interior containing information on the distribution of this payment according to settlement type and comfort level. The calculated payment increased the utility payments of tenant households.

We were not able to calculate the effect of another change, i.e. a regulation that from January 1990 IKVs (Public Maintenance Companies) were not responsible any more for any repair within the public rental flats. Previously the IKVs financed half of any repair within the flats, including the replacement of obsolete fittings. The abolition of this payment obviously increases the effective rents. For this reason the real rent burden is higher than in our calculations, but it is very difficult to obtain any estimate of the magnitude of this increase.

d) Calculating inflation

We increased the 1989 income data with 15 percent based on the rate of inflation. Experiments were also conducted with increases of 20 and 25 percent.

**ANNEX D**

**SUPPLEMENTAL TABLES**

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**Table D.1**  
**Percent of Income Spent on Utilities**  
**for Participants in the First Year Housing**  
**Allowance Program Under Alternative Designs**

dR -----	t=.10 -----	t=.15 -----	t=.20 -----
100%	5.4	5.0	5.0
150	5.9	5.2	5.0
200	6.2	5.4	5.2

Note: results assume a 15 percent increase in average household incomes during 1990.

Source: CSO data file with utilities updated by authors to 1990.

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**TABLE D.2  
RESULTS FROM YEAR ONE**

**Table D.2.1**

**Summary of the models: Participation rates, total costs, rent/income ratio**

<b>Models</b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>t</b>	<b>10</b>	<b>10</b>	<b>10</b>
<b>dR</b>	<b>150</b>	<b>150</b>	<b>150</b>
<b>income increase</b>	<b>15</b>	<b>20</b>	<b>25</b>
<hr/>			
<b>Participation rate (%)</b>	<b>51.4</b>	<b>46.8</b>	<b>43.1</b>
<b>Total subsidy (billion HUF)</b>	<b>2.7</b>	<b>2.4</b>	<b>2.2</b>
<b>Total Market rent (b. HUF)</b>	<b>20.8</b>	<b>20.8</b>	<b>20.8</b>
<b>Subsidy/Market rent %</b>	<b>12.8</b>	<b>11.6</b>	<b>10.6</b>
<b>Rent/Income (%)</b>	<b>9.9</b>	<b>9.6</b>	<b>9.3</b>
<b>(Rent+Utility)/Income</b>	<b>16.5</b>	<b>16.0</b>	<b>15.4</b>

**Rates are calculated using total sums, not the averages of rates.**

**Rent is the actual rent (rent minus subsidy).**

**Market rent is the total rent.**

**Table D.2.2**

Summary of the models:

Participation rates, total costs, rent/income ratio

Models	1	2	3	4	5	6	7	8	9
value of t	10	10	10	15	15	15	20	20	20
rent increase (dR)	100	150	200	100	150	200	150	200	250
Participation rate (%)	34.0	51.4	69.0	16.5	23.2	34.0	6.7	14.5	19.5
Total subsidy (billion HUF)	1.3	2.7	4.7	0.4	1.0	1.9	0.1	0.4	0.9
Total Market rent (b. HUF)	16.7	20.8	25.0	16.7	20.8	25.0	16.7	20.8	25.0
Subsidy/Market rent %	7.7	12.8	18.8	2.6	4.9	7.7	0.6	2.0	3.7
Rent/Income (%)	8.4	9.9	11.0	8.8	10.8	12.6	9.0	11.1	13.1
(Rent+Utility)/Income	15.0	16.5	17.7	15.5	17.4	19.2	15.7	17.8	19.8

Notes:

First year models with income increase 15 %.

Rates are calculated using total sums, not the averages of rates.

Rent is the actual rent (rent minus subsidy).

Market rent is the total rent.

Old rent/income ratio: 4.5 %

**Table D.2.3**

**Summary of models: Situation of participants and non-participants**

Models	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0
value of t	10.0	10.0	10.0	15.0	15.0	15.0	20.0	20.0	20.0
rent increase (dR)	100.0	150.0	200.0	100.0	150.0	200.0	150.0	200.0	250.0
<b>Share of groups</b>									
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Part.+under h.	17.5	22.6	27.9	9.3	12.4	17.5	3.4	8.2	10.7
Part.+over h.	16.4	28.8	41.0	7.2	10.8	16.4	3.2	6.3	8.8
No p.+under h.	17.1	12.0	6.7	25.4	22.2	17.1	31.2	26.5	24.0
No p.+over h.	48.9	35.6	24.3	58.1	54.6	48.9	62.1	59.0	56.5
<b>Rent/Income ratio (%)</b>									
Average	9.4	10.8	12.0	10.3	12.3	14.0	10.8	13.1	15.1
Part.+under h.	4.1	4.0	3.9	5.8	5.6	6.1	8.6	8.4	7.5
Part.+over h.	17.6	17.8	18.5	24.0	25.5	26.4	30.8	31.6	33.6
No p.+under h.	4.1	4.7	4.8	5.1	6.0	6.2	5.8	6.4	7.4
No p.+over h.	10.3	11.7	12.2	11.6	13.8	15.5	12.4	14.7	16.9
<b>Rent+Utility/Income (%)</b>									
Average	17.7	19.2	20.3	18.6	20.6	22.4	19.1	21.4	23.4
Part.+under h.	14.9	14.0	13.2	19.1	17.8	17.0	24.8	22.1	20.3
Part.+over h.	31.2	29.1	28.6	41.3	41.3	40.0	50.2	49.5	50.6
No p.+under h.	16.8	17.5	17.5	18.7	20.5	21.9	20.1	21.9	23.8
No p.+over h.	17.7	19.2	20.3	18.6	20.6	22.4	19.1	21.4	23.4
<b>Subsidy/Market rent</b>									
Average	7.7	12.8	18.8	2.6	4.9	7.7	0.6	2.0	3.7
Part.+under h.	54.9	62.4	66.6	43.8	56.3	54.9	26.2	36.9	52.5
Part.+over h.	18.9	18.5	19.7	14.7	18.7	18.9	7.4	12.9	17.1
No p.+under h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
No p.+over h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

continued...D.2.3

Models	1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0
value of t	10.0	10.0	10.0	15.0	15.0	15.0	20.0	20.0	20.0
rent increase (dR)	100.0	150.0	200.0	100.0	150.0	200.0	150.0	200.0	250.0
<hr/>									
<b>Total subsidy paid (million HUF)</b>									
Average	1282.9	2660.0	4709.5	430.5	1030.9	1924.3	95.9	415.9	936.5
Part.+under h.	690.6	1342.2	2207.8	243.2	573.7	1035.9	53.9	235.0	525.4
Part.+over h.	592.2	1317.8	2501.7	187.3	457.2	888.2	42.1	130.9	411.1
No p.+under h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
No p.+over h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Old rent/Income (%)</b>									
Average	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Part.+under h.	4.3	3.9	3.6	4.9	4.6	4.3	5.8	5.2	4.8
Part.+over h.	11.4	9.4	8.3	14.3	13.0	11.4	16.7	14.7	13.8
No p.+under h.	2.1	1.9	1.6	2.6	2.4	2.1	2.9	2.6	2.5
No p.+over h.	5.2	4.7	4.1	5.8	5.5	5.2	6.2	5.9	5.6

Notes:

Subsidy/Market rent is calculated by dividing the group sum, not the averages of rates.

Definition of groups:

- Part.+under h. Participants who live in a unit where the rent is less than FMR
- Part.+over h. Participants who live in a unit where the rent is higher or equal to FMR
- No p.+under h. Non participants who live in a unit where the rent is less than FMR
- No p.+over h. Non participants who live in a unit where rent is higher or equal to FMR

**Table D.2.4a**  
**Participation rates among different social groups**

Model	1	2	3	4	5	6	7	8	9
value of t	10	10	10	15	15	15	20	20	20
Rent increase (dR)	100	150	200	100	150	200	100	150	200
Household type I.	34.0	51.4	69.0	16.5	23.2	34.0	6.7	14.5	19.5
no kids	42.2	55.6	69.9	24.3	31.9	42.2	10.0	21.4	27.8
one child	15.1	39.7	64.9	1.8	5.6	15.1	1.2	1.5	3.3
two children	18.5	41.8	65.6	3.1	7.8	18.5	0.0	2.6	4.8
three or more	40.4	72.8	86.0	2.6	15.8	40.4	0.0	1.8	7.9
Household type II.	34.0	51.4	69.0	16.5	23.2	34.0	6.7	14.5	19.5
couple	15.0	34.6	57.6	1.8	5.7	15.0	0.3	1.4	3.5
single parents	27.6	61.6	75.4	3.5	10.3	27.6	0.0	2.6	4.7
individuals	80.7	87.2	93.9	55.3	68.3	80.7	23.4	49.3	61.7
other	21.1	44.8	62.1	4.7	11.2	21.1	3.0	4.3	7.3
Age of household head	34.0	51.4	69.0	16.5	23.2	34.0	6.7	14.5	19.5
<35	26.7	48.2	70.0	6.0	13.0	26.7	1.3	4.6	9.0
36-50	14.4	36.7	57.9	3.5	6.3	14.4	0.6	2.7	4.9
51-65	35.1	48.8	65.2	17.4	26.1	35.1	5.7	14.8	20.5
65+	65.9	78.4	88.5	42.8	51.8	65.9	21.3	39.7	47.9
Economically active	34.0	51.4	69.0	16.5	23.2	34.0	6.7	14.5	19.5
active	15.6	35.3	56.2	3.2	7.3	15.6	0.7	2.6	4.9
non-active	64.9	78.4	90.4	38.7	50.0	64.9	16.7	34.5	44.1
No. of earners	34.0	51.4	69.0	16.5	23.2	34.0	6.7	14.5	19.5
none	65.6	78.9	90.4	39.3	50.6	65.6	16.9	35.1	44.6
one	24.6	47.6	64.0	0.6	13.8	24.6	1.5	5.3	9.7
two	8.1	25.4	50.4	0.5	2.1	8.1	0.0	0.4	1.1
Income quartile	34.0	51.4	69.0	16.5	23.2	34.0	6.7	14.5	19.5
lowest	71.1	96.5	99.9	30.2	43.1	71.1	25.0	28.8	35.3
2nd	31.0	68.5	95.5	29.4	29.4	31.0	1.6	29.4	29.4
3rd	21.6	21.6	54.1	6.4	20.4	21.6	0.0	0.0	13.3
highest	12.2	19.1	26.3	0.0	0.0	12.2	0.0	0.0	0.0
Schooling	34.0	51.4	69.0	16.5	23.2	34.0	6.7	14.5	19.5
8 years or less	54.2	69.6	82.0	32.1	42.5	54.2	14.6	29.2	36.5
vocational	29.5	49.5	70.2	10.3	17.2	29.5	3.2	7.7	13.5
secondary	19.3	48.7	70.8	2.5	7.4	19.3	0.9	2.5	5.1
college	15.5	25.3	44.3	8.0	9.5	15.5	1.0	7.2	8.6
Settle. type	34.0	51.4	69.0	16.5	23.2	34.0	6.7	14.5	19.5
Budapest	36.6	51.7	69.1	18.0	25.1	36.6	7.5	16.0	21.4
Big cities	36.8	57.2	75.8	17.5	25.3	36.8	6.1	15.9	19.1
County sites	25.4	49.4	68.2	12.0	17.0	25.4	3.6	10.1	14.3
Towns	28.6	48.4	63.2	13.6	20.5	28.6	6.4	12.7	17.7
Villages	26.9	42.0	64.7	12.6	14.3	26.9	5.9	6.7	13.5

**Table D.2.4b**

**Actual rent/income among different household types**

Model	1	2	3	4	5	6	7	8	9
value of t	10	10	10	15	15	15	20	20	20
Rent increase (dR)	100	150	200	100	150	200	100	150	200
<b>Household type I.</b>	9.4	10.8	12.0	10.3	12.3	14.0	10.8	13.1	15.1
no kids	9.8	11.3	12.5	11.1	13.0	14.7	11.9	14.1	16.1
one child	8.6	10.2	11.3	8.9	11.0	12.9	8.9	11.1	13.2
two children	8.4	9.9	10.9	8.7	10.8	12.6	8.8	10.9	13.0
three or more	8.8	9.7	10.3	9.6	11.7	13.2	9.6	12.0	14.2
<b>Household type II.</b>	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4	9.4
couple	8.8	10.5	11.7	9.1	11.3	13.2	9.1	11.4	13.6
single parents	10.1	11.7	12.8	10.6	13.0	15.1	10.6	13.2	15.7
individuals	10.2	11.1	12.0	12.9	14.2	15.3	14.7	16.7	18.1
other	10.0	11.7	13.1	10.5	12.8	15.0	10.6	13.1	15.6
<b>Age of household head</b>	9.4	10.8	12.0	10.3	12.3	14.0	10.8	13.1	15.1
<35	7.9	9.2	10.0	8.4	10.3	11.9	8.5	10.6	12.5
36-50	8.5	10.2	11.3	8.9	10.9	12.8	9.0	11.1	13.2
51-65	10.1	11.7	13.1	11.2	13.3	15.2	11.7	14.2	16.4
65+	10.7	12.0	13.1	12.8	14.6	16.1	14.2	16.4	18.3
<b>Economically active</b>	9.4	10.8	12.0	10.3	12.3	14.0	10.8	13.1	15.1
active	8.3	9.9	11.1	8.6	10.7	12.5	8.7	10.8	12.9
non-active	11.1	12.4	13.5	13.1	15.0	16.7	14.4	16.8	18.8
<b>No. of earners</b>	9.4	10.8	12.0	10.3	12.3	14.0	10.8	13.1	15.1
none	11.1	12.4	13.5	13.2	15.1	16.7	14.5	16.9	18.9
one	8.7	10.1	11.2	9.2	11.2	13.0	9.4	11.6	13.6
two	8.1	9.7	11.0	8.2	10.2	12.1	8.2	10.2	12.3
<b>Income quartile</b>	9.4	10.8	12.0	10.3	12.3	14.0	10.8	13.1	15.1
lowest	10.6	11.4	12.1	12.4	14.4	15.9	13.5	15.7	17.9
2nd	9.0	11.4	12.3	11.0	12.9	14.8	11.9	14.1	15.9
3rd	9.4	11.4	13.0	10.2	12.3	14.1	10.2	12.8	15.0
highest	7.6	9.1	10.5	7.7	9.6	11.4	7.7	9.6	11.6
<b>Schooling</b>	9.4	10.8	12.0	10.3	12.3	14.0	10.8	13.1	15.1
8 years or less	9.3	10.4	11.3	10.9	12.5	13.9	12.0	14.0	15.7
vocational	10.1	11.8	13.0	10.8	13.1	15.2	11.1	13.7	16.0
secondary	8.3	9.7	10.5	8.7	10.7	12.5	8.8	10.9	12.9
college	9.1	11.0	12.6	9.6	11.7	13.7	9.8	12.1	14.2
<b>Settle. type</b>	9.4	10.8	12.0	10.3	12.3	14.0	10.8	13.1	15.1
Budapest	8.6	9.9	11.0	9.6	11.4	12.9	10.2	12.2	14.0
Big cities	11.4	13.1	14.5	12.5	15.0	17.1	13.1	15.8	18.4
County sites	11.4	13.5	15.0	12.2	14.7	17.1	12.5	15.4	18.0
Towns	9.1	10.6	11.7	10.0	11.9	13.7	10.4	12.6	14.6
Villages	8.2	9.4	10.4	8.8	10.5	12.2	9.1	11.1	12.9

**Table D.2.4c**  
**Subsidy/rent among different household types**

Model	1	2	3	4	5	6	7	8	9
value of t	10	10	10	15	15	15	20	20	20
Rent increase (dR)	100	150	200	100	150	200	100	150	200
Household type I.	7.7	12.8	18.8	2.6	4.9	7.7	0.6	2.0	3.7
no kids	11.3	16.7	22.2	4.2	7.8	11.3	0.9	3.3	6.0
one child	2.0	5.6	11.9	0.4	0.9	2.0	0.2	0.4	0.6
two children	2.7	6.8	13.5	0.3	1.0	2.7	0.0	0.1	0.6
three or more	5.8	16.2	26.6	0.2	1.7	5.8	0.0	0.1	0.7
Household type II.	7.7	12.8	18.8	2.6	4.9	7.7	0.6	2.0	3.7
couple	1.9	5.5	10.9	0.2	0.7	1.9	0.0	0.1	0.4
single parents	3.5	9.3	16.8	0.3	1.2	3.5	0.0	0.1	0.7
Individuals	30.0	40.4	48.2	12.1	21.7	30.0	2.7	9.4	17.0
other	3.8	7.9	13.0	1.0	2.0	3.8	0.4	0.8	1.5
Age of household head	7.7	12.8	18.8	2.6	4.9	7.7	0.6	2.0	3.7
<35	5.1	11.5	19.5	0.8	2.3	5.1	0.2	0.5	1.4
36-50	2.3	5.6	11.2	0.4	1.0	2.3	0.1	0.3	0.7
51-65	7.7	12.1	17.0	2.5	5.0	7.7	0.5	1.9	3.7
65+	19.9	27.7	34.4	8.4	14.5	19.9	2.0	6.7	11.5
Economically active	7.7	12.8	18.8	2.6	4.9	7.7	0.6	2.0	3.7
active	2.5	6.2	11.7	0.4	1.1	2.5	0.1	0.3	0.7
non-active	18.2	26.2	33.3	7.0	12.8	18.2	1.6	5.5	9.9
No. of earners	7.7	12.8	18.8	2.6	4.9	7.7	0.6	2.0	3.7
none	18.5	26.5	33.6	7.1	13.0	18.5	1.6	5.6	10.1
one	4.9	10.2	16.8	0.9	2.4	4.9	0.2	0.7	1.6
two	0.9	3.4	8.3	0.0	0.2	0.9	0.0	0.0	0.1
Income quartile	7.7	12.8	18.8	2.6	4.9	7.7	0.6	2.0	3.7
lowest	17.6	29.5	40.4	7.0	11.4	17.6	2.4	6.0	9.1
2nd	9.8	14.8	23.6	3.7	7.3	9.8	0.0	2.5	5.7
3rd	4.0	6.1	9.2	0.2	1.9	4.0	0.0	0.0	0.9
highest	0.6	2.6	4.7	0.0	0.0	0.6	0.0	0.0	0.0
Schooling	7.7	12.8	18.8	2.6	4.9	7.7	0.6	2.0	3.7
8 years or less	17.1	25.1	33.1	6.6	11.8	17.1	1.6	5.2	9.2
vocational	5.0	9.7	15.9	1.2	2.8	5.0	0.2	0.9	2.0
secondary	2.9	8.6	16.5	0.4	1.2	2.9	0.1	0.3	0.7
college	2.7	4.7	7.3	0.9	1.8	2.7	0.1	0.7	1.4
Settle. type	7.7	12.8	18.8	2.6	4.9	7.7	0.6	2.0	3.7
Budapest	9.1	14.5	20.8	3.1	5.9	9.1	0.7	2.4	4.5
Big cities	7.3	12.7	18.7	2.4	4.6	7.3	0.5	1.8	3.4
County sites	4.7	8.5	14.0	1.3	2.9	4.7	0.3	1.0	2.1
Towns	6.4	11.0	16.7	2.1	4.1	6.4	0.6	1.7	3.1
Villages	6.2	11.5	17.8	2.0	3.7	6.2	0.5	1.5	2.9

**Table D.2.4d**

**Share of subsidy enjoyed by different household types**

Model	1	2	3	4	5	6	7	8	9
value of t	10	10	10	15	15	15	20	20	20
Rent increase (dR)	100	150	200	100	150	200	100	150	200
<hr/>									
<b>Household type I.</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
no kids	85.4	76.3	68.7	94.5	91.5	85.4	94.0	95.1	93.4
one child	5.2	8.8	12.7	3.3	3.5	5.2	6.0	3.6	3.2
two children	5.8	8.9	11.9	1.8	3.4	5.8	0.0	1.1	2.5
three or more	3.6	6.0	6.7	0.4	1.7	3.6	0.0	0.2	0.9
<b>Household type II.</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
couple	16.4	27.9	37.9	4.6	9.4	16.4	1.5	3.8	6.6
single parents	3.5	5.5	6.7	1.0	1.8	3.5	0.0	0.6	1.4
individuals	76.5	61.9	50.2	91.5	85.8	76.5	93.1	92.5	89.0
other	3.7	4.6	5.1	2.9	3.0	3.7	5.4	3.1	2.9
<b>Age of household head</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<35	12.8	17.4	20.0	6.1	8.9	12.8	5.5	5.3	7.4
36-50	9.4	14.0	19.0	5.0	6.6	9.4	3.8	4.5	5.9
51-65	30.3	28.8	27.5	29.2	30.8	30.3	25.2	28.5	30.1
65+	47.6	39.8	33.6	59.7	53.7	47.6	65.5	61.8	56.7
<b>Economically active</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
active	22.0	32.4	41.7	10.6	14.8	22.0	8.3	9.2	12.5
non-active	78.0	67.6	58.3	89.4	85.2	78.0	91.7	90.8	87.5
<b>No. of earners</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
none	77.8	67.3	57.8	89.4	85.0	77.8	91.7	90.8	87.4
one	17.4	22.0	24.5	10.0	13.4	17.4	8.3	9.0	11.6
two	4.8	10.7	17.5	0.5	1.6	4.8	0.0	0.2	1.0
<b>Income quartile</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
lowest	54.1	54.5	50.7	64.4	54.4	54.1	99.7	70.7	57.6
2nd	30.1	27.5	29.8	33.8	35.2	30.1	0.3	29.3	36.2
3rd	13.9	12.7	13.0	1.8	10.4	13.9	0.0	0.0	6.2
highest	1.9	5.2	6.4	0.0	0.0	1.9	0.0	0.0	0.0
<b>Schooling</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8 years or less	65.3	57.7	51.6	74.6	69.9	65.3	79.5	76.1	72.1
vocational	20.3	23.6	26.1	14.5	17.7	20.3	12.7	13.7	16.1
secondary	5.3	9.4	12.4	2.0	3.3	5.3	1.7	1.8	2.5
college	9.1	9.3	10.0	9.0	9.1	9.1	6.1	8.4	9.3
<b>Settle. type</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Budapest	61.7	59.4	57.8	63.4	62.7	61.7	62.7	63.9	63.0
Big cities	15.0	15.8	15.7	14.7	14.6	15.0	13.7	14.6	14.5
County sites	8.3	9.1	10.2	7.1	7.9	8.3	6.3	6.6	7.6
Towns	12.3	12.6	13.0	12.1	12.2	12.3	14.4	12.3	12.1
Villages	2.8	3.1	3.3	2.6	2.6	2.8	3.0	2.5	2.7

**TABLE D.3  
RESULTS FROM YEAR THREE**

**Table D.3.1**

Summary of the models:

Participation rates, total costs, rent/income ratio

Models	1	2	3	4	5	6	7	8	9
value of t	10	10	10	15	15	15	20	20	20
rent as a % of market rent	10	20	30	10	20	30	10	20	30
Participation rate (%)	54.9	93.3	99.3	28.2	76.2	93.3	15.1	54.9	83.5
Total subsidy (billion HUF)	3.5	18.3	36.0	1.4	11.4	27.4	0.6	7.0	20.2
Total Market rent (b. HUF)	16.7	33.4	50.1	16.7	33.4	50.1	16.7	33.4	50.1
Subsidy/Market rent %	20.9	54.7	71.9	8.5	34.3	54.7	3.9	20.9	40.3
Rent/Income (%)	7.2	8.2	7.7	8.3	12.0	12.3	8.7	14.4	16.3
(Rent+Utility)/Income	13.9	14.9	14.3	15.0	18.6	19.0	15.4	21.0	22.9
M. Rent - T. Subsidy (b.HUF)	13.2	15.1	14.1	15.3	22.0	22.7	16.1	26.4	29.9

Notes:

First year models with income increase 15 %.

Rates are calculated using total sums, not the averages of rates.

Rent is the actual rent (rent minus subsidy).

Market rent is the total rent.

Old rent/income ratio: 4.5 %

**Table D.3.2**

**Summary of models: Situation of participants and non-participants**

Models	1	2	3	4	5	6	7	8	9
value of t	10	10	10	15	15	15	20	20	20
rent as a % of market rent	10	20	30	10	20	30	10	20	30
<hr/>									
<b>Share of groups</b>									
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Part.+under h.	34.7	55.7	58.6	19.2	45.6	55.7	10.6	34.7	50.1
Part.+over h.	20.2	37.6	40.7	9.0	30.5	37.6	4.5	20.2	33.5
No p.+under h.	24.2	3.1	0.3	39.7	13.2	3.1	48.2	24.2	8.8
No p.+over h.	21.0	3.6	0.5	32.2	10.6	3.6	36.7	21.0	7.7
<b>Rent/Income ratio (%)</b>									
Average	7.9	9.3	10.0	9.7	12.9	13.9	10.6	15.8	17.7
Part.+under h.	5.1	4.2	3.3	8.2	7.4	6.4	10.9	10.3	9.6
Part.+over h.	14.4	16.8	19.7	20.9	22.5	25.2	27.8	28.8	30.8
No p.+under h.	5.4	6.6	5.5	6.6	8.8	9.9	7.5	10.8	11.7
No p.+over h.	9.1	10.7	11.1	11.2	14.6	16.0	12.5	18.3	19.7
<b>Rent+Utility/Income (%)</b>									
Average	16.2	17.6	18.3	18.0	21.3	22.2	18.9	24.2	26.0
Part.+under h.	14.8	12.6	11.4	19.8	16.3	14.7	24.8	19.9	18.2
Part.+over h.	25.6	25.9	28.4	35.6	32.3	34.3	46.2	40.1	40.3
No p.+under h.	15.4	14.8	14.7	18.3	20.2	20.2	20.0	24.6	25.0
No p.+over h.	16.2	17.6	18.3	18.0	21.3	22.2	18.9	24.2	26.0
<b>Subsidy/Market rent</b>									
Average	20.9	54.7	71.9	8.5	34.3	54.7	3.9	20.9	40.3
Part.+under h.	51.2	77.7	95.7	43.2	61.1	77.7	38.5	51.2	64.4
Part.+over h.	24.1	40.6	51.0	20.7	28.8	40.6	16.5	24.1	31.9
No p.+under h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
No p.+over h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Rent/Income</b>									
all part.	8.6	9.3	10.0	12.2	13.4	14.0	15.9	17.1	18.1
<b>Subsidy/Rent</b>									
all part.	38.0	58.5	72.4	33.1	44.4	58.5	28.9	38.0	47.7

continued...D.3.2

Models	1	2	3	4	5	6	7	8	9
value of t	10	10	10	15	15	15	20	20	20
rent increase (dR)	100	150	200	100	150	200	150	200	250
<hr/>									
<b>Total subsidy paid (million HUF)</b>									
Average	3485.2	18281.1	36031.5	1423.7	11443.0	27421.7	649.8	6970.4	20203.8
Part.+under h.	2404.2	11739.7	22795.1	1025.3	7600.9	17609.5	489.0	4808.4	13249.4
Part.+over h.	1081.0	6541.4	13236.4	398.4	3842.1	9812.2	160.9	2162.0	6954.3
No p.+under h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
No p.+over h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Old rent/Income (%)</b>									
Average	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Part.+under h.	5.0	4.5	4.4	5.8	4.7	4.5	6.6	5.0	4.6
Part.+over h.	9.3	7.5	7.2	12.1	8.2	7.5	14.4	9.3	7.9
No p.+under h.	3.5	2.3	0.7	3.7	3.1	2.5	3.9	3.5	2.9
No p.+over h.	5.1	3.1	1.6	5.8	4.2	3.1	6.3	5.1	4.0

**Notes:**

Subsidy/Market rent is calculated by dividing the group sum, not the averages of rates.

**Definition of groups:**

Part.+under h.	Participants who live in a unit where the rent is less then FMR
Part.+over h.	Participants who live in a unit where the rent is higher or equal to FMR
No p.+under h.	Non participants who live in a unit where the rent is less then FMR
No p.+over h.	Non participants who live in a unit where rent is higher or equal to FMR

Table D.3.3a

## Participation rate among different social groups

Model	1	2	3	4	5	6	7	8	9
value of t	10	10	10	15	15	15	20	20	20
Rent level (% of mr.)	10	20	30	10	20	30	10	20	30
-----									
Household type I.	54.9	93.3	99.3	28.2	76.2	93.3	15.1	54.9	83.5
no kids	59.3	94.1	99.1	37.0	78.1	94.1	21.7	59.3	83.9
one child	48.3	93.3	99.3	10.8	75.0	93.3	3.5	48.3	86.0
two children	39.4	88.6	99.8	10.0	65.8	88.6	3.1	39.4	76.3
three or more	66.7	97.4	100.0	25.4	86.0	97.4	2.6	66.7	91.2
Household type II.	54.9	93.3	99.3	28.2	76.2	93.3	15.1	54.9	83.5
couple	39.0	90.4	98.7	9.4	66.4	90.4	2.1	39.0	76.8
single parents	54.3	94.4	100.0	16.0	84.1	94.4	3.9	54.3	87.1
individuals	90.7	100.0	100.0	75.2	97.2	100.0	49.4	90.7	97.6
other	52.2	91.4	100.0	18.1	69.8	91.4	5.2	52.2	82.3
Age of household head	54.9	93.3	99.3	28.2	76.2	93.3	15.1	54.9	83.5
<35	55.1	96.9	99.8	19.6	77.6	96.9	6.9	55.1	89.0
36-50	37.7	89.5	99.3	9.6	65.7	89.5	2.7	37.7	75.8
51-65	50.4	90.0	98.4	29.2	72.3	90.0	14.6	50.4	77.4
65+	84.7	100.0	100.0	60.2	94.9	100.0	40.7	84.7	97.9
Economically active	54.9	93.3	99.3	28.2	76.2	93.3	15.1	54.9	83.5
active	38.9	89.5	98.9	10.7	65.0	89.5	3.1	38.9	75.8
non-active	81.7	99.8	99.9	57.5	94.9	99.8	35.4	81.7	96.6
No. of earners	54.9	93.3	99.3	28.2	76.2	93.3	15.1	54.9	83.5
none	81.8	99.8	99.9	58.1	95.1	99.8	35.9	81.8	96.6
one	49.6	94.1	98.9	16.8	77.1	94.1	5.9	49.6	84.8
two	30.8	85.8	98.8	5.9	55.4	85.8	0.8	30.8	68.6
Income quartile	54.9	93.3	99.3	28.2	76.2	93.3	15.1	54.9	83.5
lowest	86.7	100.0	100.0	55.3	99.9	100.0	31.1	86.7	99.9
2nd	64.9	100.0	100.0	29.6	92.3	100.0	20.1	64.9	98.1
3rd	45.0	97.3	100.0	16.7	66.3	97.3	9.4	45.0	79.0
highest	22.8	75.9	97.0	11.2	46.2	75.9	0.0	22.8	57.1
Schooling	54.9	93.3	99.3	28.2	76.2	93.3	15.1	54.9	83.5
8 years or less	71.8	98.2	99.2	46.0	88.1	98.2	30.3	71.8	92.1
vocational	53.8	93.2	99.0	25.3	73.9	93.2	9.6	53.8	83.1
secondary	44.4	94.0	100.0	11.0	74.9	94.0	2.1	44.4	85.3
college	34.7	84.9	99.3	13.2	60.2	84.9	5.7	34.7	68.7
Settle. type	54.9	93.3	99.3	28.2	76.2	93.3	15.1	54.9	83.5
Budapest	71.5	97.3	100.0	38.1	87.7	97.3	22.2	71.5	92.6
Big cities	39.7	85.2	95.5	17.5	65.9	85.2	6.1	39.7	75.8
County sites	26.5	90.2	100.0	12.3	62.3	90.2	3.6	26.5	69.8
Towns	29.6	85.9	99.1	14.1	54.3	85.9	6.1	29.6	68.9
Villages	29.4	97.5	100.0	12.6	55.5	97.5	5.9	29.4	66.4

**Table D.3.3b**  
**Actual rent/income among different household types**

Model	1	2	3	4	5	6	7	8	9
value of t	10	10	10	15	15	15	20	20	20
Rent level (% of mr.)	10	20	30	10	20	30	10	20	30
<hr/>									
Household type I.	7.9	9.3	10.0	9.7	12.9	13.9	10.6	15.8	17.7
no kids	8.6	10.5	11.8	10.6	14.1	15.7	11.9	17.1	19.4
one child	7.0	7.4	7.3	8.3	11.3	11.1	8.6	14.1	15.1
two children	6.4	7.0	6.5	7.3	10.4	10.5	7.6	12.8	14.1
three or more	6.3	5.7	5.3	8.3	9.4	8.6	9.0	12.5	12.2
Household type II.	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9	7.9
couple	7.6	9.1	9.6	8.6	12.8	13.7	8.8	15.2	17.5
single parents	8.2	9.1	9.6	9.6	13.1	13.7	10.0	16.3	17.7
individuals	8.3	9.0	10.2	11.8	12.6	13.5	14.5	16.5	17.0
other	9.1	11.5	13.0	10.6	15.3	17.2	11.1	18.3	21.3
Age of household head	7.9	9.3	10.0	9.7	12.9	13.9	10.6	15.8	17.7
<35	6.5	6.6	6.4	7.9	10.2	9.9	8.5	13.0	13.6
36-50	7.2	8.3	8.4	8.2	11.9	12.5	8.4	14.3	16.2
51-65	8.7	11.0	12.3	10.4	14.6	16.5	11.4	17.4	20.3
65+	9.2	10.6	12.3	12.3	14.5	15.9	14.5	18.3	19.8
Economically active	7.9	9.3	10.0	9.7	12.9	13.9	10.6	15.8	17.7
active	7.1	8.4	8.6	8.1	11.9	12.6	8.4	14.2	16.2
non-active	9.3	10.7	12.4	12.3	14.8	16.1	14.3	18.6	20.1
No. of earners	7.9	9.3	10.0	9.7	12.9	13.9	10.6	15.8	17.7
none	9.3	10.8	12.4	12.3	14.8	16.1	14.4	18.6	20.1
one	7.6	8.7	9.1	8.9	12.4	13.1	9.4	15.3	16.9
two	6.7	8.1	8.2	7.5	11.4	12.2	7.6	13.4	15.7
Income quartile	7.9	9.3	10.0	9.7	12.9	13.9	10.6	15.8	17.7
lowest	7.8	7.9	8.7	10.8	11.7	11.9	12.6	15.6	15.6
2nd	8.4	9.2	9.9	10.6	13.3	13.7	11.7	16.8	17.9
3rd	8.4	10.3	11.1	9.5	14.2	15.5	10.2	16.9	19.6
highest	7.0	9.6	10.3	7.8	12.5	14.5	7.9	14.1	17.5
Schooling	7.9	9.3	10.0	9.7	12.9	13.9	10.6	15.8	17.7
8 years or less	7.7	8.5	9.4	10.1	12.1	12.8	11.8	15.4	16.3
vocational	8.5	10.1	11.0	10.4	14.0	15.2	11.1	17.1	19.2
secondary	6.7	7.0	6.7	7.9	10.8	10.5	8.2	13.5	14.4
college	8.2	10.8	11.7	9.1	14.3	16.2	9.6	16.4	19.8
Settle. type	7.9	9.3	10.0	9.7	12.9	13.9	10.6	15.8	17.7
Budapest	8.2	9.1	10.0	10.5	13.0	13.7	11.8	16.5	17.5
Big cities	9.4	12.5	14.4	10.6	16.2	18.7	11.2	18.8	22.6
County sites	7.8	10.1	10.6	8.7	13.7	15.1	9.0	15.6	18.9
Towns	6.2	7.5	7.3	7.2	10.7	11.2	7.7	12.5	14.6
Villages	4.0	3.5	2.0	4.7	6.3	5.2	5.1	8.0	8.3

**Table D.3.3c**  
**Subsidy/rent among different household types**

Model:	1	2	3	4	5	6	7	8	9
value of t	10	10	10	15	15	15	20	20	20
Rent level (% of mr.)	10	20	30	10	20	30	10	20	30
<hr/>									
<b>Household type I.</b>	20.9	54.7	71.9	8.5	34.3	54.7	3.9	20.9	40.3
no kids	24.1	53.3	68.2	11.9	35.8	53.3	5.9	24.1	40.9
one child	15.0	56.8	77.1	2.5	31.2	56.8	0.8	15.0	38.8
two children	12.3	52.1	74.2	2.5	27.5	52.1	0.4	12.3	34.8
three or more	28.7	74.3	93.7	6.3	48.5	74.3	0.4	28.7	56.5
<b>Household type II.</b>	20.9	54.7	71.9	8.5	34.3	54.7	3.9	20.9	40.3
couple	11.1	46.5	66.1	1.9	24.0	46.5	0.3	11.1	30.5
single parents	16.9	54.8	72.6	3.6	32.6	54.8	0.6	16.9	39.4
individuals	50.7	79.9	90.6	29.3	64.8	79.9	15.3	50.7	69.8
other	14.3	45.8	62.2	4.4	27.0	45.8	1.6	14.3	32.5
<b>Age of household head</b>	20.9	54.7	71.9	8.5	34.3	54.7	3.9	20.9	40.3
<35	21.0	65.6	86.4	5.6	38.8	65.6	1.4	21.0	46.9
36-50	11.2	47.7	68.4	2.2	24.7	47.7	0.7	11.2	31.3
51-65	18.3	46.2	62.0	8.0	28.9	46.2	3.5	18.3	33.9
65+	38.1	67.0	78.0	20.8	51.2	67.0	11.2	38.1	56.3
<b>Economically active</b>	20.9	54.7	71.9	8.5	34.3	54.7	3.9	20.9	40.3
active	12.2	48.4	68.8	2.7	25.5	48.4	0.6	12.2	32.1
non-active	36.2	65.9	77.3	18.9	49.6	65.9	9.6	36.2	54.9
<b>No. of earners</b>	20.9	54.7	71.9	8.5	34.3	54.7	3.9	20.9	40.3
none	36.6	66.0	77.4	19.2	49.9	66.0	9.8	36.6	55.1
one	15.8	53.6	71.9	4.6	30.9	53.6	1.3	15.8	37.7
two	9.4	44.5	66.5	1.1	21.6	44.5	0.1	9.4	27.8
<b>Income quartile</b>	20.9	54.7	71.9	8.5	34.3	54.7	3.9	20.9	40.3
lowest	41.6	80.1	93.9	19.1	59.6	80.1	9.5	41.6	66.5
2nd	26.0	64.6	80.0	10.5	42.3	64.6	5.5	26.0	49.3
3rd	11.3	45.9	64.8	4.3	24.0	45.9	1.0	11.3	30.0
highest	6.0	30.1	50.5	0.8	12.8	30.1	0.0	6.0	17.3
<b>Schooling</b>	20.9	54.7	71.9	8.5	34.3	54.7	3.9	20.9	40.3
8 years or less	35.3	70.4	85.3	18.1	59.5	70.4	9.2	35.3	56.8
vocational	17.8	51.0	67.8	5.4	30.9	51.0	1.8	17.8	36.7
secondary	15.3	59.3	80.8	2.4	32.4	59.3	0.6	15.3	40.4
college	8.7	36.1	54.5	3.2	18.0	36.1	1.4	8.7	23.0
<b>Settle. type</b>	20.9	54.7	71.9	8.5	34.3	54.7	3.9	20.9	40.3
Budapest	27.3	62.8	78.0	11.6	42.6	62.8	5.6	27.3	48.9
Big cities	9.2	36.8	52.6	2.9	18.9	36.8	0.6	9.2	24.1
County sites	7.2	36.5	57.7	2.0	16.0	36.5	0.4	7.2	21.6
Towns	9.6	42.0	65.8	3.1	19.2	42.0	0.8	9.6	25.1
Villages	12.3	63.4	101.5	3.9	27.8	63.4	1.2	12.3	36.3

**Table D.3.3d**  
**Share of subsidy enjoyed by different household types**

Model	1	2	3	4	5	6	7	8	9
value of t	10	10	10	15	15	15	20	20	20
Rent level (% of mr.)	10	20	30	10	20	30	10	20	30
<hr/>									
Household type I.	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
no kids	71.7	60.6	59.0	87.0	64.9	60.6	94.3	71.7	63.1
one child	13.9	20.0	20.7	5.7	17.5	20.0	3.9	13.9	18.6
two children	8.4	13.6	14.7	4.2	11.5	13.6	1.4	8.4	12.3
three or more	5.9	5.8	5.6	3.2	6.1	5.8	0.5	5.9	6.0
Household type II.	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
couple	33.0	52.8	57.1	13.8	43.6	52.8	4.9	33.0	47.0
single parents	5.7	7.1	7.2	3.0	6.7	7.1	1.1	5.7	6.9
individuals	56.0	33.6	29.0	79.2	43.6	33.6	60.7	56.0	39.8
other	5.3	6.5	6.7	4.0	6.1	6.5	3.2	5.3	6.2
Age of household head	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<35	19.2	22.9	22.9	12.6	21.6	22.9	6.8	19.2	22.2
36-50	15.9	25.9	28.2	7.8	21.4	25.9	5.1	15.9	23.0
51-65	26.6	25.5	26.1	28.4	25.6	25.5	27.6	26.6	25.4
65+	38.3	25.7	22.8	51.3	31.4	25.7	60.5	38.3	29.3
Economically active	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
active	37.2	56.5	61.1	19.9	47.6	56.5	10.3	37.2	50.8
non-active	62.8	43.5	38.9	80.1	52.4	43.5	89.7	62.8	49.2
No. of earners	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
none	62.3	42.9	38.3	80.1	51.8	42.9	89.7	62.3	48.6
one	21.4	27.6	28.1	15.2	25.4	27.6	9.4	21.4	26.3
two	16.3	29.5	33.6	4.7	22.8	29.5	0.9	16.3	25.1
Income quartile	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
lowest	48.3	35.5	31.6	54.3	42.2	35.5	59.3	48.3	39.9
2nd	30.6	29.0	27.3	30.3	30.3	29.0	34.4	30.6	30.0
3rd	13.3	21.4	23.0	13.0	17.9	21.4	6.2	13.8	19.0
highest	7.3	14.1	18.1	2.4	9.6	14.1	0.0	7.3	11.1
Schooling	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
8 years or less	54.0	41.1	37.9	67.9	47.1	41.1	75.1	54.0	44.9
vocational	26.4	28.8	29.1	19.5	27.8	28.8	14.6	26.4	28.1
secondary	9.7	14.3	14.8	3.7	12.5	14.3	1.9	9.7	13.2
college	10.0	15.8	18.2	8.9	12.6	15.8	8.4	10.0	13.7
Settle. type	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Budapest	85.0	74.7	70.6	88.7	81.0	74.7	94.3	85.0	78.9
Big cities	5.8	8.8	9.6	4.4	7.2	8.8	2.1	5.8	7.8
County sites	3.3	6.4	7.7	2.3	4.5	6.4	0.9	3.3	5.1
Towns	4.8	8.0	9.5	3.8	5.9	8.0	2.1	4.8	6.5
Villages	1.1	2.2	2.6	0.9	1.5	2.2	0.6	1.1	1.7

## **Annex E**

### **Methodology for Determining Market Rents**

As discussed in Chapter 4 on simulation results, one of the key inputs to the housing allowance simulation model is the market rent structure. The current private rental housing market is clearly too small to indicate reliably the rent structure after rent controls are eliminated in the public rental stock. Thus, the market rent structure can only be estimated using information on rents for the small private sector and value data on the existing stock of owner occupied housing (excluding single family houses) as a starting point and assuming that market rents will mirror the market value differences among dwelling units.

Real estate market brokers were the source of information in estimating market rents. The process of estimation had the following steps:

1. Market value estimates were made according to city types and housing 'comfort' categories

The Budapest housing market was divided into three submarkets: Budapest 'A' as the five 'best' districts (I,II,V,XI,XII); Budapest 'B' as the inner city districts on the Pest side (VI,VII,VIII,IX,XIII,XIV); Budapest 'C' as outer districts (III,IV,X,XV-XXII). For the rest of the country three groups of 'Cities' ('five big cities', other county seats, other cities on the basis of administrative definition) and 'Villages' were defined. Five brokers were asked to estimate the market values in Budapest and three brokers for the rest of the country. In each of the regions the brokers had to fill out five tables, one for each comfort category (full comfort with central, modern or traditional heating, half comfort, no comfort). In each of these tables seven number of rooms categories and ten size categories (in square meters) were included in cross-table form. Excluding the 29 unlikely combinations of number of rooms and unit size, brokers had to give 41 values for each territorial unit and comfort category, e.g. Budapest 'A', units with half comfort.

2. Calculation of average values

On the basis of the estimates received from the brokers, the three different city categories (outside Budapest) were merged to one; thus the number of locations has been reduced to five: three in Budapest, other cities, villages. For each broker for each of the locations and comfort categories we calculated first the average of the estimates across unit sizes, then the average of the estimates provided by each broker. Using these figures, and some judgments about how much weight to give 'extreme' estimates of house values, we obtained as the final result a series of tables: for each of the five locations a table containing six size categories and five comfort categories. In each cell of these tables we had the average estimate of market value.

3. Calculation of 'parameters of differences'

On the basis of the tables we could define scaling factors or 'parameters of differences' when the dwelling being considered was redefined along three dimensions, from

a) Budapest A unit to Budapest B, Budapest C, Cities, Villages (in fact, we defined these parameters differently for the case of dwellings with comfort and dwellings with half or no comfort)

b) one room dwelling to 1.5 room, ... , 4 plus room dwelling

c) 'comfort with central heating' category to 'comfort and modern heating', ... , 'no comfort' categories

Using these parameters we computed the rents shown in Table E.1. The starting point for this table was the market rent estimate for a one room dwelling with comfort (and central heating) in the Budapest A territorial unit. The current market rent of this type of dwellings was estimated by the broker of one of the biggest private real estate agencies in Budapest who has a good overview on the whole private rental market. From this starting data we obtained the market rent estimates for all other categories of dwellings in Table E.1 using the scaling factors or parameters of differences discussed above (shown in the lower right hand part of the table). In effect, a constant rent-value or capitalization rate across locations and quality levels was assumed.

#### 4. Checking the plausibility of the results

As a last control we asked four real estate brokers to examine our estimates of the market rent distribution. The majority of them accepted these data without objections. The only critical remark emerged for the case of small units in better parts of Budapest: according to recent tendencies small units have slightly higher rents in Budapest B (inner city) than Budapest A (inner Buda and high prestigious green belt), because most foreigners - whose high effective demand has sharply increased the prices in Budapest A - are not interested in smaller dwellings.

Table E.1 Market rents estimates - FI/month

comfort level	comfort+central heating					comfort+"modern" heating				
	N of rooms	Bp.-A	Bp.-B	Bp.-C	Cities	villages	Bp.-A	Bp.-B	Bp.-C	Cities
1	17500	13125	11375	10500	7000	15750	11813	10238	9450	6300
1,5	21875	18406	14219	13125	8750	19688	14766	12797	11813	7875
2	31500	23625	20475	18900	12600	28350	21263	18428	17010	11340
2.5	35000	28250	22750	21000	14000	31500	23625	20475	18900	12800
3	42000	31500	27300	25200	16800	37800	28350	24570	22680	15120
3.5	49000	36750	31850	29400	19600	44100	33075	28665	26460	17640
average	32813	24609	21328	19888	13125	29531	22148	19195	17719	11813

comfort level	comfort + trad. heating					half-comfort				
	N of rooms	Bp.-A	Bp.-B	Bp.-C	Cities	villages	Bp.-A	Bp.-B	Bp.-C	Cities
1	14875	11158	9889	8925	5950	11375	10238	9100	7963	6258
1,5	18594	13945	12086	11158	7438	14219	12797	11375	9953	7820
2	26775	20081	17404	16065	10710	20475	18428	16380	14333	11281
2.5	29750	22313	19338	17850	11900	22750	20475	18200	15925	12513
3	35700	28775	23205	21420	14280	27300	24570	21840	19110	15015
3.5	41850	31238	27073	24990	16660	31850	28665	25480	22295	17518
average	27891	20918	18129	16734	11158	21328	19195	17063	14930	11730

comfort level:	no comfort				
	N of rooms	Bp.-A	Bp.-B	Bp.-C	Cities
1	7000	6300	5600	4900	3850
1,5	8750	7875	7000	6125	4913
2	12800	11340	10080	8820	6930
2.5	14000	12800	11200	9800	7700
3	16800	15120	13440	11760	9240
3.5	19600	17840	15680	13720	10780
average	13125	11813	10500	9188	7219

**RULES**

settlements

	comfort	no comfort
Budapest A → B	0.75	0.9
Budapest A → C	0.65	0.8
Budapest A → Cities	0.6	0.7
Budapest A → Villages	0.4	0.55

from level 'comfort + central heating' to  
 full comfort + modern heating  
 full comfort + trad. heating  
 half comfort  
 no comfort

0.9  
 0.85  
 0.65  
 0.4

Starting data: 1 room flat full comfort in area Bp. "A" = 17500 FI/month