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Improving Housing by Conventional Versus Self-help Methods: Evidence From Israel

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Summary. The study compares the two major processes of improving housing conditions for moderate- and low-income households in Israel: the institutional solution — relocating eligible households in new public housing; and the spontaneous self-help solution — households who purchase their housing units from a housing management company, improve and enlarge them on their own initiative and with their own resources, with or without the assistance of a publicly subsidised loan. It was found that the self-help improvements produced better housing conditions, better relationships with neighbours and more satisfaction with housing. They increased the individual motivation to work, and also had a positive aggregate impact in preventing neighbourhood decay and encouraging urban renewal. These results were achieved at a low cost to the public treasury as compared to the institutional solution.

Improving the housing conditions of low-income families is an issue of major global importance. The most common procedure in the developed, industrialised countries, involves building standard apartments in multi-unit buildings and relocating the needy households in them. For example, in Britain between 1955 and 1975 nearly 1.5 million persons were rehoused from inadequate or slum accommodations into high-rise apartment buildings, as part of the post-war housing programme (Dunleavy, 1981). According to the same source, the programme is widely regarded as a policy disaster, both socially and economically.

The Israeli experience suggests an alternative solution: encouraging housing improvement and expansion by self-help means. This paper compares the two alternatives and reaches conclusions regarding the relative advantages of the latter approach and the ways to encourage it.

Background and Purpose of the Research

Public housing accounts for nearly half of the 1.2 million housing units built in Israel since it became a state (1948–82).[1] About a fifth of these units were sold to tenants immediately after completion, and the remainder was transferred to the public housing management companies responsible for maintenance and rent collection. These agencies encourage tenants to purchase their apartments, aided by subsidised prices and subsidised loans.[2] In some cases, the agency deducts from the unit's price the sum of

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[1]Public housing in Israel is defined as house construction initiated by government, national institutions, local authorities and companies which are fully controlled by these institutions. Initiative in this context means planning the construction (determining the location and the standard) and inspecting it.

[2]Israel encourages private ownership of housing, but not private ownership of land. Public housing was built on public land, and legal arrangements were established to enable residents to pay a symbolic price for leasing the land for a period of 49 to 99 years, and at the same time, purchase the housing unit which is built on that land parcel.

rents paid throughout the years. Consequently, about half the stock of publicly rented apartments has been sold to their occupants. The majority of the purchasers were moderate-income households, but the very favourable purchase terms have also enabled many low-income households to buy their flats. A recent survey of nine distressed public housing projects in various cities in Israel, found that in five of them close to two-thirds of the housing units were owner-occupied, and, in the other four, 25–50 per cent of the residents had purchased their apartments from the public housing management companies (Carmon, 1985).

Our study did not cover Israel's entire public housing population but only moderate- and low-income families. Hence it concentrated on residential neighbourhoods officially defined as distressed. These features are characterised by poor housing conditions, especially by overcrowding, and also by substandard structures with various physical defects. Two improvement approaches are common:

Institutionalised solution — eligible households, i.e. renters in overcrowded and/or dilapidated apartments, apply to the housing management company which relocates them in another, usually new, multi-family project. Relocation requires the family's consent, and though relocatees have some locational choices, they do not participate in the decision concerning the design of their new residences.

Self-help solution — the family purchases its housing unit from the housing management company, improves and enlarges it on its own initiative using its own resources, with or without the assistance of publicly subsidised loans.

Since the first approach is well-known and well-documented in many countries (Hartman, 1971, 1980; Dunleavy, 1981) as well as in Israel (Jacobsen, 1975; Yuchtman-Ya'ar *et al.*, 1979), the alternative was of special interest.

Self-help housing, when practiced in Third World countries, usually includes all stages of housing production from land acquisition and planning and financing, through actual construction of the housing units, and sometimes even related public services, such as water supply and sewage systems. In most of the cases reported in the literature (Turner and Fichter, 1973; Perlman, 1976; Ward, 1982), the users control the whole process, not only without assistance from the authorities but frequently as an illegal operation. It is only recently (Angel *et al.*, 1983) that several governments in Third World countries have recognised the benefits of this process and have started to intervene and to legalize some of this activity. This change in formal recognition is to a large extent a response to the conclusions and recommendations of many published scholarly articles and books, which analysed the pros and cons of self-help housing. Burns (1983) summarises this literature, which usually emphasises the benefits of the process as mainly low-cost production, employment of otherwise unemployed or underemployed labour, and stimulating domestic industry while conserving precious foreign exchange by using indigenous building materials. From the viewpoint of low-income households, self-help provides an opportunity for owner-occupancy with its economic, social and psychological positive consequences (Burns, 1981), and encourages mutual help and community organisation (Laquian, 1971, 1976). As Burgess (1982) claims, self-help housing, especially sites-and-services projects, are not without faults such as poor location and unaffordability for the poorest of the poor (Peattie, 1986). On balance, however, support for self-help housing projects for developing countries does seem beneficial.

In the developed countries of the Western World, however, self-help housing by moderate and low-income people differs. The common form is self-help housing improvements rather than new housing construction. Professionals may think, in this context, about de facto housing cooperatives in abandoned big buildings and sweat-equity projects (Sunka, 1984; Kolodny, 1986). We refer here not to these limited number of isolated cases of self-help, but to the widespread urban phenomenon that Clay (1979) calls 'incumbent upgrading'. In older neighbourhoods of low- and moderate-income families, settled at low density with mainly one- to four-family houses, long-term owner occupants invest in housing upgrading. Usually the procedure is legal, self-initiated and mostly self-financed, but often external professionals are brought in to assist with the planning and the actual construction work. This process is quite common in many cities of the developed countries, including Israel, but it has seldom been the object of systematic inquiry. This type of self-help improvement is the subject of our investigation.

For the last five years, we have been observing the house improvement process as consultants to the Israeli Ministry of Construction and Housing, as researchers at the S. Neaman Institute for policy research, and as teachers at the Technion — Israel Institute of Technology. In these frameworks, we surveyed 70 low-income neighbourhoods (unpublished), completed 130 mini-studies administered by university students in public housing projects throughout Israel (unpublished) and conducted two full-fledged empirical studies (Carmon and Oxman, 1981, 1986; Carmon and Gavrieli, 1982). Our first studies 'discovered' the high frequency of self-help housing rehabilitation in places where small units in small buildings (1–2 storeys) of public housing built during the 1950s. We studied the factors behind the process and a few of its advantages for the individual families as well as for the public at large. The empirical study reported here, was designed to compare more systematically the two alternative housing solutions and the population of households involved in each. It sought answers to two questions:

1. What were the effects of the two alternative housing solutions on the individual households and on the neighbourhoods in which they were carried out?
2. Do the socio-economic characteristics of the households who chose the self-help solution differ significantly from those who were subject to the institutional solution: were the latter incapable of undertaking a self-help project?

The answers to these questions served as the basis for recommendations relevant to housing policy in Israel and to other countries with similar combinations of factors.

Method

'Housing improvement' was defined for the purposes of this study as one of the following:

Relocation — the local housing management company relocates a household from an old inadequate apartment into a new one within the same neighbourhood.

Self-help expansion — enlargement of the original apartment, financed and initiated by its occupants.

Two residential areas of public housing were selected for the comparative study of the two types of housing improvement. Both were neighbourhoods of approximately 10,000 residents on the outskirts of medium-size towns with populations of about 40,000, and both were included in the government's list of 'distressed neighbourhoods'. They were selected because they are typical of public housing projects in Israel, the majority of which were built as big clusters on public land at the periphery of towns and cities. Both areas contained the two major types of public housing which have been built in Israel throughout the years, i.e. very small apartments of about 40 sq. metres in small buildings (usually 2 storeys) built during the 1950's, and larger units of up to 85 sq. metres in taller buildings (walkups of 3–4 storeys) from the 1960s and 1970s.

Two samples were drawn in each neighbourhood:

A sample of 'relocatees' was taken from the files of the local branch of the public housing management company;

A sample of 'expanders', selected by means of a 'windshield survey' (from a car driven slowly through the neighbourhood), which enabled those households that had enlarged their original small apartments to be spotted.

A short questionnaire was administered selecting only those households where the housewives were under age 50 (there was no interest in households whose housing needs were declining), and who had either been rehoused or who had expanded their dwelling within the last decade.

During March–April 1981, 205 women were interviewed, i.e., about 50 in each of the two samples of each of the two neighbourhoods. Only women were interviewed, in order to control for the variable of sex and because they were considered to be more familiar with the issues of home and neighbourhood.[3] The questionnaire consisted of 110 questions, most of which were closed. Each ques-

[3]The advantage of controlling for the sex variable can be considered a disadvantage, because men's attitudes can be significantly different from women's. This could have been the case in our study, and we had no way of checking it. However, one should note that the critical question of the intention to stay or to move from the neighbourhood was directed to actual plans for the near future, and it may be assumed that such plans are common to both spouses.

tionnaire was accompanied by a drawing of the original dwelling and the interviewer was asked to sketch on it the changes and additions which tenants had made.

The data were collected and analysed for each of the four research groups, i.e., for relocatees and expanders separately in the two neighbourhoods. However, since we found that the distribution of the major socio-economic variables (education, occupation and income) and the variables of housing conditions and housing satisfaction were not significantly different between the two groups of relocatees and between the two groups of expanders, it was decided to merge both neighbourhood samples and to compare all the relocatees with all the expanders.

Findings

The Process of Housing Improvement

The main reason for the housing improvement of both the expanders and the relocatees was overcrowding and lack of space for children of different ages and sexes. Sixty nine per cent of the former and 66 per cent of the latter cited this reason. Other reasons of the relocatees were dissatisfaction with the social environment (13 per cent) and problems of housing maintenance (11 per cent), such as dampness and general neglect. The expanders mentioned as other reasons for their activity the opportunity to get a loan on good terms (21 per cent), an improvement of their economic situation (8 per cent) and a decision to follow the initiative of their neighbouring expanders (9 per cent).

None of the relocatees was forced to leave their former place. The relocatees initiated their relocation by applying to the local branch of the housing management company and asking to be rehoused. Forty three per cent were relocated within one year of their request and 15 per cent reported that the process had taken over 5 years; the rest were almost equally divided between 1–2 years ans 2–5 years. Sixty one per cent of the relocatees said that they had been offered only one apartment, but 31 per cent could choose one of several apartments. Only 8 per cent reported that the local officials suggested that they consider other alternatives, such as purchasing a new apartment, or buying and enlarging the old apartment which they had occupied. The relocatees were asked why they did not buy their former apartment and enlarge it, as many residents of their neighbourhood had done. Just 25 per cent said that they had not wanted it, either because they preferred to move out of their former environment, or because they hated the idea of being involved in construction work, or because they thought the place had run down too far. Seventy-five per cent said that they would have been interested in the expansion alternative, had they received some financial aid (30 per cent), or had they been given building permits and technical advice (45 per cent).

All the relocatees rented from the public housing management company, while all the enlargers had been renters for years, but changed their status into owners by purchasing their dwellings from the company, usually with the intention of enlarging them (renters are not allowed to make any changes in the company's property). The initiative to enlarge was an individual one: only 9 per cent reported that they had built in collaboration with their neighbours. After deciding to enlarge, the dwellers had to struggle their way through the tedious process of obtaining a building permit, financing, planning, and construction. All the expanders answered that they had received building permits: 50 per cent within 6 months and another 40 per cent within 6–12 months. The two municipalities in which the study was administered encouraged the process by partly eliminating bureaucratic delay red tape for those who applied for renovation permits.

A third of the expanders financed expansion solely from personal savings; another third supplemented their savings with loans from relatives, friends, employers, labour unions, and private banks; only one third also used publicly subsidised loans of the Ministry of Housing. Very few said that the governmental loan had been the main source for financing the construction and this is because the eligibility regulations for such loans strictly limited the number of eligible families and the amount of subsidy they could receive.

Ninety-three per cent of the expanders claimed active involvement in planning the expansion; only 7 per cent reported that a professional had done the planning without participation by family members. As for actual construction: 9 per cent built without any help from non-members of the family, 6 per cent were helped by relatives and friends and another 17 per cent did the work themselves with some aid from skilled workers. Two-thirds did not build with their

own hands, but since all of them continued living in the apartments while they were being enlarged, they were involved in the construction process, if only by inspecting it.

Three-quarters of the expanders worked continuously on the additions to their dwellings, 14 per cent built in two different stages and the rest in three stages or more. The construction time of the major expansion usually took up to one year (70 per cent), but in a few cases (12 per cent) it took over three years.

In summation, the relocatees were hardly involved in decisions regarding their relocation. Indeed, relocation did not happen unless they applied for it and in a few cases they could even choose between a few flats, i.e., they were not at the lowest level of 'manipulation' on the ladder of citizen participation (Arnstein, 1969; Law-Yone *et al.*, 1981) but rather the next level, that of 'consultation'. The expansion process was really one of self-help. The users controlled all the stages: the initiative, the financing, the planning and the construction, even though in most cases they did not build with their own hands. In those cases in which professionals were involved, they were nominated by and accountable to users. Hence, the process may be characterised as 'citizen control', the highest level on the participation scale.

The Consequences of Housing Improvement

All persons interviewed improved their housing conditions considerably. The average size of the relocatee's apartment was increased by 40 per cent to 79 sq. m. The average apartment size of the expanders was doubled to 94 sq. m.[4] Density rates are shown in Table 1. The difference in housing density between the two groups was considerably increased by the housing improvement: housing density of close to 70 per cent of the relocatees was still under 12 sq. m. per person, while only 16 per cent of the expanders fell into this category.

Table 1

Housing density (sq.m. per person) by type of Housing Improvement(%)

	Total	up to 8 sq.m.	9–12 sq.m.	13–20 sq.m.	about 30. sq.m.
Before					
Relocatees (n = 107)	100	45	39	16	–
Expanders (n = 97)	100	37	44	17	2
After					
Relocatees (n = 107)	100	7	62	31	–
Expanders (n = 97)	100	1	15	71	13

Before: $\chi^2 = 15.5$; DF = 6; $P \leqslant .05$; $\gamma = .17$.
After: $\chi^2 = 67$; DF = 6; $P \leqslant .000$; $\gamma = .72$.

Moreover, the expanders continued to live in their old buildings of up to two storeys, usually with four families per building, while the relocatees were transferred to multi-entrance buildings of 3–4 storeys. Indeed, the architectural design and the internal layout of the relocatees' dwellings were professionally evaluated as 'good'. Relocatees were aware of this, and a great majority of them were satisfied with these aspects. The design and layout of the expanded units were not considered as good by professional standards,[5] but the residents tended to ignore the defects[6] and to express their satisfaction with almost all the components of their present dwellings.[7] When asked about their satisfaction with the apartment in general, 76 per cent of the expanders said that they were satisfied and only 7 per cent said that they were dissatisfied, compared to 44 per cent and 24 per cent respectively, among the relocatees ($\chi^2 = 22.2$; DF = 2; $P < .000$).

In addition to these direct consequences, we inquired about the impact of housing improvement on family relations, on the relationship with neighbours, and attitudes towards the neighbourhood.

Regardless of the type of improvement, most of those interviewed reported that the change in hous-

[4]As noted above, the sample of expanders was selected by means of 'windshield survey' of the neighbourhoods. Even though the surveyors were instructed to list every enlargement, the method could have caused a bias in favour of the more visible large expansions.
[5]Professional evaluation of the relocatees' new apartments and of the expanders' enlarged dwellings was based on a method suggested by Herbert (1978) which was adapted to the needs of the current research.
[6]The most common defects in the enlarged dwellings were inefficiency in the inner circulation system and discontinuity with the original building form in the building exterior. There were hardly any complaints about technical defects, such as cracks in walls, which could have been expected in these circumstances.
[7]As Ward (1976) says, 'deficiencies and imperfections in your housing are infinitely more tolerable if they are your responsibility than if they are somebody else's'.

ing conditions had no impact on husband–wife, parent–child and child–child relationships. The same was true for children's achievements at school. But 13 per cent of the relocatees, compared to 2 per cent of the expanders, said that things in the family had changed for the worse.

An interesting finding is that 68 per cent of the expanders (and none of the other group) reported that the expenditures connected with the housing enlargement caused them to work more than they had worked before: 53 per cent claimed to work longer hours, and 15 per cent of the women who had not been employed started working outside the home as a means of financing the project.

Relationships with neighbours were better in the buildings of the expanders compared to the buildings of the relocatees, as shown in Table 2. This difference was unexpected because protracted construction work done in the buildings of the expanders could have caused friction among the neighbours. Moreover, the relocatees' buildings were generally homogeneous from the standpoint of their residents 'stage in life cycle'; almost all of them were families with children, while the expanders' buildings were mixed with young couples, families with children, and the elderly. Nevertheless, most of the expanders had 'good relationships with everyone', and very few reported 'bad, or no connection'. In addition, there were hardly any quarrels in the expanders' buildings, but 17 per cent of the relocatees mentioned such quarrels and 44 per cent of them said that relationships with neighbours in their former places of residence had been better than in the present ones.

The most important question which may have an impact on the future of the neighbourhood dealt with future housing intentions. Table 3, which presents the findings, shows that there is much to be

Table 2

Neighbour Relationships by Type of Housing Improvement (%)

	Total	Good with everyone	Good with some, bad with others	Bad, or no connection
Relocatees (n = 106)	100	53	19	28
Expanders (n = 97)	100	73	19	8

$\chi^2 = 14.2$; DF = 2; $P \leqslant .000$; $\gamma = .43$.

Table 3

Wish and Intention to Leave Apartment by Type of Housing Improvement (%)

	Relocatees (n = 107)	Expanders (n = 98)
Total	100	100
Intend to leave	14	4
Wish to leave (but do not intend to do so)	73	53
Do not wish and do not intend to leave	13	43

$\chi^2 = 25.3$; DF = 2; $P \leqslant .000$; $\gamma = .59$.

improved in the neighbourhoods in order to make them desirable for most of their residents. (Recall that these neighbourhoods are officially defined as distressed.) However, the data also show a significant difference between the two groups: very few of the expanders intend to move out of their places; more than three times as many expanders do not wish and do not intend to leave their apartments, in comparison to the relocatees. Usually, 'strong' families such as the expanders (see below for their socioeconomic characteristics) are the first to leave distressed neighbourhoods (Enosh and Shacham, 1980). Our finding, that more of them—compared to the 'weaker' relocatees—wanted to stay, was interpreted as mainly a consequence of their high satisfaction with their self-enlarged apartments. Since negative selection of residents (strong households move out and weaker ones move in or stay), is considered a major cause of neighbourhood deterioration (Carmon and Hill, 1984), arresting it — which seems to be a result of the process under discussion — is a crucial contribution to the desired goal of neighbourhood rehabilitation.

Characteristics of the Relocatees and the Expanders

As shown in Table 4, the two research groups were similar in their ethnic origin, level of education of the male head of household, his occupation, and the time which had elapsed since housing improvement. In addition, we found a similar distribution of answers to several questions regarding attitudes to life and to the role of the government. The examples in the table are questions about hopes for the future (whether things are going to change for the better, or for the worse, or hardly change at all), and about their opinion regarding the government role in

Table 4

Similarities Between the Research Groups

	% immigrants from Asia and Africa	% male up to 8 years of schooling	% male blue-collar		% over 5 years in improved apt.	% expressed optimism	% expressed non-dependency on government
			skilled	unskilled			
Relocatees (n = 107)	93	65	48	46	49	68	85
Expanders (n = 98)	79	59	49	40	54	65	93
Israel (1981)	30	29	44	13	–	–	–

Table 5

Significant Differences between the Research Groups

	% families with low incomes*	% women up to 8 years of school	% women employed	% raised** in Israel
Relocatees (n = 107)	63	70	16	23
Expanders (n = 98)	15	51	31	52
χ^2 Significance	$p < .000$	$p < .006$	$p < .01$	$p < .001$

*Low income: 60% of the median income for 1981, or less.
**Heads of households who were either born in Israel or immigrated to Israel before the age of 12.

housing (whether the government should provide free apartments to young couples).

However, several dissimilarities between the two groups were also found, which may explain the choice of different solutions to their housing problem. The expanders' main advantage was their superior economic situation: they had a higher average income (1.4 times as high on the average) and a smaller number of children (typically 2–4 as against 4–6). The difference in income seems to be connected with having more breadwinners in the family (more employed women) rather than with a different distribution of occupations. Another significant difference is the expanders' greater seniority, which might have resulted in greater familiarity with available opportunities.

Since the characteristics of about half of the relocatees are very similar to those of the expanders, and based on the finding (see above) that 75 per cent of the former said that, under certain circumstances, they would have preferred the self-help alternative we may conclude that the great part of this half has the potential for participating in self-help. It means that if renters with not-so-low per capita incomes, and with educated and/or working wives, are provided with the appropriate information and eligible for subsidised loans, there is high probability that many of them will undertake self-help housing improvement. As for the other renters, our conclusion is that they cannot afford the personal and financial resources which are required for the self-help alternative and therefore, do need the institutionalised solution of subsidised rental housing.

Conclusions

Israel, because it is a welfare state, provides a wide range of services to its residents. The clients of these services, especially those with below-average income, are often accused of being passive users only. Our studies show that when given the opportunity and when people feel that they have control over their situation, many become active *participating* users, contributing to their own welfare as well as to that of the public in general. The proof is in the observed spread of self-help housing improvements among moderate-income and also low-income households in many of the old public housing projects in Israel.[8] According to the findings reported in this paper, as well as according to our earlier studies, this spread has had the following outcomes:

[8]See Appendix I in Carmon and Oxman, 1981.

(a) Private renewal of old urban dwellings, yielding social as well as physical impacts. Renewal has halted the exodus of economically and socially 'strong' households from the neighbourhoods. Flight is often a major cause of neighbourhood deterioration and stopping it is a key step towards rehabilitation.
(b) Improved housing conditions for households with below-average income, including a high degree of satisfaction with the housing.
(c) Improved housing stock at a low cost to the public treasury.[9]
(d) Better community life, expressed by good relationships among neighbours.
(e) Positive impact on the motivation to work and to increase family income.[10]
(f) Reduction of governmental bureaucracy.

In all these respects, self-help improvements were found preferable to the institutional solution of relocation, even when relocation was carried out with the family's consent and within the boundaries of the same neighbourhood.

Our findings indicate that an expanded self-help program is possible. They show that where small structures have a reserve of open space around the house,[11] and where tenure shifts from renting to owning is supported by incentives, households will take advantage of the possibilities when their needs and capabilities grow. Self-help improvements then follow spontaneously. It can be encouraged and increased by removing the red tape in obtaining building permits for renovation. Mayer and Enis (1981), who studied the same neighbourhood we did, show that the authorities may further influence the process by increasing public investment in infrastructure such as road paving and developing open areas in the designated areas, the externalities of which may enhance opportunities for private investment in these areas.

Most of those who improved their housing conditions through relocation, said that they would have preferred the self-help solution. Indeed, their average income was low, but there were many among them whose socioeconomic characteristics and attitudes resembled those of the expanders. Hence, many who accepted relocation could have opted for the preferred self-help solution, and would have done so if they had been made aware of the opportunity, had received guidance regarding steps in the process, and — most important — had access to subsidised loans with convenient terms of payment. The required subsidy seems worthy, in light of the many private and public benefits associated with the self-help solution.

Needless to say, we do not suggest turning all renters into owners or eliminating rented public housing. A considerable group of poor will always need it. Moreover, an underlying assumption of our recommendations is that the group in need will be the indirect beneficiary of the public subsidy which should be targetted for the less-poor households who can purchase and improve their old houses. An important aim is to reduce segregation which separates the less-poor from the more-poor and causes the latter to live in a social isolation that lessens chances for social mobility, especially for their children. encouraging moderate-income households to remain in the same neighbourhoods with low-income households is a major expected contribution of implementing our recommendations.

Endnote

The findings of our studies of self-help housing rehabilitation were transmitted in many ways—written documents, conferences, briefings—to decision makers in Israel. We succeeded in creating one of the few instances in which there was a clear impact of research on government action. Israel's

[9]The low cost estimation depends on the finding that most expanders did not use any public funds for their housing improvements, and the third of them who used subsidised loans added their own savings to it. Our findings in this respect are in line with what Glazer (1982, p. 89) wrote: 'Voluntarism and self-help can do a great deal to provide for needs and services that, if provided through the state, require a heavy burden of taxation and a variety of unpleasant economic developments.'

[10]Increasing work motivation was an important by-product of the self-help housing improvement process. This finding accords with the analysis of the impact of improvements in housing conditions on work productivity by Burns *et al.* (1970). Their international study showed that investment in housing was not only socially desirable but often also economically productive, because it improved work productivity of the better housed. We might also add that providing opportunities for housing improvement contributes to economic growth, because people are prepared to enter the workforce and to work longer hours in order to pay for better housing.

[11]The two common arguments against small houses for below-average-income families are their price and the need of high urban density. In a study of building cost in Israel, Warszawski *et al.* (1982) found no significant difference between the costs of similar size apartments in low-rise and high-rise buildings. The combined development cost and building cost of the former ran 10 per cent higher than the latter, but this difference is reduced when long-run costs are calculated. As for urban density, in our study areas there were usually 4–6 housing units per net dunam (1/4 acre), but in other Israeli neighbourhoods a higher urban density was achieved: there were up to 8 units in two-storey expandable buildings on each net dunam.

Project Renewal which started in 1979 adopted most of our detailed recommendations, and towards the end of 1982 operated a system to subsidize and technically assist self-help housing improvements. The costs and benefits of the new system are reported elsewhere (Carmon, 1985).

The Israeli self-help housing improvement process may seem atypical, because it combines private ownership (versus renting), remaining in the same place (versus relocation), and self-help (versus 'institutionalised solution'). However, this combination of housing characteristics, as well as the above described residents characteristics, are not unique to the Israeli case. The British Housing Acts of 1969 and 1974 were directed to improvement areas, many of which had similar population of low-income owner-occupiers who were expected to both use the governmental subsidies and invest their own resources in their old housing units (Gibson and Langstaff, 1982). The wide-spread phenomenon of incumbent upgrading in American cities (Clay, 1979), also involves long-term owner-occupants, mainly blue-collar and some white-collar workers, with moderate income, living in low-density neighbourhoods with mainly one- to four-family houses. This suggests that the Israeli experience, including our conclusions and recommendations, may be relevant to other countries.

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