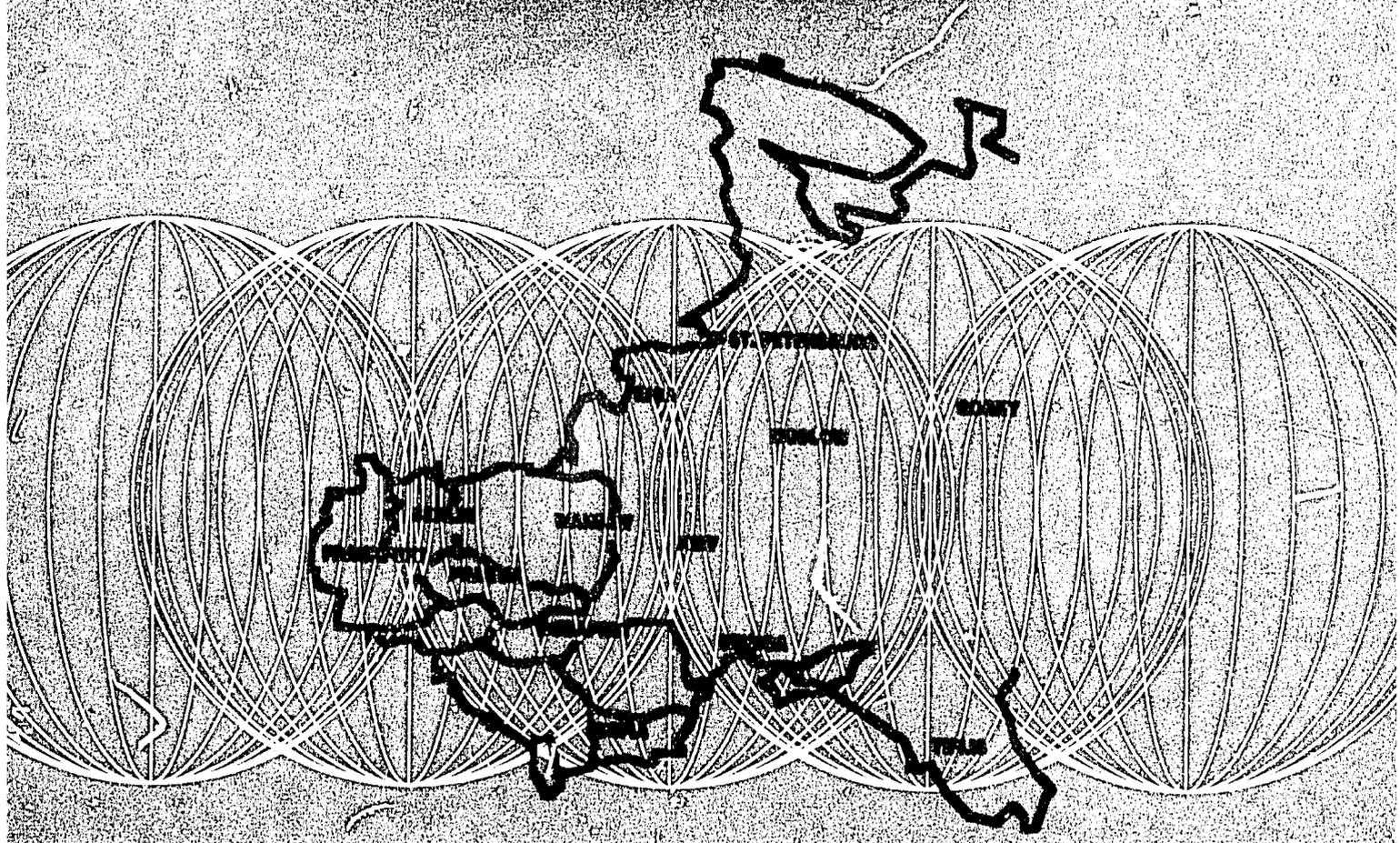
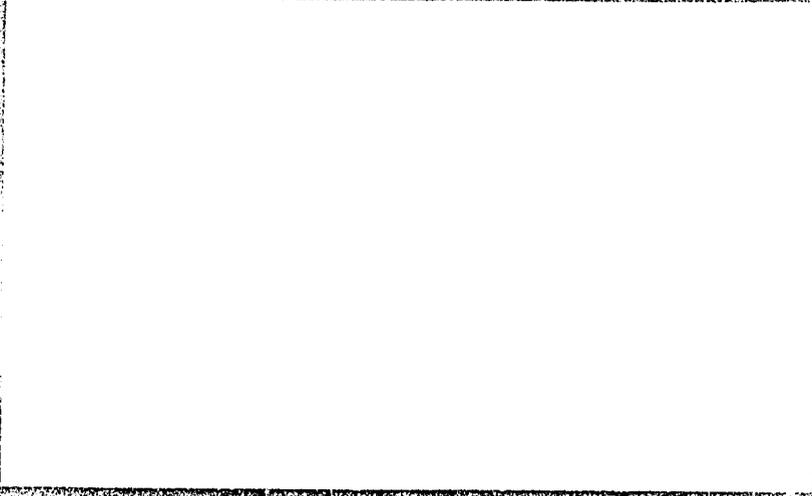


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**AN INTERNATIONAL ACTIVITIES PROJECT**

**FROM PLANNING TO MARKETS  
HOUSING IN EASTERN EUROPE**



**THE URBAN INSTITUTE**  
Prepared for the Office of Housing and Urban Programs (USAID)

**DWELLING CONDITIONS  
AND THE QUALITY OF MAINTENANCE  
IN MOSCOW'S STATE RENTAL SECTOR**

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## **EXECUTIVE SUMMARY**

This paper presents the most detailed information on housing conditions in Moscow yet available, based on a survey of 2,000 dwelling units that were state rentals as of January 1992. About a quarter of these units were privatized by the time of the survey in December 1992. In effect, these data give us a picture of the living environment of most Muscovites at the start of the transition of the rental sector to market principles, which involves the raising of rents to provide improved maintenance.

The survey generated data on two types of outcome: (a) building conditions and interruptions in services (e.g., heat); and, (b) the experience of tenants when they requested help from the state maintenance company (RAiU). The general patterns suggest extraordinarily poor quality services by the RAiUs:

- Both interviewers' observations and tenants' opinions agreed that the entryways in 14 percent of the buildings were in such bad condition as to require full rehabilitation; about another one-third need some rehabilitation. Combined, nearly one-half of the entryways in state rental housing were so deteriorated as to need at least partial rehabilitation.
- For the previous two months, lights were reported not working in the public spaces most of the time in most of the buildings; 40 percent of respondents reported lights were off for the whole month. The situation is even worse for security systems (numeric code systems or a concierge to watch the door): three-fourths of all systems were simply not working.
- Thirty percent of respondents reported rubbish in the halls or stairways frequently, and about the same share reported frequent breakdowns in lift services, i.e., either the whole month or, during the past two months, 3 or more breakdowns or for more than 1-2 weeks at a time.
- Ten percent of tenants reported that their heat was off frequently in the preceding two months—3 percent were without heat for a whole month. Similarly, 9 percent reported that their toilets leaked most of the time.
- A quarter of all respondents who reported having a problem that should have been corrected by the RAiU said they had not even bothered to report it.
- Looking at the cases in which tenants ask for assistance from the RAiU, the repair was eventually made in 55 percent of the cases (35 percent of the time the repair was made more or less on the schedule promised by the RAiU). In 39 percent of these cases the repair was simply never made.

The paper also examines several hypotheses about the variation in the quality of housing and whether there is systematic variation in housing conditions among the various generations of buildings. The hypotheses and our conclusions are as follows:

- (1) *Excluding the elderly, higher income families have better housing.* Generally, family income had a modest but significant impact on flat quality and little effect on the quality of the public spaces in the building in which the unit was located.
- (2) *Those in favored occupations have better housing—both better flats and buildings.* This hypothesis was generally supported: directors, managers, and the intelligentsia (including the *nomenklatura*) occupy better housing than skilled and blue collar workers. In between are the military and other white collar workers. This finding reflects the importance of non-market channels for obtaining good housing under the prior regime.
- (3) *Households headed by an elderly person live in better units but not better buildings.* This hypothesis was supported to a limited degree. Higher income pensioners, over their lives, have been able to improve the quality of their units through unit swaps, personal influence, and side-payments. This is not true for lower income pensioners. In general, the quality of public space is very difficult to upgrade.
- (4) *Departmental buildings, i.e., those belonging to state enterprises and government agencies, are on average of lower quality than municipal buildings but they also exhibit a higher degree of quality variation than municipal buildings.* Both parts of the hypothesis are supported, seemingly confirming the weak incentives of those who control these buildings to maintain them but also indicating that certain buildings are well-maintained for high ranking officials.
- (5) *Housing quality varies systematically with the type of building, i.e., some building types were of better design and construction than others and this has a lasting effect.*
- (6) *Higher quality buildings have better maintenance services than other buildings.*

Taking the results for these last two hypotheses together we see an interesting pattern: while the better buildings do receive better maintenance, the quality of maintenance is still so low that deterioration occurs even to initially sound buildings which are slated for priority maintenance such as those from the Stalin era.

The findings taken as a whole paint a bleak and distressing picture of life in state rental housing buildings in Moscow. They also indicate a situation in which families with greater economic resources have little ability to command better quality housing. Rather, at this early stage in the transition the distribution of housing remains, as one would expect, largely determined by the system under the prior regime in which housing allocations were based on non-market principles.

Finally, the awful state of building maintenance makes clear the enormous challenge faced by those who would attempt to improve housing maintenance. The depth of the problems with the monopolistic state companies mirrored in housing conditions suggest that it may be extremely difficult, even impossible, to work within the current framework to achieve improvement. More radical options are likely to be necessary, each of which must include the introduction of competition among firms, and possibly the wholesale replacement of state maintenance companies with private firms.

## **DWELLING CONDITIONS AND THE QUALITY OF MAINTENANCE IN MOSCOW'S STATE RENTAL SECTOR**

The housing problems of the Russian Federation are suggested by the numbers commonly cited by Russians and international scholars: the small number of square meters of housing per person compared with international standards and the enormous waiting lists and long queuing times for obtaining better housing.<sup>1</sup> While this information and published data on the number of units furnished with basic services<sup>2</sup> are useful, they provide an extremely limited picture of the conditions under which most Russians live.

This paper describes the housing conditions of Muscovites by detailing the physical characteristics of the housing stock (both of flats and the public spaces in the buildings in which they are located), inventorying the breakdowns in hot water, elevators, toilets, electricity, heat and other services in the two months preceding the survey, and describing the tenants' satisfaction and experiences with the public firm (RAIU) managing their buildings. The findings are based on a survey conducted in December 1992 of a random sample of 2,000 Moscow units which were state (municipal or departmental) rentals at the beginning of 1992; some of these units were privatized during the year.<sup>3</sup> To our knowledge this information permits us to present the most comprehensive picture to date about actual living conditions.

It is important to document systematically the physical conditions of housing in Moscow near the beginning of the period of transition to a market-oriented housing sector. Information on unit size and quality and the reliability of the services provided through housing, such as hot water and lift services, are critical baseline data for measuring the effectiveness of the policies to improve housing conditions implemented by the City and the Russian Federation. With respect to dwelling and building quality, such policies include privatization of the housing stock, the creation of condominium associations which permit the new owners to take control of the management of their buildings, and the program to change the housing management for buildings owned by the City from monopolistic state firms (RAIUs) to private firms selected on a competitive basis whose contract renewal depends on their providing high quality services.<sup>4</sup>

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<sup>1</sup> See, for example, Andrusz (1990), Alexeev et al. (1991), Kosareva (1992).

<sup>2</sup> Information is published on the share of units with piped water, connection of the unit to a sewerage system, central heat, presence of a bath or shower, hot water service, and gas service.

<sup>3</sup> The survey was organized by the Urban Institute and funded by USAID. Staff at the Institute for Economic Forecasting of the Russian Academy of Sciences drew the sample, fielded the survey, cleaned the data, and prepared a machine readable file.

<sup>4</sup> A demonstration of private management of municipal housing was initiated in March 1993, when 2,000 units were placed under contract with three private firms.

It is also important to state clearly that Moscow's housing stock is not representative of that of other urban areas in Russia. Moscow has a significantly larger housing stock per capita; Muscovites enjoy 18 square meters per capita while the national average in urban areas is 16 square meters. There is essentially no individual housing in the city, while there is 26 percent nationally in urban areas. Moscow differs as well in the comparatively small share of its stock that is in the departmental fund, 18 percent, compared with all urban areas (44 percent). Correspondingly, the municipal stock was of overwhelming importance in Moscow: 73 percent of the stock in 1991, at the start of the privatization era.<sup>5</sup> Overall, standard measures indicate that the housing situation in Moscow is appreciably better than in the rest of the country.

The findings of this analysis are distressing. Housing quality is low--both of individual flats and the public spaces in the buildings. Disruptions to basic services are common; public space are often in need of rehabilitation. The record of the state management companies in responding to requests for services is extremely bad, according to the tenants.

Tests of several hypotheses about the distribution of housing quality among the population shows that there is a moderate correlation of flat quality with income, but the condition of public spaces in buildings in which families reside bears little relation to their economic position. On the other hand, there is some sign that those with high prestige occupations had somewhat better quality flats and lived in buildings with better public spaces than other households. There is also evidence that over their lifetimes, higher income families are able to improve dwelling quality (but not building quality) through swapping units, using influence, and other means. Lastly, while there are some distinct differences in the current quality of different generations of buildings (e.g., the Stalin era, the Khrushchev era), maintenance is of such poor quality that even the best constructed buildings appear to decline steadily in quality over time.

The awful state of building maintenance makes clear the enormous challenge faced by those who would attempt to improve housing maintenance. The depth of the problems with the monopolistic state companies mirrored in housing conditions suggest that it may be extremely difficult, even impossible, to work within the current framework to achieve improvement. More radical options are likely to be necessary, each of which must include the introduction of competition among firms, and possibly the replacement of state maintenance companies with private firms.

The balance of this paper provides information supporting the general conclusions just enumerated. The first section describes the data employed and

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<sup>5</sup> State Committee on Statistics (1992).

gives the necessary definitions. The second section provides a general picture of the quality of state housing in Moscow, relying on about thirty indicators. Sections 3 and 4 are devoted to stating and testing six hypotheses on how housing quality and maintenance services vary among different types of renters and different types of buildings.<sup>6</sup>

## **1. DATA AND DEFINITIONS**

This section describes the data set and explains some of the variables constructed from the survey data.

### ***Sample Survey***

The objective of the survey was to obtain a sample of 2,000 units that were state rentals as of January 1992. The primary sample was randomly drawn from a listing of residential telephone numbers provided by the Moscow Telephone Network. As of October 1992, 92 percent of apartments in Moscow were equipped with telephones. The great majority of those without phones are in areas of newly constructed buildings who are awaiting the initial installation of this equipment. To improve the sample's representativeness, units in three large newly developed residential areas were selected from a listing of units in each of the areas. Including these areas, 95 percent of the units in Moscow were included in the population.

The population was restricted to state rentals. The interviewer asked the unit occupant if the unit met the definition for inclusion. If the occupant of a unit refused to be interviewed, the interviewer followed instructions for selecting a similar unit in the same building, usually a unit directly above or below the one originally selected through the telephone listing. A total of 2,002 interviews were completed in December 1992.

### ***Definitions***

Most of the quality indicators and other variables used in the analysis presented below are self-explanatory. There are several, however, that require some explanation.

The survey gathered information on many aspects of housing quality, as suggested by the listing of variables in Table 1.1 (see pages 7-9). The questions about quality had different ranges of response. For example, one question might ask about satisfaction with unit quality on a five point scale (totally dissatisfied to very

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<sup>6</sup> A description of the first experiment, in Moscow, with the introduction of private management for municipally owned buildings is provided in Olson (1993).

**TABLE 1.1  
QUALITY INDEX DEFINITIONS**

Label	Definition	Note/ Units	Type of Tranformation	Mean	Standard Deviation
<b>Flat Quality Indexes</b>					
FQI	Synthetic flat quality index	(a)	C	3.06	0.32
FTS	Total space	sq. m	T	2.22	0.76
FNR	Number of rooms		S	2.28	0.84
FKIT	Size of kitchen	sq. m	T	1.94	0.58
FCE	Ceiling height	cm	T	2.43	0.65
FTU	Type of unit (1=communal; 5=single)		S	4.54	1.28
RATIO	Total space/living space	(k)	C	2.67	0.79
FAM	Synthetic amenity subindex	(b)	C	4.20	0.50
FAMHOT	Hot water equipment (1=coal; 5=cental)		S	4.91	0.36
FAMWC	Toilet (1=outside unit; 5=in unit, separate from bathroom)		S	3.77	0.44
FAMFL	Floors (1=wood; 5=parquet)		U	3.62	1.47
FAMRUB	Rubbish collection (1=collector vehicle; 5=inside building)		S	4.10	1.34
FAMTEL	Telephone (1=no; 5=yes, separate)		S	4.60	0.88
FPC	Flat physical condition subindex	(c)	C	4.22	0.54
FPCHE	Heating off	(d)	U	4.32	1.10
FPCOV	Additional heating needed	(d)	U	4.43	1.16
FPCHW	Hot water off	(d)	U	4.08	1.13
FPCCOM	Toilet leaks	(d)	U	5.54	1.10
FPCWO	Overheating	(d)	U	5.71	0.77
FPCDRO	Leaks in ceilings and walls	(d)	S	4.25	1.38
FPCMIC	Mice (1=many; 5=no)		S	4.25	1.27
FPCROA	Roaches (1=many; 5=no)		S	3.30	1.56
FPCANT	Ants (1=many; 5=no)		S	4.06	1.44
<b>Public Space Quality Indexes</b>					
PQI	Synthetic public space index	(e)	C	3.30	2.57
PTB	Type of building (1=decrepit; 5=modern)		S	3.07	0.90
PWALL	External wall (1=wood; 5=brick)		U	3.46	1.32
PARR	Years since rehabilitation	(m)	C	3.76	1.05
PCOND	General condition (1=very poor; 5=very good)		U	2.53	0.90
PLAMP	Lights missing	(d)	U	2.62	1.59
PSEC	Security system broken	(d)	U	1.86	1.13
PCLE	Poor cleaning	(d)	U	3.45	1.60

**TABLE 1.1  
QUALITY INDEX DEFINITIONS  
(continued)**

Label	Definition	Note/ Units	Type of Transformation	Mean	Standard Deviation
<b>Public Space Quality Indexes (continued)</b>					
PRUB	Rubbish in halls	(d)	U	4.53	1.08
PSMELL	Odor in halls	(d)	U	3.92	1.46
PICE	Snow/ice uncleared from entrance	(d)	U	4.45	1.16
PLIF	Elevator breakdowns	(d)	U	2.87	1.53
<b>Interviewer Indexes (Flat and Condition of Environment)</b>					
INTF	General index	(f)	C	3.84	0.75
IFHW	Holes in walls	(g)	S	4.81	0.85
IFHF	Holes in floors	(g)	S	4.64	1.15
IFFR	Window frames broken	(g)	S	4.63	1.16
IFWIR	Exposed wires	(g)	S	4.89	0.65
IFGEN	General evaluation of flat		S	3.12	1.05
IPVD	Debris seen from flat	(g)	S	1.75	1.56
IPTHR	Threats to resident safety (number of items from list observed)	(h)*	S	4.09	1.29
IPDEB	Debris in hallways	(g)	S	4.00	1.26
IPSME	Odor in hallway	(g)	S	4.32	1.14
IPBAD	Signs of poor maintenance (number of items from list observed)	(i)*	S	3.28	1.22
IPGEN	General evaluation of environment		S	2.70	1.03
<b>Interviewer Indexes (Flat and Condition of Environment)</b>					
MACLOC	Location in the city	(l)	C	3.09	1.21
MACDIS	Distance from city center	minutes	S	2.98	0.96
MEZDIS	Distance from Metro	minutes	S	3.37	1.03
MEZLOC	Surrounding environment (factory or warehouse viewed from building)		S	4.17	1.62
MINLOC	Floor of building (1=first; 2=highest; 5=others)		S	4.28	1.42

**Notes**

- (a)  $FQI = (FTS + FNR + FKIT + FCE + FTU + RATIO + FAM + FPC) / 8$   
 (b)  $FAM = (FAMHOT + FAMWC + FAMFL + FAMRUB + FAMTEL) / 5$   
 (c)  $FPC = (FPCHE + FPCOV + FPCHW + FPCCOM + FPCWO + FPCDRO + FPCMIC + FPCROA + FPCANT) / 9$

**TABLE 1.1**  
**QUALITY INDEX DEFINITIONS**  
(continued)

**Notes (continued)**

- (d) 1=problem existed/facility unusable for almost entire month; 5=no problem occurred
  - (e)  $PQI = (PTB + PWALL + PARR + PCOND + PLAMP + PSEC + PCLE + PRUB + PSMELL + PICE + PLIF) / 11$
  - (f)  $INTF = (IFHW + IFHF + IFFR + IFWIR + IFGEN) / 5$
  - (g) 1=yes, many observed; 5=none observed
  - (h) 1=yes, two or more from list; 5=none observed
  - (i) 1=yes, five or more from list; 5=none observed
  - (j) Collector vehicle is a periodic pick-up of trash; tenant must bring trash to the vehicle at those times
  - (k) RATIO index is stratified by the number of rooms
  - (l) MACLOC index is based on 8 zones of location quality determined by local real estate experts
  - (m) Age of building if no rehabilitation had taken place
- IPTHR and IPBAD indexes were defined on the basis of an initial list of observable items given to the interviewer. Signs of poor maintenance in common areas include: missing window panes or glass panes in doors; peeling paint; graffiti; smoke stains on ceilings; missing floor tiles; extensive dust accumulation; and dirty windows or glass doors. Threats to safety of residents include: exposed wiring; broken stair treads; missing or broken handrails; and holes in floors.

satisfied), another question could ask about the presence or absence of a problem (yes, no), while yet another could ask about how often some problem occurred on a five point scale (never to constantly). While we use each of these variables individually, it is also useful to be able to combine several variables into a more general index and to be able to examine variables on the same scale. For these reasons *quality index variables* were created for a number of housing attributes.

All indexes have a range from 1 (worst) to 5 (best). When the scale for a variable was not a five-point scale, several procedures were followed. Dichotomous variables (values of 0 or 1 only) were recoded to values of 1 and 5. For variables with a scale with more than or less than five values, the transformation to the 1 to 5 range was done on a variable by variable basis to achieve a reasonable distribution. Finally, continuous variables were transformed into the five point range using a simple scaling procedure.<sup>7</sup>

<sup>7</sup> The procedure is as follows. Extreme values ( $V_{min}$  and  $V_{max}$ ) were defined as the value at the 0.5 and 99.5 percentiles of the original value distribution of the variable in order to exclude extreme cases. Then the system of the following two equations was solved for  $\alpha$  and  $\beta$ :

(continued...)

The index values of a number of variables are reported in table 1.1. In the table the following codes are used to describe the way in which the transformations were made:

- N is a non-transformed five-value variable;
- S is the transformation of a scaled variable, where the scale had more or less than five values, including dichotomous variables;
- T is the transformation of a continuous variable into the range of the five point scale, and
- C is a new variable created from several other variables<sup>8</sup>.

We recognize that the transformations just described have some arbitrary qualities and often result in the loss of information. Consequently, we use these variables when necessary to expand the analysis but remain aware of their limitations.

A key part of the analysis concerns the variation in housing quality with household income and type of household. Numerous household types can be defined from the data, since the questionnaire gathered information on everyone living in the apartment and their relation to the head of the household. Likewise, households are readily divided into income quintiles. However, we wanted to create a comparatively small number of *household groups*, combining information on both income and type of household. Ultimately, the ten household groups shown below were defined. The results are the five demographic categories with the number of income classes for each demographic group ranging from one to three (Table 1.2).

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<sup>7</sup>(...continued)

$$\begin{aligned} 1 &= \alpha + \beta \cdot V_{\min} \\ 5 &= \alpha + \beta \cdot V_{\max} \end{aligned}$$

Thus a continuous transformed index was defined as

$$I = [(4 \cdot (V_i - V_{\min})) / (V_{\max} - V_{\min})] + 1$$

where  $V_i$  is the  $i$ th observation of the variable. Extreme cases previously excluded were assigned values of 1 or 5.

<sup>8</sup> Also note that the RATIO index, i.e., the index of total space to living space, was stratified by the number of rooms; and the index MACLOC, location in the city, was defined on eight zones developed after consultation with local real estate experts.

**TABLE 1.2**  
**FAMILY GROUPS: MEAN INCOMES AND**  
**PERCENT DISTRIBUTION AMONG ALL HOUSEHOLDS**

Family Group	Mean Household Income (Rbs / month)	Percent of All Households
Pensioners (low income)	3,704	10.8
Pensioners (others)	10,479	8.1
Singles	11,104	10.6
Adults with children (low income)	5,986	9.6
Adults with children (middle income)	13,978	16.2
Adults with children (high income)	31,085	8.2
Adults with parent (low income)	8,103	8.4
Adults with parent (others)	21,048	6.0
Complex family (low income)	8,355	9.3
Complex family (others)	23,676	12.7

Finally, households were divided into seven occupation categories plus pensioners from among the eighteen options included in the questionnaire. The status defined for a family was the most prestigious occupation of the first three family members. The categories defined, from highest to lowest prestige, are shown in Table 1.3 on the next page.

## **2. GENERAL PATTERNS**

How well are Muscovites housed? To answer this question this section provides data on a host of indicators. We begin by describing the characteristics of the units and buildings. Then we examine the services provided to the tenants and, lastly, look at the tenants' experiences with the maintenance company when they have had problems of this type.

### ***Basic Characteristics***

State rentals in Moscow generally have the basic equipment. Essentially the entire stock is connected to district heating systems. Similarly, 93 percent receive hot water from the district systems, with the balance having gas heaters.

**TABLE 1.3  
PERCENT DISTRIBUTION OF HOUSEHOLDS  
BY HIGHEST-RANKING OCCUPATION OF HOUSEHOLD MEMBER**

Occupation	Note	Percent of All Households
Directors	(a)	6.9
Intelligentsia	(b)	12.4
Military		3.6
White collar workers	(c)	14.8
Skilled workers		19.8
Blue collar workers		18.8
Pensioners		21.5
Others		1.9

**Notes**

- (a) Directors and managers of firms or state enterprises
- (b) Skilled employees in non-production enterprises (e.g., education, culture, science and administration)
- (c) Engineers and skilled technicians

Table 2.1 gives information on floor space per capita, bathrooms, floor materials, and rubbish collection. On average Muscovites have about 18 square meters per capita; but the data show considerable variability, with about 9 percent of units affording less than 10 square meters per person and 15 percent having over 30 square meters per person. Virtually all units have access to a bathroom. However, 11.7 percent of rental units are communal units in which toilets and bathrooms are shared by the occupants of separate rooms. Among flooring materials, parquet is the highest quality material; about 60 percent of all units have parquet flooring. Finally, the type of rubbish collection is an important aspect of housing quality to Muscovites, with the least desirable arrangements requiring the trash to be carried outside; 28 percent of units have such arrangements and a few of these households must actually take their trash out to a pick-up point on a fixed schedule. The most preferred system is a chute in one's apartment or in the stairwell, a situation enjoyed by most households.

***Services in the Housing Unit***

There is obviously much more to housing than the number of square meters of floor space and the presence of a garbage chute, although these are certainly

**TABLE 2.1  
BASIC FEATURES OF MOSCOW STATE-OWNED HOUSING**

Item	Percent	Item	Percent
<b>Total Space per Capita (sq. m/person)</b>		<b>Toilets and Bathrooms</b>	
Less than 5	0.9	Bathroom and more than one toilet	0.2
5 - 10	8.4	Bathroom and separate toilet	77.6
10 - 15	24.9	Bath and toilet in same room	21.2
15 - 20	30.8	Toilet only	0.4
20 - 25	11.4	No bathroom, no toilet	0.1
25 - 30	8.7		
30 - 35	4.3		
35 - 40	3.5		
40 - 45	2.0		
More than 45	4.8		
<b>Floor Materials</b>		<b>Rubbish Collection</b>	
Parquet	44.7	Collector on stairs	66.8
Parquet blocks	17.5	Collector inside flat	4.9
Linoleum	30.4	Collector outside building	27.9
Wood	7.1	Vehicle collector only (a)	0.3
Carpet	0.1		
No response	0.1		

**Notes**

(a) Collection vehicle arrives for pick-up only at specific times (i.e., there is no permanent, fixed collection bin)

important attributes. Our attention shifts at this point to the flows of services provided by the housing units: the dependability of water, electricity, heat, and elevator services; the dependability of certain equipment in the flat and in the public spaces; and the quality of upkeep of public spaces. Clearly, the outcomes are the product of both the treatment by tenants of public spaces and their apartments and the quality of maintenance provided by the RAiUs, i.e., all problems cannot be attributed to the RAiUs.

Looking first at information on the condition of public spaces, we begin with the condition of the entryway. Both the interviewer and the respondents rated about 14 percent of entryways as being in such bad condition as to require full rehabilitation; they rated about another one-third as needing some rehabilitation.

Thus, nearly one-half of the entryways in state rentals in Moscow are rated as being so damaged as to require rehabilitation—a rating with which even casual visitors to the city would readily agree. Readers familiar with high rise public housing buildings occupied by households (i.e., not projects especially designed for the elderly) in the United States would rate the conditions of these entryways similar to those of these public housing projects. Only 11 percent of entryways in Moscow are classified as being in good or very good condition.

Table 2.2 on the next page provides information on a host of additional indicators. In general respondents were asked to tell about breakdowns in equipment or services over the prior two months, a period short enough that it was believed they would recall the experience accurately. In the first panel on public spaces, one sees that lights are not working in the public spaces most of the time in most of the buildings: nearly 40 percent of respondents reported these were off for the entire month. The situation for security systems is even worse: three-fourths of all systems are simply not working. Thirty percent reported rubbish in the halls or stairs frequently, and about the same share reported frequent breakdowns in elevator services i.e., either the whole month, or three times or more or for one to two weeks. The only indicators for which service even approaches satisfactory levels are those for keeping the refuse chutes from overflowing and removing snow and ice from entryways.

The situation for utility services is somewhat better, but still quite poor compared with the level of services routinely expected in other industrialized countries. Ten percent of tenants reported that their heat was off frequently in the preceding two months—three percent were without heat for a whole month. Another ten percent reported they need additional heat in their flat most of the time. Similarly, nine percent reported that their toilets leaked most of the time.

### ***Experience with the RAiUs***

The foregoing indicates the frequent occurrence of maintenance problems in state rental buildings in Moscow. This suggests frequent complaints should have been lodged with the state maintenance organizations responsible for managing the housing within each micro-district. How do the tenants rate these companies, i.e., the RAiUs? The questionnaire did not ask for general opinions about the RAiUs. Rather, the interviewer asked a series of questions about the respondent's actual experience when a problem occurred that should have been referred to the RAiU.

The responses to these questions are tabulated in Table 2.3. First note that a quarter of households experiencing the kind of problems being discussed did not even bother to contact the RAiU, presumably because they thought it would be easier to make the repair themselves or had little hope of receiving assistance. Those who did contact the RAiU received quite a range of promises about when the repair would

**TABLE 2.2**  
**INDICATORS OF HOUSING SERVICE QUALITY**  
**MOSCOW STATE-OWNED RENTAL BUILDINGS**

Indicator	Frequency/Duration of Occurance (in previous month)					
	Did Not Occur	Once/ Less than a Day	Twice/ Several Days	3 Times/ 1-2 Weeks	Entire Month	No Response
<b>Condition of Public Spaces</b>						
Lights out in halls/elevators	21.0	11.7	14.6	13.0	39.2	0.5
Security breaks (a)	14.0	4.4	3.3	2.6	75.6	0.1
Rubbish in halls/stairs	40.9	15.3	13.0	8.1	22.1	0.6
Trash chute full (b)	72.5	8.6	6.1	6.1	6.4	0.3
Odor in halls	55.9	13.0	11.0	5.4	14.0	0.7
Snow and ice at entry	74.3	6.7	5.7	3.5	6.5	3.2
Elevator breakdowns	30.6	22.5	19.8	16.5	10.6	0.0

**Utility Services**

Heating off	64.5	14.6	10.4	6.6	3.2	0.5
Additional heat needed	75.7	6.4	7.0	3.9	6.1	0.9
Too much heat	83.2	9.5	3.2	2.3	1.5	0.2
Hot water off	48.5	19.7	13.7	7.9	3.8	6.4
Toilet leaking	79.9	6.5	3.6	2.3	6.2	1.3

Indicator	Frequency of Occurance (in previous two months)				
	Did Not Occur	On Occasion	Often	Don't Know	No Response

**Other Problems**

Leaks	73.6	13.2	12.1	0.9	0.2
Mice, rats	69.7	20.4	8.5	1.2	0.1
Roaches	38.8	36.8	24.2	0.1	0.1
Ants	65.4	20.1	13.3	0.9	0.2

**Notes**

- (a) Of those having a code lock or concierge
- (b) Of those having a refuse chute in the building
- (c) Buildings with elevators

**TABLE 2.3  
EXPERIENCE WITH MAINTENANCE FIRM  
WHEN REPORTING A PROBLEM**

Problem	Percent of Tenants Reporting a Problem	Responses and Promised Service by Maintenance Firm						
		Did Not Respond	Service Promised Within				No Date (a)	No Promise (b)
			1 Day	2 Days	3 - 7 Days	8 - 14 Days		
Water pipes	7.7	22.1	37.4	10.7	6.7	1.7	25.3	10.8
Faucets	23.9	34.5	49.1	8.5	8.3	1.2	28.3	4.1
Toilet	6.6	19.5	38.9	7.4	8.4	2.1	46.3	9.5
Radiators	1.0	4.8	40.0	5.0	16.0	10.0	30.0	5.0
Blocked pipes	3.7	18.9	64.5	17.1	2.0	2.0	26.5	2.0
Other	3.1	25.8	19.5	6.5	10.9	4.3	45.7	13.1
Total/Average	46.1	26.8	43.4	9.0	7.5	1.9	31.6	6.6

Problem	Item Fixed within Promised Time Period				
	No Date Given	On Time	Small Delay	Long Delay	Work Never Done
Water pipes	27.9	22.1	5.2	11.0	33.8
Faucets	34.5	29.5	7.1	4.4	24.5
Toilet	28.6	22.6	9.8	3.0	36.1
Radiators	4.8	23.8	9.5	9.5	52.4
Blocked pipes	21.6	41.9	8.1	9.5	18.9
Other	29.0	19.4	8.1	4.8	38.7
Average	30.0	27.8	7.4	5.9	28.9

**Notes**

- (a) Commitment to do the work was made, but no specific date of completion promised
- (b) No commitment made to do the repair requested

be made. Overall, about 43 percent were told it would be done within a day. At the other extreme, more than 31 percent on average were given no specific schedule for the repair to be made.

How successful was the RAIU in actually making the needed repair within the time promised? The short answer is "not very." For the two month period preceding

the survey, in about 35 percent of the cases, the repair was completed by the time promised by the RAIU or with a short delay. In another 6 percent it was made with a long delay; but in 29 percent of the cases the repair had not been made by the time of the interview.

If we look at all cases of problems reported to the RAIUs regardless of when the RAIU said they would make the repair, the repair was made in 55 percent of the cases by the time of the interview. Of these cases, one-third of the respondents reported having to make repeated requests for service and some only received results by appealing to higher authorities. Thirty-nine percent of the requests were *never* dealt with. (In the other 6 percent of cases, the respondent did not provide an answer to this question.)

### **Conclusion**

The data show that housing conditions in Moscow are poor and that poor maintenance has had a disastrous effect on the conditions of public spaces in state apartment buildings and the dependability of utility services. The record of the RAIUs in responding to repair requests lodged with them by tenants is extremely bad. It is little wonder that Muscovites are skeptical about rent increases that will channel more funds to such poorly performing companies. These data make a compelling case for a wholesale reform of the entire system for maintaining the city's housing stock.

### **3. ANALYTIC FRAMEWORK**

Having seen the general picture of housing quality in Moscow, we now turn to defining and testing a set of hypotheses that are commonly held by Russian and international housing experts about the distribution of housing quality across households and types of buildings.

- *Hypothesis 1: Excluding the elderly, higher income households have better housing.* Despite constant statements about the egalitarian nature of the housing system, there is some evidence that higher income households have received better units.<sup>9</sup> While income likely mattered under the previous regime, many benefits, including superior housing, were distributed to the favored on an "in kind" basis; hence, income by itself may be a poor proxy for economic status. At the same time, income presumably matters much more today as sales and rental of the half-

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<sup>9</sup> See data for Tver cited in Kosareva (1992).

million privatized units in Moscow give much greater opportunity for effective market demand to work than heretofore.<sup>10</sup>

- *Hypothesis 2: Those in favored occupations have better housing--both better flats and buildings.* As suggested, superior status may have been reflected in higher income, but it was also associated with certain occupations under the old regime, i.e., some occupations carried implicit priority to better housing (directors, managers, intelligentsia) and some gave the possibility for acquiring illegal income with which to obtain housing (those in trade and services). In practice, however, the reward system under the old regime was more refined than just suggested. For example, most members of the true intelligentsia profited little in terms of housing from being members of this group; such benefits were largely limited to directors of institutes and other senior administrators, particularly academics and senior managers in the National Academy of Sciences. Note that in the classification scheme employed in the survey, the intelligentsia includes members of the *nomenklatura*, and hence it is not limited to the true intelligentsia. In the past few years, those in senior positions at private firms may also have obtained better housing through higher incomes; but this pattern should be identified in testing the first hypothesis. Because our data only give information on occupation and not on the status within the occupation, we expect considerable difficulty in testing this hypothesis.
- *Hypothesis 3: Households headed by an elderly person live in better units but not better buildings.* A lifetime of opportunities to swap to a better unit and to accumulate the resources to improve one's unit means that the elderly are better housed on average than younger households. However, because individual households have so little control over the public spaces of their buildings, this hypothesis may not be supported for buildings. Low current incomes have not influenced the amount of housing occupied by the elderly because maintenance fees and utility payments have been such a small share of income.<sup>11</sup>

This hypothesis should, however, be refined to take account of the prior system of privileges. A basic distinction in outcomes may be between two groups of elderly who occupy larger units (two or three rooms). The first group are those elderly who occupy a unit by themselves. In general, this means that they were able to secure separate housing for their children,

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<sup>10</sup> In 1992 about 40,000 units were transferred in Moscow in addition to those privatized; i.e., some of these are privatized units that were sold to another household and cooperatives which were sold.

<sup>11</sup> Struyk et al. (1993), Chapter 3.

even though they probably did not strictly qualify according to the standard for municipal housing waiting list (living space of less than five square meters per person). The second group are those living with their adult children. The first group presumably belonged to a privileged group, while the second did not.<sup>12</sup> Hence, we hypothesize that elderly living alone have higher quality housing than those living with their adult children.

- *Hypothesis 4: Departmental buildings are on average of lower quality than municipal buildings but they also exhibit a higher degree of quality variation than municipal units.* Presumably, enterprises and agencies have stronger reasons than the municipality to provide good housing, because they are serving their own workers. In addition, maintenance expenditures are deductible from the taxable profits of enterprises which makes such expenditures less costly to the enterprise.

However, this logical picture is undermined by several facts. First, enterprises may be much more interested in the living conditions of key employees than the average worker. If this is the case, then the limited maintenance expenditures will be concentrated on the buildings occupied by such employees and other buildings would be quite maintained in order to provide the "surplus" for priority buildings. Second, enterprises, particularly industrial firms, may provide good quality housing to attract workers. However, once the workers have secured a unit some will then shift to other, superior jobs when the opportunity arises leaving the enterprise to make relatively large expenditures for households who are not associated with their work force. Such turnover means that when the firm's workers negotiate the "collective agreement" with management, they may have little interest in the firm's housing and might argue for more funds being allocated to other worker benefits which they will enjoy, rather than occupants of the housing who do not work at the firm.

- *Hypothesis 5: Housing quality will vary systematically with the type of building, i.e., some types of buildings were better designed and constructed than others and this has a lasting influence on conditions in the building.* In particular, the brick buildings of the Stalin era and 1960s and modern brick buildings will have better quality units and public spaces than Krushchev era (4-5 storey) buildings, panel buildings of the 1970s with small flats, and contemporary panel buildings.

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<sup>12</sup> We will have difficulty testing this hypothesis as well because the questionnaire did not inquire about the number of children, if any, not living with the parents.

- *Hypothesis 6: Higher quality buildings will have better maintenance services than others.* In short, once a privileged building always a privileged one. In this case the hypothesis is not about outcomes per se but about what happens when a resident has a maintenance problem that in principle should be handled by the RAIU. Indicators here include the share of tenants who even bother to ask the RAIU for assistance and the results of making requests for those who do make them.

#### **4. TESTING THE HYPOTHESES**

This section presents our findings on the seven hypotheses stated in the previous section. We generally rely on the indexes of housing quality defined in Section 1 as they are much simpler to present and discuss than the underlying variables which often involve a several point distribution.

##### ***Excluding the elderly, higher income household have better housing***

To begin, the survey data support the hypothesis on a positive relationship between housing quality and household income in general, i.e., including all households in the analysis. The relationship is significant but still quite low for the flat quality indexes (Table 4.1). But among public space indices there is no evidence of correlation. Inspection of the data in the table suggests that households in the highest income quintile definitely have better public space conditions. This is confirmed by both objective variables and interviewer's observations. Nevertheless, the overall  $R^2$  for a regression of the public space indexes on income quintile dummy variables is not significant.

Among particular indexes flat total space and kitchen size have the strongest relationship with the household income. The R-squared for the synthetic flat quality index (FQI) was only 0.065; and for the synthetic index of public spaces there is no correlation.

One could list several reasons to explain weak (relative to the expected) relationship between housing quality and incomes.

- The egalitarian nature of the Soviet society did result in a very uniform quality housing supply. Elite housing comprises a small share of the total and its construction in significant volumes only began relatively recently. So the excess demand for housing from the richest households had been constrained within the existing supply and turned to overconsumption in other sectors of the economy (a feature noted by a number of scholars) or in the erection of second homes in the countryside.

**TABLE 4.1**  
**QUALITY INDEXES**  
**BY HOUSEHOLD INCOME QUINTILES**

Variable	Description	R-Squared (a)	Mean	Quintiles				
				1st	2nd	3rd	4th	5th
<b>Flat Quality</b>								
FQI	Flat quality index	0.065 *	3.06	2.96	3.02	3.07	3.11	3.17
FIS	Total space	0.058 *	2.22	2.02	2.11	2.22	2.37	2.42
FKIT	Size of kitchen	0.012 *	1.94	1.89	1.89	1.94	1.94	2.04
FAM	Amenity subindex	0.019	4.20	4.10	4.19	4.20	4.45	4.30
FPC	Physical condition subindex	0.001	4.22	4.21	4.21	4.24	4.19	4.22
<b>Public Spaces</b>								
PQI	Public space index	0.002	3.32	3.33	3.31	3.33	3.27	3.35
PTB	Type of building	0.003	3.07	3.02	3.02	3.11	3.10	3.14
<b>Interviewer Observation</b>								
IFGEN	Evaluation of flat	0.024 *	3.12	2.91	3.07	3.13	3.19	3.37
IPGEN	Evaluation of environment	0.004	2.70	2.63	2.73	2.67	2.67	2.80

**Notes**

- (a) R-squared for a multiple regression in which a quality variable is the dependent variable and a set of dummy variables representing the income quartiles are the independent variables
- \* Significant at less than 1 percent level

- The Soviet housing market had a great degree of inertia (many households could hope to obtain housing once in their life). The inability to adjust housing quality in line with improved economic circumstances has been especially true in the current transitional period when there have been sharp changes in incomes of individual households but few opportunities to change housing.
- Much depends on the year housing was obtained. The average quality of existing housing decreased from the 1930s to the 1950s and then started to improve since the late 1960s.

Another possible reason for weak relationships observed is that reported incomes do not give a complete description of the actual wealth of households. Car

ownership was used as an additional indicator of income, and it showed that car owners enjoy better housing. Their FQI, for instance, is 3.18; 'pedestrians' have an FQI of 3.03 and the average for all households is 3.06.

To directly test the initial hypothesis that there is a significant relationship between income of non elderly households and housing quality, elderly-headed households (pensioners) were excluded from the analysis. The effect is to slightly increase the correlation between household incomes and public space and interviewers' observation quality indices, but to decrease the correlation with the flat quality indices (see Table 4.2).

One of few clear patterns is that household incomes definitely affect housing quality in the highest income layers: in the fifth quintile (when a household has a monthly income of more than Rb. 20,000 in late 1992 prices). But generally the household income distribution of late 1992 seems still to have the relatively low dispersion characteristic of the Soviet period.

Overall these findings are consistent with a diminished housing inertia in recent years among higher income non elderly households. There appears to be some pattern of their being able to improve their housing through unit swaps, favorable treatment from the authorities, and illegal subletting of good units.

***Those in favored occupations have better housing (both flats and buildings)***

There is a low but highly significant degree of correlation between occupation and the various indicators of flat and public space quality (see Table 4.3). Inspection of the entries in the tables show that households fall into three distinct groups when classified by the most prestigious occupation of members of the household. (Pensioners are excluded from this classification.) Directors and members of the intelligentsia clearly have better housing on average: these households have higher than average scores for every quality index in the table. At the other end of the spectrum, skilled workers and blue collar workers have lower than average quality housing: with a single exception among the flat quality indexes (FTS) and three among the public space and location indexes, these two groups always have index scores below the mean. The final group included members of the military and white collar workers. This group generally has above average scores for the flat quality measures (4 of 12 scores are below average); but it has mostly lower than average scores (6 of 14 are above average) for public space and location quality indexes.

In summary, occupational status or prestige has had at least as much and maybe more impact on the quality of housing households occupy than has income. To be sure there are measurement problems with both the income and occupation variables. Income is probably underreported and we cannot identify which workers

**TABLE 4.2**  
**QUALITY INDEXES BY HOUSEHOLD INCOME QUINTILES**  
**(EXCLUDING ELDERLY FAMILIES)**

Variable	Description	R-Squared (a)	Mean	Quintiles				
				1st	2nd	3rd	4th	5th
<b>Flat Quality</b>								
FQI	Flat quality index	0.039 *	3.09	2.96	3.04	3.06	3.11	3.17
FTS	Total space	0.020 *	2.30	2.12	2.20	2.26	2.39	2.42
FKIT	Size of kitchen	0.007 #	1.96	1.93	1.90	1.94	1.96	2.04
FAM	Amenity subindex	0.026 *	4.21	4.03	4.18	4.17	4.25	4.30
FPC	Physical condition subindex	0.004	4.20	4.11	4.19	4.21	4.19	4.22
<b>Public Spaces</b>								
PQI	Public space index	0.002 #	3.28	3.25	3.27	3.28	3.29	3.33
PTB	Type of building	0.006 +	3.07	2.97	2.97	3.07	3.11	3.14
<b>Interviewer Observation</b>								
IFGEN	Evaluation of flat	0.026 *	3.14	2.83	3.01	3.08	3.18	3.38
IPGEN	Evaluation of environment	0.005	2.69	2.57	2.71	2.64	2.69	2.79

**Notes**

- (a) R-squared for a multiple regression in which a quality variable is the dependent variable and a set of dummy variables representing the income quintiles are the independent variables
- \* Significant at less than 1 percent level
- # Significant at less than 5 percent level
- + Significant at less than 10 percent level

within each occupational category had the most favored positions. Still, the findings are consistent with a housing allocation system in which position was more important than income, and in which much of total compensation was dispensed through privileges rather than cash.

***Households headed by an elderly person live in better units, but not in better buildings***

To address this hypothesis we rely on the ten "household groups" described earlier. The data in Table 4.4 (see page 25) show that the evidence on this point is complicated. The highest flat qualities are being reached at the late stages of household life in complex households, in households consisting of adult children and

**TABLE 4.3  
HOUSING QUALITY AND OCCUPATION**

Item/Occupation	Variables						
<b>Flat Quality</b>	<b>FQI</b>	<b>FTS</b>	<b>RATIO</b>	<b>FTU</b>	<b>FAM</b>	<b>IFGEN</b>	
R-Squared (a)	0.040 *	0.053 *	0.009 *	0.014 *	0.015 *	0.005 +	
Mean	3.06	2.21	2.80	4.54	4.21	3.13	
Directors	3.17	2.36	2.76	4.69	4.31	3.31	
Intelligentsia	3.19	2.40	2.74	4.80	4.35	3.26	
Military	3.16	2.64	2.74	4.21	4.16	3.38	
White collar workers	3.11	2.35	2.65	4.13	4.22	3.09	
Skilled workers	3.03	2.25	2.62	4.35	4.14	3.12	
Blue collar workers	3.02	2.20	2.57	4.47	4.18	3.10	
Pensioners	2.96	1.87	2.76	4.58	4.18	3.02	
<b>Public Spaces and Location</b>	<b>PQI</b>	<b>PTB</b>	<b>PWALL</b>	<b>PSEC</b>	<b>IPGE</b>	<b>MACLOC</b>	<b>MACDIS</b>
R-Squared (a)	0.012 *	0.006 *	0.013 *	0.024 *	0.002 +	0.027 *	0.016 *
Mean	3.32	3.08	3.45	1.86	2.70	3.09	2.97
Directors	3.33	3.19	3.49	2.08	2.74	3.38	3.19
Intelligentsia	3.40	3.19	3.48	2.18	2.78	3.36	3.13
Military	3.27	3.13	3.31	1.62	2.84	2.89	2.92
White collar workers	3.29	3.07	3.44	1.70	2.67	3.04	2.99
Skilled workers	3.23	3.02	3.30	1.67	2.72	2.79	2.79
Blue collar workers	3.32	2.99	3.29	1.83	2.66	3.00	2.86
Pensioners	3.41	3.11	3.70	1.95	2.66	3.24	3.04

**Notes**

- (a) R-squared for a multiple regression in which a quality variable is the dependent variable and a set of dummy variables representing occupation types (excluding pensioners) are the independent variables
- \* Significant at less than 1 percent level
- # Significant at less than 5 percent level
- + Significant at less than 10 percent level

their parents, and well-to-do pensioners. On the other hand, poor pensioners have comparatively poor flat quality. This is not true for public space and location qualities where there is the most direct relationship between the household stage and public space quality; single pensioners households both rich and poor enjoy highest scores.

**TABLE 4.4  
HOUSEHOLDS AND HOUSING QUALITY**

Item/Household Type	Mean Value of Variable						
<b>Flat Quality</b>	<b>FQI</b>	<b>FTS</b>	<b>FCE</b>	<b>FTU</b>	<b>FPC</b>	<b>FAM</b>	<b>IFGEN</b>
R-Squared (a)	0.089 #	0.106 #	0.003	0.051	0.051 **	0.030 **	0.021 #
Mean	3.06	2.22	2.43	4.54	4.22	4.20	3.12
Pensioners (low income)	2.91	1.78	2.36	4.39	4.31	4.15	2.94
Pensioners (other)	3.03	1.92	2.43	4.78	4.38	4.25	3.33
Singles	2.95	2.04	2.48	4.14	4.24	4.07	3.04
Adults with children (low income)	3.03	2.36	2.45	4.19	4.11	4.09	2.94
Adults with children (middle income)	3.08	2.37	2.43	4.31	4.21	4.17	3.20
Adults with children (high income)	3.10	2.26	2.45	4.42	4.17	0.17	3.31
Adults with parent (low income)	3.03	2.05	2.43	4.79	4.25	4.18	2.95
Adults with parent (other)	3.12	2.28	2.41	4.93	4.22	4.30	3.30
Complex households (low income)	3.12	2.32	2.40	4.85	4.13	4.24	3.04
Complex households (other)	3.23	2.57	2.47	4.91	4.18	4.38	3.24
<b>Public Spaces and Location</b>	<b>PQI</b>	<b>PTB</b>	<b>PCOND</b>	<b>IPGEN</b>	<b>MACLOC</b>	<b>MACDIS</b>	<b>MEZLOC</b>
R-Squared (a)	0.010 #	0.011 #	0.009 #	0.007	0.024	0.013 #	0.003
Mean	3.32	3.07	2.53	2.70	3.09	2.98	4.21
Pensioners (low income)	3.42	3.09	2.63	2.65	3.17	2.93	4.26
Pensioners (other)	3.40	3.18	2.54	2.82	3.39	3.09	4.25
Singles	3.35	3.06	2.67	2.80	2.94	3.04	4.16
Adults with children (low income)	3.26	2.95	2.36	2.60	2.92	2.89	4.19
Adults with children (middle income)	3.29	3.12	2.50	2.76	2.90	2.83	4.21
Adults with children (high income)	3.24	2.99	2.53	2.70	2.86	2.88	4.26
Adults with parent (low income)	3.34	2.89	2.60	2.59	3.42	3.12	4.18
Adults with parent (other)	3.36	3.08	2.57	2.70	3.21	3.01	4.22
Complex households (low income)	3.23	3.08	2.53	2.60	3.19	2.98	3.97
Complex households (other)	3.32	3.21	2.39	2.72	3.16	3.09	4.37

**Notes**

- (a) R-squared for a multiple regression in which a quality variable is the dependent variable and a set of dummy variables representing household types are the independent variables
- # Significant at less than 5 percent level

Within each household type, scores for the *flat quality index* (FQI) increase with household income. There are 35 cases in the table where the FQI and individual flat scores can be compared for richer versus poorer households within the same household type. In 30 of 35 of these pairs the richer group has a higher score. Three of the reversals are within the adults with children household type, suggesting that among these comparatively young households income has yet to begin driving housing stratification. This hypothesis is supported by R-squared scores within defined household types. For pensioners the measure of explained variation between the flat quality index (FQI) and the household income is 0.067; for complex households, 0.061; whereas for young households (singles and adults with children) it is less than 0.010. Similar conclusions apply to the location quality indices as well.

However, when it comes to *public space* quality as measured by our indices, there is still almost no relationship with household income, even if split by household types.

So one could believe that higher income households have had some chance, particularly over a lifetime, to improve their flat quality *but after* an almost random original distribution. While they succeed in improving flat quality, the quality of public space seems generally unrelated to income—but not to occupational status.

We also tested the subsidiary hypothesis that among households with the elderly present who are occupying larger (2 and 3 room<sup>13</sup>) units, that elderly persons *not* living with their adult children or their grandchildren would be better housed. The data do not support this hypothesis; in fact, the opposite is more often true. Thus, it appears that the additional income and connections brought to the household by having the adult children present is more important in determining housing quality than the former prestige, connections, and income of the elderly.

***Departmental buildings are of lower quality than municipal buildings, but show higher variation in their quality***

The first part of this hypothesis is clearly supported as shown by the data in Table 4.5, which divides the housing stock into three groups: privatized units, municipal units, and departmental units. The survey did not determine the former ownership status of privatized units. So the evidence available is for units that are still municipal or departmental housing. Leaving aside the privatized units, which are clearly of better quality than the other two groups, the mean value for the quality indicators in the table consistently favor municipal housing. For 17 of 19 indicators, municipal units have a higher score, and this consistency is supported in the smaller

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<sup>13</sup> In counting rooms the convention is to exclude the kitchen, bathroom, and hallways.

**TABLE 4.5**  
**SELECTED QUALITY INDEXES**  
**BY TYPE OF OWNERSHIP**

Variable/Description		R-Squared (a)	Mean	Private		Municipal		Departmental	
				Mean	CoV (b)	Mean	CoV (b)	Mean	CoV (b)
<b>Flat Quality</b>									
FQI	Flat quality index	0.009 *	3.06	3.15	0.03	3.05	0.03	2.97	0.03
FTS	Total space	0.001	2.22	2.19	0.27	2.23	0.26	2.17	0.24
FKIT	Size of kitchen	0.007 *	1.94	2.01	0.17	1.94	0.18	1.81	0.14
FCE	Ceiling height	0.000	2.43	2.51	0.21	2.41	0.16	2.45	0.16
FTU	Type of unit	0.004 *	4.54	4.96	0.31	4.50	0.39	4.25	0.57
RATIO	Total space/living space	0.002 #	2.67	2.83	0.21	2.65	0.23	2.56	0.25
FAM	Amenity subindex	0.010 *	4.20	4.35	0.04	4.20	0.06	4.06	0.09
FPC	Physical condition	0.000	4.22	4.24	0.06	4.22	0.07	4.19	0.07
IFGEN	General condition	0.001 +	3.12	3.28	0.33	3.11	0.34	3.02	0.40
<b>Public Spaces</b>									
PQI	Public space index	0.005 +	3.32	3.49	0.10	3.30	0.10	3.21	0.13
PTB	Type of building	0.001	3.07	3.33	0.21	3.03	0.25	3.01	0.35
PWALL	External wall type	0.018 *	3.46	3.66	0.48	3.34	0.51	3.82	0.45
PLAMP	Lights missing	0.000	2.62	2.74	0.99	2.62	0.95	2.52	0.95
PARR	Years since rehab	0.012 *	3.76	3.85	0.21	3.79	0.29	3.47	0.36
IPGEN	Environment condition	0.000	2.70	2.85	0.37	2.67	0.38	2.64	0.46
<b>Location</b>									
MACLOC	Location in city	0.002 +	3.09	3.40	0.46	3.06	0.48	2.92	0.39
MACDIS	Distance from city center	0.003 #	2.98	3.28	0.33	2.94	0.31	2.81	0.24
MEZDIS	Distance from Metro	0.000	3.37	3.58	0.30	3.34	0.32	3.29	0.30
MINLOC	Floor of building	0.004 *	4.28	4.57	0.29	4.26	0.48	4.00	0.62

**Notes**

- (a) R-squared for a multiple regression in which a quality variable is the dependent variable and a set of dummy variables representing housing ownership types are the independent variables
- (b) Coefficient of variation: variance/mean
- \* Significant at less than 1 percent level
- # Significant at less than 5 percent level
- + Significant at less than 10 percent level

number of cases in which the differences are statistically significant. The basic result is sustained for conditions in the flat, public spaces, and the location of the building.

To test the second part of the hypothesis (i.e., that there is a greater variance among departmental units), we computed the coefficient of variation for each of the quality indexes. This coefficient standardizes for differences in the mean; so we can directly compare the coefficients for municipal and departmental housing. If the hypothesis is supported, the coefficients for departmental housing will be consistently larger. The results for flat and public spaces support the hypothesis. For 11 of the 15 quality indexes the coefficient is greater for departmental housing. This finding is consistent with departmental housing have more elite buildings than municipal housing. In Moscow this would certainly make sense given the large number of senior officials resident in the city.

### ***Housing quality varies systematically with the type of building***

Housing experts in Moscow agree that the better buildings in the inventory are those built during the Stalin era and modern brick buildings. The other main categories in the inventory (as classified in the questionnaire) are buildings constructed during the Khrushchev years, the panel buildings of the 1970s, and the modern panel buildings. Those of the Khrushchev period (and older deteriorated buildings) are viewed as being of the lowest quality construction. Current conditions, of course, depend on initial quality, general maintenance, and capital repairs being made as necessary. Hence, even though the Stalin era buildings may have been of the highest quality construction, with insufficient maintenance or lack of necessary investment over the years they could be of lower quality now than newer less well constructed buildings.

In fact, deferred maintenance and investment has taken its toll on the Stalin era buildings, while the modern brick buildings are clearly the best according to the measures used in this analysis. The basic story is given in Table 4.6 which shows the overall flat index and index for the general condition of the building's entryway for each building type. The Stalin era buildings have a score above the mean for the flat quality index and for the entryway. The modern brick buildings have the highest scores for both indexes. On the other hand, the Stalin era buildings have less than the average score for a number of service breakdowns and other condition variables (details not shown due to space considerations). Taking the information as a whole, we tentatively accept the hypothesis.

### ***Higher quality buildings have better maintenance services than other buildings***

The limited information available from the survey on maintenance service supports this hypothesis. Two indicators make the point. A fundamental question

**TABLE 4.6  
CURRENT CONDITIONS BY BUILDING TYPE**

Building Type	Flat Quality (FQI)	General Condition (PCOND)	Lights Missing (PLAMP)
All buildings	3.06	2.53	2.62
Stalin era buildings	3.14	2.57	2.77
Modern brick buildings	3.30	3.07	2.94
Kruschev era buildings	2.82	2.49	2.65
1970s era buildings	2.98	2.52	2.52
Modern panel buildings	3.25	2.53	2.56
Older buildings	3.09	2.27	2.60

is whether repairs are made when problems are reported to the RAIU. On average, 41 percent of all requested repairs were reported as not ever having been made (as of the date of the survey interview).<sup>14</sup> The figures are 38 and 35 percent, respectively, for the modern brick and Stalin era buildings. Similarly, while 46 percent of all tenants who reported the requested repair having been made expressed general satisfaction with the work done, 70 and 54 percent of the corresponding population in modern brick and Stalin era buildings expressed general satisfaction. Taking the results for the last two hypotheses together we see an interesting pattern: while the better buildings do receive better maintenance, the quality of maintenance is still so low that deterioration occurs even to initially sound buildings which are slated for priority maintenance such as those from the Stalin era.

### **Summary**

The foregoing presents a good deal of data on the separate hypotheses. We can summarize this information by employing regression analysis to test several of the hypotheses at the same time. Because the coefficient of an independent variable in a regression are interpreted as showing the effect of that variable on the dependent variables *after* taking into account the effects of the other independent variables, these results will clarify the relative importance of some of the relationships established through the tabulations already discussed.

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<sup>14</sup> This differs from the figure cited earlier because of differences in the sample of units included in the two calculations.

Specifically, we use regression analysis to examine the importance of various household characteristics in determining the quality of housing a household occupies. In a sense, these are demand equations in which some non-traditional variables—such as occupation—are used to capture implicit economic resources commanded by the household in competing for housing.

The estimated models are presented in Table 4.7 and they generally confirm the patterns found earlier. Most of the significant results are for the flat quality variables (first two panels of the table). In particular, they show that:

- Income clearly matters in determining flat quality, after controlling for household type and occupation; the highest income households (Q5) consistently have higher scores than other income groups, especially the lowest two income quintiles.

Car ownership, which was included as another indicator of economic status, is associated with better flat quality but often the results are not statistically significant.

- After controlling for income, singles and pensioner households consistently have lower flat quality. This result clarifies the complex pattern of findings for income and household type discussed above.
- With respect to occupation, directors and managers have better flat quality for half of the indicators, including the summary measure, than skilled and blue collar workers. On the other hand, the intelligentsia have better quality than directors (and others) for overall flat quality (FQI), total space (FTS), and the overall amenities index (FAM).

In contrast to the findings for flat quality and consistent with the broad patterns reviewed earlier, income and household type have little effect on the quality of the public spaces in which households live or the location of their unit within the city. However, occupation does have a limited effect. Among the indicators of the quality of public spaces, directors, managers, and the intelligentsia are significantly more likely than those of other occupations to occupy buildings in which the security systems are functioning.

On the other hand, households in which the most prestigious occupation is skilled or blue collar worker occupy units located in areas that are clearly less desirable than the areas in which other households live.

**TABLE 4.7**  
**REGRESSION RESULTS**

Independent Variables	Coefficients							
<b>Flat Quality</b>	<b>FQI</b>	<b>FTS</b>	<b>FAM</b>	<b>FKIT</b>	<b>FTU</b>	<b>FPC</b>	<b>RATIO</b>	<b>IFGEN</b>
FMP4	-0.078 *	-0.258 *	-0.055	-0.124 *	0.012	0.630	0.097	0.010
FMP3	-0.076 *	-0.087 +	-0.111 *	0.050	-0.467 *	0.006	0.198	0.055
FMP2	-0.178 *	-0.342 *	-0.170 *	-0.014	-0.635 *	0.109 #	0.143 #	0.064
FMP1	-0.134 *	-0.433 *	-0.006	-0.166 *	-0.212 +	0.238 *	0.182 #	0.290 *
Q1	-0.044 #	-0.010	-0.039	-0.061	-0.087	-0.042	-0.096 +	-0.187
Q2	-0.064 *	-0.098 +	-0.092 #	-0.059	0.100	-0.024	-0.090	-0.276 *
Q3	-0.085 *	-0.124 #	-0.112 *	-0.074 +	-0.100	-0.062	-0.057	-0.338 *
Q4	-0.147 *	-0.161 *	-0.209 *	-0.088 +	-0.374 *	-0.148 *	-0.029	-0.584 *
STRF2	0.089 *	0.172 *	0.117 *	0.038	0.111	0.006	0.023	0.169 +
STRF3	0.037	0.343 *	-0.086	0.054	-0.419 #	0.049	-0.030	0.214
STRF4	0.012	0.132 #	-0.007	-0.091	-0.070	-0.021	-0.055	0.025
STRF5	-0.056 *	0.039	-0.083 #	-0.119 #	-0.290 *	0.002	-0.112 +	0.025
STRF6	-0.046 +	0.015	-0.016	-0.123 *	-0.130	0.033	-0.154 #	0.075
CR2	0.020	0.038	0.027	-0.064	0.128	-0.044	0.010	0.146
CR3	-0.075 *	0.130 #	-0.061	-0.096 #	-0.052	0.006	-0.029	-0.012
R-Squared	0.128	0.119	0.052	0.039	0.064	0.022	0.020	0.034
Adjusted R-Squared	0.121	0.112	0.045	0.031	0.057	0.014	0.012	0.026
F Statistic	18.29	16.90	6.97	5.07	8.58	2.77	2.57	4.37
F Significance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>Environment</b>	<b>PQI</b>	<b>PTB</b>	<b>PWALL</b>	<b>PSEC</b>	<b>PLIF</b>	<b>MACLIC</b>	<b>MACDIS</b>	<b>MINLOC</b>
FMP4	0.068	-0.154 #	0.187	0.041	-0.010	0.212 #	0.092	-0.165
FMP3	-0.003	-0.090	-0.036	-0.199 *	-0.213 #	-0.191 #	-0.147 #	-0.273 *
FMP2	2.082	-0.038	0.246 #	-0.006	-0.102	-0.202 +	0.044	-0.216 +
FMP1	0.143	0.021	0.268 #	0.037	0.023	0.024	-0.070	-0.087
Q1	-0.070	-0.018	0.027	-0.091	-0.158	-0.001	-0.067	0.006
Q2	-0.029	-0.025	0.144	-0.125	-0.069	0.078	0.032	-0.033
Q3	-0.086	-0.139 +	0.075	-0.116	-0.208 +	0.088	-0.091	0.151
Q4	-0.113	-0.163 #	0.013	-0.182 +	-0.215 +	-0.011	-0.107	-0.180
STRF2	0.057	0.069	-0.066	0.231 #	0.424 *	0.118	0.001	0.211 +
STRF3	-0.064	-0.006	-0.184	-0.283 +	-0.363 +	-0.301 +	-0.188	0.085
STRF4	-0.045	-0.050	-0.100	-0.248 #	0.042	-0.202 +	-0.127	-0.119
STRF5	-0.106	-0.103	-0.226 #	-0.253 *	-0.107	-0.415 *	-0.310 *	-0.330 *
STRF6	-0.011	-0.115	-0.240 #	-0.089	0.069	-0.204 #	-0.231 *	-0.159

**TABLE 4.7  
REGRESSION RESULTS  
(continued)**

Independent Variables	Coefficients							
Environment	PQI	PTB	PWALL	PSEC	PLIF	MACLOC	MACDIS	MINLOC
CR2	0.009	-0.028	-0.019	-0.012	-0.120	-0.075	-0.161	0.180
CR3	-0.003	-0.002	-0.143	-0.090	-0.246 +	-0.286 *	-0.254 *	0.048
R-Squared	0.019	0.014	0.022	0.034	0.021	0.048	0.033	0.027
Adjusted R-Squared	0.011	0.006	0.015	0.027	0.013	0.040	0.026	0.019
F Statistic	2.39	1.76	2.85	4.44	2.70	6.23	4.31	3.42
F Significance	0.002	0.035	0.000	0.000	0.000	0.000	0.000	0.000

**Notes**

- \* Significant at less than 1 percent level
- # Significant at less than 5 percent level
- + Significant at less than 10 percent level

Definitions of dummy variables used in regressions:

- FMP4 Equals 1 when household of adults with elder<sup>1</sup>, parents
- FMP3 Equals 1 when household of adults with children
- FMP2 Equals 1 when household of of singles (1 or 2 persons, no children, no pensioners)
- FMP1 Equals 1 when household of pensioners only
- Q1 Equals 1 when family is in the 4th income quintile
- Q2 Equals 1 when family is in the 3rd income quintile
- Q3 Equals 1 when family is in the 2nd income quintile
- Q4 Equals 1 when family is in the 1st income quintile
- STRF2 Equals 1 when highest ranking household occupation is intelligensia
- STRF3 Equals 1 when highest ranking household occupation is military
- STRF4 Equals 1 when highest ranking household occupation is white collar worker
- STRF5 Equals 1 when highest ranking household occupation is skilled worker
- STRF6 Equals 1 when highest ranking household occupation is blue collar worker
- CR2 Equals 1 when household has an old car
- CR3 Equals 1 when household has no car

The constant term in the regression represents a household in the highest income quintile, complex household type, a new car owner, with a occupation type of director.

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