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This paper addresses the question of how to analyze the demand for housing in cities such as those in the Soviet Union, where housing units are allocated in primary markets mainly by state authorities. The report here previews a month-long research project in which I shall visit Moscow to study housing economics there. My research design is presented here.

It is characteristic of Soviet-type urban economies that vigorous secondary or resale markets exist in which property rights to housing units are traded among interested parties. The process, typically involving lengthy search and transactions costs borne by the participants, has been the object of both scholarly research and of satire.[1/] The

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[1/] See Henry W. Morton, "Who Gets What, When and How? Housing in the Soviet Union," mimeograph, 1977; Alfred John DiMaio, Jr., Soviet Urban Housing: Problems and Policies (New York: Praeger, 1974); Mervyn Matthews, "Social Dimensions in Soviet Urban Housing," and Thomas A. Reiner and Robert H. Wilson, "Planning and Decision-Making in the Soviet City: Rent, Land, and Urban Form," both in R. A. French and F. E. Ian Hamilton (eds.), The Socialist City: Spatial Structure and Urban Policy (New York: John Wiley & Sons, 1979); Hedrick Smith, The Russians (New York: Times Books, 1976); and Vladimir Voinovich, The Ivankiad, or the Tale of the Writer Voinovich's Installation in his new Apartment (New York: Farrar, Strauss and Giroux, 1976).

search process in Soviet cities is aggravated by two factors: the quasi-legal nature of the market in which units are exchanged, and the chronic shortages of housing coupled with the poor quality of market information in most cities.

In his study of market colors and the Soviet economy, Katsenelinboigen considers the market in which apartments are exchanged, often with cash side payments, as part of the "gray market," in which (1) the goods that are sold are legally produced, (2) the method of resale is semilegal, and (3) the punishment for an excessive amount of market activity or profiteering on the part of participants may be a fine or party reprimand.[2/] (Other examples of gray market consumer goods and services cited by Katsenelingoigen include the private growing and vending of flowers, the provision of apartment repairs, and the offering/hiring of tutorial services for schoolchildren.)

While housing shortages are not an exclusively Soviet problem, they are managed in a way that clearly aggravates the problem. The right to live in a city is tied in with one's job location, so the size of the housing market is effectively constrained. As in Western cities, the assignment of workers and their dependents, as well as of pensioners

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[2/] Aron Katsenelinboigen, Studies in Soviet Economic Planning (White Plains, N.Y.: M. E. Sharp, Inc., 1978), chapter 7, "Market Colors and the Soviet Economy."

to housing units is on a one-to-one basis, although the market is sharply tighter. The process of assigning property rights to new inmigrants, or of transferring these rights among movers within a city, differs sharply from the pattern in the West. The state is concerned that private parties can be major beneficiaries of the economic rent that is normally associated with unresponsive supply in the primary market. Because of this, whatever formal market organization does exist serves state rather than individual needs -- to facilitate some amount of exchange of units to accommodate shifting demographic patterns. Barter is the mechanism of exchange, but except in the outright purchase or resale of cooperative units, the state does not condone the system of sub rosa sidepayments that is inevitably needed in the exchange of unequal units.

The central tenets of the research project are twofold. First, household preferences for units with varying levels of structure services, located in neighborhoods having different degrees of amenities or disamenities, are <u>revealed in secondary markets</u>. Careful collection and analysis of data on transactions in such markets could lead to the quantification of preferences regarding housing, and this in turn could be helpful to planners interested in demand-responsive planning for housing and for new towns.

Second, it is hypothesized that, as in Western cities,

tastes for different kinds of housing and neighborhood goods -- examples of the latter are scenic amenities, air quality, proximity to workplace, shopping, and cultural amenities -- are not constant across demographic subgroups of the urban population. If true, this means that different categories of Soviet households trade off the price of housing and neighborhood amenities differently. This also means that there may be a tendency towards a limited amount of neighborhood grouping or sorting out by type of occupant (professionals, the party elite, blue collar workers, and so on).

Support for at least the first of these propositions is scattered about in scholarly work. It is also to be found in reports from emigres as well as from current residents of Soviet cities. There has been little effort at empirical work, although this is understandable given the paucity of high-quality data. The balance of this paper will address three subjects: the variety of housing types and residential neighborhoods known to exist in large Soviet cities such as Moscow; the analytical techniques that may be employed for studying the determinants of residential choice behavior; and the data that would be useful in conducting such a study.

Housing Types and Neighborhood Types

The empirical analysis of Soviet housing choice behavior proposed here would cover both chooser attributes (age, family size, occupation) and choice attributes. The latter includes specification of structure type and neighborhood type, both discussed here. The analysis will use data on the market for Moscow apartment units.

Housing Types. Two Moscow periodicals devote attention to apartment exchange, offering Muscovites the closest thing to classified real estate ads: the Wednesday evening edition of *Vechernaya Moskva* and a weekly journal devoted entirely to advertisements, the *Byulleten' po obmenu zhiloy ploshchadi*. These documents provide data on a wide variety of dimensions by which apartments are differentiated:

- Tenure: cooperative vs. state-owned?
- Sizes of unit and kitchen
- Number of rooms
- Degree of unit separation (single unit? two separate units in the same building, in different parts of the city?)
- Floor level
- Structural type (brick, precast concrete panels, etc.)
- Elevator?
- Garbage chute?
- Balcony?
- Telephone?

The empirical work will consider variation in all these attributes. As we note below, we shall be in a position to point

out how Muscovites evaluate these attributes at the margin, e.g., how much an elevator, a telephone, or a balcony is worth, all other things equal.

Neighborhood Types. Like apartment units, neighborhood locations are differentiated by characteristics. A list of attributes according to which residential neighborhoods in Moscow (*mikrorayony*) vary might include the following:

Age of surrounding district
Accessibility (proximity to transport)
Distance from city center
Air quality
Proximity to public goods (museums, parks)
Proximity to industry
Area occupants and/or school quality
Accessibility to shopping

It is worth looking at some examples of just how much variation there is among Moscow neighborhoods in regard to such attributes.

Like most cities antedating the twentieth century Moscow has old and new neighborhoods that tend to be newer the closer they are to the city's edge. Moscow planners have instituted a practice of building new highrise apartments on cleared or vacant sites in town (*tochechnye doma*) as in the Arbat district, so not all new construction is at the outskirts. Neither is it always easy to infer neighborhood (as

distinct from apartment unit) quality from the average age of its buildings. Neighborhoods with apartments built during the early Khrushchev years, disparagingly called *Khrushchëby*[3] tend to be inferior to some old neighborhoods such as *Kropotkinskaya ulitsa*, *Novokutskoye* and *Zamoskvarecheye*, and newer neighborhoods such as those to the southwest of the city.

Accessibility to other parts of the city through good transport is perhaps the most important neighborhood characteristic from the viewpoint of many Muscovites. Before a Metro extension linked it with the rest of the city *Zyuzino* (to the south) was very much isolated, and a three-room apartment there was said to trade for a one-room apartment in *Volkhonka* near the city center. Today large portions of northern Moscow along the *Dmitrovskoye shosse* are poorly served by transport. Some of the new *mikrorayony* in this area of the city, *Degunino* and *Beskudnikovo*, are served only by buses. *Babushkin* and *Leonosovo* are only slightly more accessible. They can be reached additionally by trams leaving from different railroad stations such as the *Rizhskiy* and *Savëlovskiy vokzaly*.

Some workers living in these neighborhoods have daily commute-to-work trips running as long as 1½ hours or more

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[3] The humorous implication of this designation is based on its proximity in sound to *trushchoby* -- dirty, crowded slums on the periphery of a city.

in each direction. In addition, because the area is not well served internally by urban transport, residents spend much of their lunch breaks from work in other parts of the city attending to shopping chores.

The best transport-served parts of the city are inside the *Sadovoye koltzo.* Neighborhoods here tend to be served by trolleybus, tramway and the Metro. Similarly, areas close to some of the main arterials (*magistra*) leading out from the city center have good transportation services -- *Leningradskiy prospekt, Leninskiy prospekt* and *Frunzenskaya naberezhnaya* fall into this category.

Air quality matters to some residents of the city. The prevailing winds come from the southwest so this part of the city has the cleanest air. Some of the areas in the eastern part of the city, where industry is concentrated, have poor air quality. Areas near the *ZIL (Zavod imeni Likhachëva*) plant and the *Serp i molot* factory complex come to mind. Neighborhoods affected by heavy industry would include *Kuz'minki, Taganka* and *Karacharovo.* The area around the Metro stop *Sokol* is reported as having the highest birth defects owing to the use of radioactive materials in nearby institutes.

Spatially related to the distribution of different kinds of employment is the distribution of residential neighborhoods

by socioeconomic group. Accordingly, the eastern part of the city has a number of working class neighborhoods, where alcohol and vandalism tend to be more of a problem. Leisure time activities here tend to concentrate more heavily on hockey, TV, movies and drinking. At the opposite extreme are neighborhoods where the intelligentsia tend to group. Examples of such areas are to be found near Moscow State University, in the Lenin Hills, and around scientific institutes. *Cherëmushki, Troparevo* and *Belyaevo* are examples of such districts -- where the "*obrazovanshchina*" of Solzhenitsyn live. The best schools tend to be located in such neighborhoods, such as the *srednaya shkola no. 2*, a mathematics school sponsored by MGU.

Accessibility to shopping varies among neighborhoods. Some areas such as along *Leninskiy prospekt*, have department stores or similarly large outlets on nearly every street corner. Such districts tend to heavily crowded with pedestrian traffic. Other areas, such as those cited above in the northern part of the city, have poor accessibility to shopping. Although retail outlets for everyday needs -- dairy shops, bakeries, dry cleaning and shoe repair establishments -- now are given first priority in the construction of new apartment complexes, the distribution of such facilities among existing neighborhoods is uneven. Better neighborhoods

will cater to a complete range of shopping and public service needs -- a *ZAGS* (marriage license bureau where civil ceremonies are conducted), hospitals with pediatric wards, kindergartens, elementary schools and so on, as well as a full range of retail shops.

Curiously, "view" as a neighborhood attribute does not seem to be coveted by Moscow residents, perhaps because good views in all but a very few neighborhoods are hard to come by. View may be more important in scenic cities such as Dushanbe, Alma-Ata, Tbilisi and Erevan. In some of these places ground-floor apartments are coveted because of their superior access to gardens. In Moscow ground-level flats tend to have greater security problems.

Technique of Analysis

The approach that will be used in studying how Muscovites evaluate housing and neighborhood attributes is called the "hedonic estimation technique."[4/] The purpose of this approach is to estimate the implicit prices or values, also called "hedonic prices," that different categories of house-

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[4/] There is a large literature in economics on the hedonic technique. See, for example, Zvi Griliches (ed.), Price Indexes and Quality Change (Cambridge: Harvard University Press, 1971); Sherwin Rosen, "Hedonic Prices and Implicit Markets: Product Differentiation in Pure Competition," Journal of Political Economy, 82 (January/February 1974); and A. Mitchell Polinsky and Steven Shavell, "Amenities and Property Values in a Model of an Urban Area," Journal of Public Economics, 5 (January/February 1976).

holds attach to the individual structure and neighborhood attributes of the housing they choose. The choice behavior that reveals household preferences, or willingness to pay for different attributes, has a tendency to be revealed more in secondary than in primary markets, where allocation is determined by the state.[5/]

Empirically the problem is (1) to identify the value of attributes that are part and parcel of individual apartment units, that cannot be unpackaged and sold separately -- balconies, air quality, transport accessibility and the like; and (2) to see if the values attached to such attributes vary by demographic subgroups of the population. The technique for performing the analysis is a multivariate one, described and discussed extensively in the literature.

A principal motive on the part of economists applying this technique is to study the demand behavior of different demographic subgroups. In the case of certain public goods, such as air quality and public safety, the hedonic pricing technique has the advantage of offering policy makers insights as to the public benefits to be had from providing

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[5/] This will not be universally true, as in instances where jobs are sought because of the housing perks associated with them. Then preferences will also be revealed in primary markets.

alternative levels of the public good in question.

In a state-controlled economy all consumer goods, certainly all durable goods such as housing, may be thought of as publicly-provided. This means that from a planning viewpoint those charged with the responsibility of providing housing stand to benefit from using the hedonic estimating technique to learn how households evaluate a much wider range of housing and neighborhood attributes. The basic idea is a simple one: that by studying choice behavior revealed in secondary markets, Soviet housing officials interested in producing and delivering a demand-responsive product can learn what the demand is for a wide variety of attributes. They can learn in a systematic way precisely how the citizenry trades off quantities of one attribute (housing or neighborhood) against another, in the prices they pay -- in properties exchanged or in cash, or in both. Analyzing urban real property markets in this fashion stands to give the officialdom a much more accurate picture of preferences than the interview technique often favored by housing bureaucrats.

Data Set

An ideal data set from the standpoint of the analyst studying the market for housing attributes would be cross-sections data with several hundred observations on actual

transactions that occurred, and the transactors engaging in exchange, at a specific point in time in Moscow. While such data exist in theory they may be difficult if not impossible to gather from a technical standpoint. The weekly publication, *Byulleten' po obmenu zhiloy ploshchadi*, provides an ideal source, at any moment in time, of clues about transactions about to be undertaken, from the perspective of one side of the market. But the advertisements do not tell us (1) the exchanges that actually occurred, (2) the exact amount of sidepayments that may have accompanied such transactions, or (3) who the transactors were, in terms of demographic characteristics and job-place locations (journey-to-work distances). Such data presumably exist for anyone willing or able to undergo the time and expense of collecting them. It is extremely unlikely that Soviet bureaucratic approval would be forthcoming to collect them on an official basis, or whether, even if approval were forthcoming, participants would systematically reveal to an interviewer, even to a Soviet social scientist, the true nature of the exchange taking place. As noted earlier, the market is a semilegal one with numerous aspects only partly sanctioned by officialdom. Transacting households are presumably very aware of the risks they may be taking when sidepayments or bribes are part of the transaction. Without a complete set of such data, however,

the estimating procedure will be biased.

There are two data-gathering alternatives which, while less attractive on technical grounds, offer greater hope. One is to concentrate on a subset or stratification of the *Byulleten'* data. While both state-owned and cooperative units figure in transactions, only in the latter category are sidepayments between transacting parties to equalize the exchange or to purchase a unit outright sanctioned by the state. Soviet officials might find data collection in this area less offensive.

If Soviet housing officials cannot be joined in the exercise of assisting in or sanctioning data collection, there is a second-best alternative. This would still involve gathering objective data on the neighborhood attributes of Moscow's numerous *mikrorayony*, with the help of planning and housing authorities. But data on actual transactions would be drawn from emigres in the U. S. With assistance from the Ford Foundation, Professors Gregory Grossman of Berkeley and Vladimir Treml of Duke are currently engaged in a study of the "second economy" within the Soviet Union.[6/] They are relying heavily on emigre sources.

[6/] Ford Foundation Letter, 10, 4 (August 1, 1979), page 1.

Two difficulties with such data, in addition to the expense of gathering them, are (1) the fact that transactions such as emigres can recall undoubtedly occurred at different points in time with the result that a price inflation component, not easily identified, may be more present in some observations than in others; and (2) the ability to recall the full details of the physical attributes of apartment units exchanged as well as the precise rouble amounts that figured in an exchange may not be within the easy grasp of all emigres interviewed.