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MARKET REFORM IN THE RESIDENTIAL HOUSING SECTOR IN RUSSIA: A REGIONAL ANALYSIS²

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1. Summary Introduction

Housing was commonly considered one of the most strictly rationed commodities in the Soviet economy. The alleged absence of the housing market, combined with heavy housing subsidies, was blamed for widespread housing shortages which, in turn, caused considerable hardship for Soviet consumers and resulted in a limited intercity labor mobility in the USSR. For these reasons, market-oriented transformation of the housing sector has been high on the list of priorities for economic reformers and their advisors.³

The institutional changes in Russia's residential housing sector have indeed been enormous. Nonetheless, this paper argues that much of their real effect so far has been to bring the already existing hidden housing market into the open. Without denying the great importance of these institutional reforms in the long run, we contend that they are unlikely by themselves to improve significantly intercity labor mobility and even intracity mobility and general housing conditions in the near future.

The next section briefly reviews some recent quantitative evidence on the progress of Russia's housing sector toward the market and compares this evidence with the earlier work on the housing market in the USSR. Section 3 presents and discusses our results based on the analysis of regional macrodata. Section 4 concludes.

²We are grateful for financial support from the National Council for Soviet and East European Research. Errors are the responsibility of the authors.

³See, for example, *Zakon ob osnovakh federal'noy zhilishchnoy politiki*, adopted December 24, 1992; the State Program "Zhilishche"; and articles by E. Iasin, O. Pchelintsev, and by B. Renaud in *Voprosy ekonomiki*, no. 7, 1993, pp. 4-6, 7-13, and 14-19, respectively.

2. Review of the existing evidence

The hypothesis of the existence of hidden housing market in the USSR was tested by Alexeev (1988a, 1988b), using data from the Berkeley-Duke family budget survey.⁴ Alexeev used regression analysis in an attempt to determine what factors influenced consumption of housing by the survey respondents. He found that money income, quite apart from social status and other considerations, played an important role in allocation of housing space among the Soviet households. Data limitations, however, resulted in significant shortcomings of Alexeev's analysis. Most important, Alexeev had no variables for the price of housing. Rather, he used housing space in square meters as the only indicator of housing consumption. The omission of information on the price of housing would be particularly important in any situation in which housing quality in the sample differs greatly depending on location, vintage, quality of the building, etc. The problem is exacerbated by the fact that in a market environment housing quality is highly correlated with household income. Polinsky (1977) noted, however, that the omission of the price term in a regression based on micro data would bias income elasticity downward. This implies that Alexeev's results, if anything, tended to underestimate income elasticity of housing consumption by the Soviet households.

While Polinsky's logic may not be directly applicable to a regression where housing space serves as the only indicator of housing consumption, it can be argued that in such regressions the downward bias of income elasticity would be even greater. The use of square meters as a measure of housing consumption disregards the higher quality of housing possessed by richer households. This underestimates their housing consumption compared with that by poorer households, and, therefore, underestimates income elasticity of housing consumption. In general, Malpezzi and Mayo (1987), using evidence for some developing countries, found remarkable insensitivity of income elasticities to the exclusion of price term from the housing demand equation. (They, however, used total housing rent as a dependent variable, rather than housing space.)

More recently, Buckley and Gurenko (1995) used the data from the first round of the Russian Longitudinal Monitoring Survey (RLMS) conducted in 1992 to estimate housing demand equations for Russia. Their results suggested that money income was not a significant determinant of housing consumption. Buckley and Gurenko concluded that the difference between their results and Alexeev's was due to misspecification of Alexeev's equations, particularly because Alexeev did not include a price term in the regression. (This is surprising because in light of the discussion in the previous paragraph, the omission of the price term should have biased Alexeev's income elasticity downward.)

⁴The Berkeley-Duke survey was a comprehensive survey of the family budgets of 1061 urban households which had emigrated from the USSR mainly in the late 1970s.

It is true that Buckley and Gurenko's data allowed them to overcome some of the serious deficiencies of Alexeev's work. The 1992 data, however, had their own problems. To start with, there are serious questions about the reliability of the RLMS income data. The respondents, particularly the affluent ones, who lived in Russia in 1992 might well have been unwilling to disclose their true incomes, even with the reassurances of the interviewers about the confidentiality of the responses. Perhaps more important, in the early 1990's, and especially in 1992, Russia was experiencing a high degree of economic and political uncertainty and apparently was going through a huge redistribution of real income among households. Households at that time might have been unsure about their long-term incomes--which presumably determine housing consumption. Also, even in some developed market economies it takes some time for changes in housing to reflect changes in income. It is not surprising, therefore, that housing allocation in 1992 might have failed to reflect income distribution. One would expect that a similar study performed now would produce different results (assuming also that it is possible to obtain reliable household income data).

Indeed, studies conducted after 1992 do confirm the existence of the housing market in Russia. Romanik and Struyk (1995) found that Russian military officers who were returning from the Baltic republics and had housing certificates allowing them to purchase modestly priced housing, were apparently able to use these certificates without difficulties. Also, Struyk and Romanik (1995), analyzing data from a World Bank-commissioned survey of seven Russian cities, found that mobility rates (defined as the percentage of dwellers who moved in a given year) increased from 1.8 percent in 1992 to 4.6 percent in 1993. This increase may be due to the development of the housing market in the surveyed cities between 1992 and 1993. It is also possible, however, that the increase in mobility rates has more to do with the momentous changes in income distribution than with anything else and would have occurred even in the absence of any changes in the housing market.

3. An alternative approach to evaluating the role of the market in the housing sector

Previous attempts at evaluating the development of the housing market in Russia and the USSR suffered from several deficiencies which were mentioned above. The most important of these were the unreliability of individual income data (this is particularly true about research based on the RLMS) and the poor ability of the existing data to reflect housing quality. In addition, all these works used data which were not truly comparable. For this reason, it is quite difficult to judge the dynamics of the Russian housing market.

In this paper we utilized a different approach which, while far from perfect in many respects, alleviates these shortcomings. We investigated the relationship between personal income and housing construction using macroeconomic indicators for administrative regions of Russia (i.e., oblasts, autonomous republics, and krays). We believe that our approach is particularly well-suited for the analysis of the Russian housing data. In a market economy close to some sort of a steady-state

equilibrium, housing construction in a region would not necessarily be correlated with income because in such an economy households already consume an amount of housing approximately equal to the desired level. In a market economy experiencing a (temporary) housing shortage, however, one would expect construction of new housing to be directly related to the intensity of this shortage. (We define housing shortage as a situation in which households would like to acquire more housing at the existing prices and/or construction firms earn positive economic profit.)

The expectation, then, is that in an economy like Russia's the intensity of the housing shortage would be positively related to household income and negatively related to the existing housing stock. In a market economy, both of these factors would play a role in determining the amount of housing construction. In a pure command economy, housing construction would be determined by the planners in accordance with their priorities. In the USSR, these priorities may or may not have included the goal of equalizing housing consumption across regions. But in any case, housing consumption was not supposed to be determined by income. Thus, the Soviet Constitution proclaimed the right to housing for every citizen and "fair allocation" of this housing, usually understood as allocation not based on the ability to pay. See Morton (1979) for a discussion of these issues.

To test for the factors determining regional housing construction in Russia prior to reforms and during transition we regressed the volume of housing construction per capita (expressed in square meters) on per capita income reported for the region and on the region's housing stock (also in square meters per capita), using the share of urban population in the region as a control variable.³ We ran both log-linear and linear regressions. There were no substantial differences in the statistical significance of the regression coefficients (as was found by Malpezzi and Mayo, 1987). We report only the results of log-linear regressions since their coefficients have an easy interpretation of elasticities and because logarithms reduce the influence of the outliers.

Our approach has three main advantages over the previous studies. First, there exists a consistent series of data on housing construction and per capita incomes for most of Russia's regions going back to at least 1960's (we analyzed the cross-sectional data for 1970, 1980, 1990, 1992, and 1994). This makes possible the comparisons of the pre-reform and transitional situations.

Second, in many respects the aggregate regional income data may be somewhat more reliable than the individual income data since the intra-regional distribution of income does not affect the data. For example, a person who receives wages at several jobs might not want to report her entire income to a survey interviewer but her income would be accounted for in the regional income figure.

³We also tried other control variables, but none were statistically significant. Also, poor data availability for the earlier years makes it difficult to include other meaningful control variables. We surmise that in these regional regressions the urban population share may in part be serving as a proxy for quality of housing. The quantity of housing per capita in Russia tends to be greater in rural areas than in urban areas but much of it is far below the standards of urban housing.

Third, our concentration on construction rather than housing stock suffers from less inertia than the stock data. More important, newly built housing is presumably much more uniform in quality than the existing housing stock. Newly built housing typically has most of the modern amenities and is by definition of the same vintage. Of course, significant quality variation still remains, most notably quality of construction materials and workmanship, and location of the building, but this variation is significantly reduced compared with that in the existing stock. We further reduced quality variation by using a limited and rather homogeneous sample of regions which excluded Moscow, St. Petersburg, and Far Eastern and Far Northern regions, and some other outlying areas.⁶

Our main regression results are presented below in Table 1.

⁶The sample of 50 oblasts (republics, krays) omits all territories in three of Russia's economic regions: the Northern Region, Eastern Siberia, and the Far East, as well as Chechnya-Ingushetiya, Adygeya, Karacheyvo-Cherkessia, the Altay Republic, Tyumen, and the cities of Moscow and St. Petersburg.

Table 1. Determinants of Housing Construction in Pre- and Post-Reform Russia.
(All variables are in logarithms.)

Dependent variable: per capita housing construction in square meters

Independent variable	1970	1980	1990	1992*	1994*
Constant	-2.38	-2.87	-2.00	-3.28	-1.01
Per capita income	0.59 (2.12)	0.97 (2.96)	0.54 (1.49)	1.08 (2.20)	0.39 (2.19)
Urban population share	-0.18 (1.20)	0.03 (0.18)	-0.26 (1.28)	2.16 (3.70)	-0.03 (0.31)
Per capita housing stock	0.24** (0.93)	-0.48 (2.06)	-0.21 (0.60)	-2.54 (2.24)	-0.10 (0.20)
R-squared	0.13	0.25	0.08	0.33	0.10
Number of observations	50	50	50	50	50

* - per capita income was adjusted by a regional cost of subsistence consumption basket (*prozhitochnyi minimum*).

** - urban areas only.

Note: t-statistics are shown in parentheses below the coefficients.

Note that we used nominal income data for 1970, 1980, and 1990, whereas per capita income for 1992 and 1994 was adjusted by the regional cost of subsistence consumption basket. Such an adjustment would not be particularly important for 1970 and 1980. Starting in 1992, however, the results might be seriously affected by the cost of living adjustment. Unfortunately, we did not have data for such an adjustment for any year except 1994. For this reason, we applied the 1994 adjustment coefficients to the 1992 data. Had this adjustment not been made, some of the regression coefficients and their significance would have been different. In 1992, the t-statistics of income elasticity and the housing stock coefficients would have declined to 1.99 and 1.69, respectively. The lack of adjustment for cost of living differences might also explain why 1990 regressions did not produce any statistically significant coefficients.

The above results do not exhibit a marked change between pre-reform years (1970, 1980) and the perestroika and transitional years (1990, 1992, 1994) in terms of income elasticity of housing construction. While the point estimates of income elasticity differ across the years, this difference is not statistically significant. Moreover, the largest difference is observed between the 1992 and 1994 estimates, and the 1992 regression, together with that for 1990, is based on what are probably the least reliable data. In addition, the 1992 data might not have been properly adjusted for regional price differences. If anything, the relationship between residential construction and personal income weakens in 1994 compared to pre-perestroika years (both income elasticity and R-squared are somewhat lower in 1994 than in any other year except 1990). The differences are not statistically significant, however, and could be due to the greater reliability of regional income data for 1970 and 1980.

The coefficient of housing stock has the predicted sign and is statistically significant for 1980 and 1992. It is not statistically significant for other years.

We also tried including an index of the cost of construction and an indicator of the speed of "small privatization" in the 1994 regression. The coefficients had the expected signs (negative for the cost of construction and positive for privatization) but their t-statistics were only around 1.5. The coefficients of income and housing stock remained virtually the same as in the simpler regression.

4. Concluding Observations

Regional statistics on housing construction and income indicate that in the early post-reform period (1992 and 1994) there was indeed a significant positive correlation between the volume of housing built per capita and the personal income in a region. This we take as strong evidence of the existence of an emerging housing market in Russia. However, this is not the end of the story. The same type of statistics for earlier years indicates that there was at least as great a dependence of housing construction on personal income already in the Soviet period! What, then, can one conclude? We believe that the evidence suggests two important points. First, it may well be the case that the

current institutional reforms in the housing sector in Russia—the reforms intended to create a housing market—have actually not done so much to **create** a market as to bring an already existing hidden market into the open. If this is true, then it is unlikely that the housing reforms in themselves will significantly improve intercity (or even intracity) labor mobility and general housing conditions in the near future.

Second, it ought to be noted that we, like other scholars, have equated the dependency of housing construction on income with the existence of a housing market. However, there is also the issue of how income itself is determined. Is it primarily through market forces, or is it the result of administrative decisions by central planners? There is little question that the regional allocation of income in today's Russia is much more the result of market forces than in the Soviet past.⁷ That being so, the current relationship between housing construction and income has very different implications than the old relationship. Today, it means that because income is allocated more rationally, so too is housing.

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⁷Simple correlations between regional per capita incomes in the Soviet period and in the post-reform years show quite clearly that the regional income pattern has shifted significantly. More detailed analysis, using more consistent income data and cost-of-living corrections, would be necessary to obtain the full picture.