

**Integrating Housing Wealth into the Social Safety Net:
The Elderly in Moscow**

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I. Introduction

In some ways the elderly in Russia have not been particularly disadvantaged by the transition process. For example, a number of studies, e.g., the World Bank (1995) and (2000) show that the likelihood and the intensity of poverty of elderly-headed households have been similar to that of other groups. One-parent families with children are far more likely to be poor, and they have much lower average incomes than do the elderly. (Braithwaite (1995)). However, the experience of the elderly has certainly been difficult, and in many ways, they have often been among the most vulnerable and those least able to cope with all the changes that have taken place (see Lokshin and Yemtsov, 2000).

For example, in the period between 1992 and the economic crisis of 1998, more than half of the elderly households in Russia experienced poverty for at least a brief period of time (Lokshin and Popkin, 1999). Furthermore, in the 1998 banking crisis, the elderly were more than twice as likely as others to lose their savings. Moreover, the size of the loss -- over 80 percent of the household's savings -- was also considerably larger than that experienced by other families.¹ Finally, while most of the elderly are not strictly poor, many have income levels only slightly above the poverty line.² About a third of Russian elderly households are lower income households which we define as being either poor or what we call near poor.³

Thus, unlike the situation prior to reform -- when pension payments were stable and the elderly paid almost nothing for health care, housing, and transportation -- in the new economic order, they now face considerable uncertainty and often have difficulty making ends meet. If they have not recently been in poverty, many have been close to it. Moreover, they often face the likelihood of penury unless they can function effectively in the much more complex economy. However, according to Lokshin and Yemtsov (2000) urban pensioners are the demographic group least likely to have a response strategy for dealing with their new environment. In addition, macroeconomic volatility has made the timely payment of their pensions questionable.⁴ At the same time, economic reform has made the prices of many basic services considerably higher. In sum, the living circumstances of many of the Russian elderly have become more complicated, often accompanied by lower incomes and by considerably shorter expected life spans.

¹ Based on analysis of the 1998-99 Russian Longitudinal Monitoring Study.

² Analysis of Wave 4 (December 1995) of the Moscow Longitudinal Household survey reveals that 22 percent of elderly households are "near poor," i.e., with incomes less than 50 percent above the poverty line. Over 35 percent of single elderly households are near poor.

³ We define the "near poor" to be households with incomes between 100 to 150 percent of the poverty line a figure within the range of a number of poverty-oriented programs. For instance, in the US for the Food Stamp Program, eligible individuals have incomes 130 percent of the poverty guidelines; for the National School Lunch Program, there are two income thresholds: one is for individuals with incomes with incomes between 130 and 185 percent of the guideline; for the Low-Income Home Energy Assistance Program, individuals with incomes up to 150 percent of the poverty guidelines are eligible (Ways and Means Committee, Print WMCP: 105-7; 1998 *Green Book*, U.S. Government Printing Office.)

⁴ For example Bohlen (1999) shows that in 1998 pension payments were more than \$3 billion in arrears.

While elderly households have experienced some income difficulties, they have also been the beneficiaries of a very large transfer of wealth. In Russia, as in most transition economies, housing was privatized, essentially under give-away terms (see Struyk and Kosareva, 1994). Indeed, as we discuss below, by 1995 just the lower income elderly had title to housing assets on the order of \$11 billion, an amount equal to more than half the capitalization of the Russian stock market. As a result, although many of these households have low incomes, based on their newly-acquired wealth, their deprivation would appear to be less serious. Once again, the data appear to suggest that the elderly have not suffered disproportionately during the transition.

Unfortunately, however, in the absence of a developed financial system, it is difficult to use housing wealth to address income concerns. In particular, because housing is both long-lived and largely indivisible, a significant portion of house value represents the present value of the future flow of services. Realizing this future income requires either being able to borrow against the expected future income stream or the sale of the asset.⁵ In Russia, households in general, not just elderly households, have had little ability to adjust their portfolios by borrowing funds. They have not been able to do so because the economy's volatility has been so severe that financial markets in general, and longer term mortgage markets in particular, remain largely undeveloped.

The existence of such large unencumbered wealth holdings by lower income elderly raises a number of questions. First, are there financial instruments that would permit them to unlock this wealth if they wanted to do so? The answer to this question may be "yes," as suggested by the very active program of such loans in the U.S., and the existence of similar, albeit less frequently used, programs in Canada, Germany, France, and the U.K. If so, then a second question arises: Is it likely that the disruptions experienced by the Russian financial system account for the lack of such instruments in Russia? If the answer to this question is also "yes" it would not be surprising given the severe disruptions Russia's financial sector has experienced, it prompts a third question: can a social safety net mechanism be constructed that would address these poverty concerns at relatively low costs?

To anticipate our conclusions, the existence of the elderly holding so much housing wealth at the same time that they have lower incomes creates an opportunity to provide what might be termed "housing safety net insurance." Moreover, the provision of this form of insurance could be done at low public cost. But more than reducing the incidence of poverty, we also show the Russian elderly hold so much housing wealth that these financial instruments could allow many of them the possibility of being able to move out of poverty and the risks of becoming poor and into middle income status for the rest of their lives.

The plan of the paper is as follows. In the next three sections we answer the questions posed above. That is, we first review why many of the elderly in the Former Soviet Union generally, not just in Russia, are likely to be owners of so much housing wealth. Then, in section three, we focus on what would be involved with the elderly using financial instruments to access

⁵ Subletting part of the unit is also possible and Lokshin and Yemtsov (2000) show that in response to the 1998 crisis 3 percent of Russian families moved in with relatives. They also show that 5 percent of households changed their residence, presumably trading down for less housing. This latter figure was almost 10 percent for households in the lowest four income quintiles. In addition, data on migration from the north of Russian indicates that as much as 20 percent of pensioners had sublet their apartments and moved from the region while retaining their locational subsidies.

these savings. This review highlights how general asymmetric information problems associated with writing annuity contracts, particularly when these contracts involve housing, have been dealt with in market economies. We briefly discuss some of the circumstances in Russia that could compound these sorts of problems. In a fourth section we consider the empirical situation of the elderly in Moscow in more detail. This description first illustrates the potential demand for such financial products. Then it attempts to determine whether the housing wealth of the elderly could provide a platform to ameliorate some of their poverty problems. Finally, it provides an illustration of how an approach could be structured as a low-cost form of social safety net assistance.

In a penultimate section we briefly describe a spontaneous financial innovation that occurred in the US in response to a similar sudden creation of a large number of income-constrained illiquid wealth holders – i.e., the precipitous change in the expected life spans of AIDs patients with life insurance contracts. We then discuss some of the similarities and differences between this situation and that of the elderly in transition economies. A final section concludes; it highlights some of the implementation problems and possible benefits of such a program.

II. The Housing Wealth of the Elderly in the Former Soviet Union.

Housing accounts for a large share of wealth among the elderly in the Former Soviet Union, so large that the ratio of house value to current income is considerably higher than it is in market economies. We argue that this result is not an artifact of the data. It is a result of both the effects that the transition process had on the level and composition of savings, and the way housing was produced and allocated under the old regime.

One way to consider the broad effects of the transition process on the share of housing wealth held by Russian households is by comparison with the U.S. In the much more financially diversified U.S. economy, housing accounts for more than 95 percent of the wealth of more than 75 percent of elderly households.⁶ In Russia, where in the early years of reform household financial savings were ravaged by inflation rates of more than 1000 percent per year, according to Easterly and da Cunha (1994) much of the value of household financial assets was lost. In such a context, it is not surprising that so much wealth is held in the form of housing, particularly since the value of residential real estate is positively correlated with at least mild rates of inflation.

But more important than the effects of the transition are the effects of idiosyncratic historical factors. Three factors cause the elderly in the Former Soviet Union at the present time to hold both a large share of their wealth in housing and for that form of wealth to be large relative to current income. First, the housing delivery system of the old regime resulted in a higher mean and lower variance in the size of the average housing unit than occurs in market economies. That is, at the same time that the average Soviet household had more housing space

⁶ Caplin, Chen, Freeman and Tracey (1997).

than did its counterparts in market economies, so too was the variation in the amount of housing across income groups considerably less.⁷

At the same time that the average household received more housing than they would have under a market system, it also had considerably less to choose from as far as the size of a particular unit. That is, as long suspected and shown by Buckley and Gurenko (1998), unlike the situation in market economies, in the former Soviet Union housing allocation was not demand driven.⁸ Under this system, individuals with higher incomes were either not able to have larger units produced for them, or they could do so only through constraining circuitous and semi-legal routes. The result was that there was significantly less variation in the amount of housing services consumed by households in Russia than is the case in market economies.⁹

The result of this kind of housing allocation system is that relative to income the average size and, correspondingly, usually the value of a housing unit tends to be larger than it would be in a market economy. In addition, the Russian system not only produced more housing per capital than did market economies, it also produced smaller units much closer in size to the average unit than is the case in market economies.

Second, unlike the almost continual improvements in the quality of construction inputs that occurs in market economies, in the Former Soviet Union the opposite happened. Housing produced under Stalin was of a much higher quality than the housing produced in later periods when massive, high volume housing production programs took place. Romanik and Struyk (1996), for example, show that a prime determinant of the rate at which housing was privatized in Moscow was its value. They also show that Stalinist housing was privatized twice as quickly as were units built later under Khrushchev. Their results are consistent with those of Guzanova (1998) who presents evidence that Stalin-era buildings were worth more than twice as much as Khrushchev-era ones.

As a result, in Russia certain types of older housing often tend to have a higher amenity value than does newer housing. It follows that occupants of the older buildings would tend to reside in more valuable properties. Given Russia's relatively low pre-reform household mobility (see Guzanova, 1998), and the constraints on the ability to bid for housing services prior to economic reforms, it is likely that a large share of the occupants of these pre-1956 built units are pensioners. Thus, as our data indicates, elderly households would tend to have both more space and better amenities.

⁷ Evidence that households in Russia had more housing than did their market economy counterparts is provided by Hegedus, Mayo, and Tosics (1996) and Struyk (2000). Both studies show that although the rationing system of the FSU produced administrative shortages of housing, it also produced more housing space per capita than did market based systems in countries with similar income levels. Indeed, the average amount of housing per capita in Russia corresponded to that supplied in countries with per capita incomes more than 30 percent higher.

⁸ Buckley and Gurenko (1998) estimate that in 1992 the income elasticity of housing demand in Russia was zero. In an earlier study, based on interviews with emigres, Alexeev (1988) found a positive but low income elasticity suggesting that even his lower estimates imply constrained demand.

⁹ Buckley and Gurenko (1997) show that when imputed housing income is taken into account in measures of income the relatively larger units held by lower income families reduce the increase in inequality in income distribution observed in post reform Russia by far more than is the case in market economies. For example, including the imputed income from housing changes the estimated Gini coefficient by 6 percentage points. In contrast, Yates (1994) shows that including measures of imputed housing services in income had almost no effect on income distribution in Australia, changing it by one percentage point.

Finally, the elderly often lived not only in better locations, but in locations that carried a significant locational premium. As shown by Bertaud and Renaud (1997), the housing supply system of the old regime operated without a land market. As a result, land prices were not used in decisions as to how many units should be constructed on a site. Consequently, the ratio of the cost of structural inputs to land inputs was largely ignored. In such a system there was less redevelopment of land sites to higher densities than in a market economy. This system also produced such low central city urban densities that the underlying land value of many of these properties is now extremely high. Consequently, this work implies that older housing in Moscow has considerably higher site amenity value than does newer housing. Once again, in the old regime older households were much more likely to reside in such units than were younger families.

Cumulatively, these factors help explain why our results indicate that in 1995 the elderly still lived in better neighborhoods as well as in better quality and larger units than did other families.¹⁰ The value of the housing that elderly households received in the privatization program was large relative to current income. Of course, informal market relations under the old regime, deaths, and more explicit exchanges since the reforms began would tend to offset these effects. However, in Russia in the mid-1990s, for their level of income, the elderly still had more housing than is the case in market economies. Indeed, as we will show, the ratio of housing to income tends to be multiplicatively larger than the same ratio in market economies.

III. Financial Instruments for Elderly Homeowners.

On a conceptual level, it has long been noted that simple financial schemes are possible which would permit elderly households to tap their housing savings. The simplest schemes that would permit this are the home equity conversion lines of credit frequently used in many OECD countries. Under these schemes homeowners are able to borrow against housing at a lower interest rate because of housing's strong collateral value. With the existence of a mortgage market, these schemes can be used relatively easily to address periodic bouts of poverty. But in addition to being able to draw down on existing wealth, other relatively simple financial instruments may be particularly attractive to the retired elderly.

For example, financial instruments can and have been used to access housing wealth in such a way that this wealth can be drawn down in regular and certain payments over the homeowner's life. The payments could have the structure of a pension plan, a payment stream that can be particularly comforting to an elderly person with limited alternative income possibilities and an uncertain life span. These latter types of instruments, known as reverse annuity mortgages, have been provided by public and private lenders in a number of countries. In the U.S., for instance, over the past twenty years more than 200,000 of these loans have been

¹⁰ According to Guzanova (1998) Stalin-era apartments that are located in the city center cost \$ 147,000, while those located in the outer districts cost \$ 95,000. The price of a Khrushchev-era unit ranges from \$ 27,000 to \$ 60,000 depending on its proximity to the city center. She also shows that the elderly are owners of some of the better properties in the city. For instance, even though the per capita family income of elderly households was more than 25 percent lower, they were more likely to live in prestigious locations in the city center, and in "superior" quality – meaning brick construction -- as well as larger apartments, and in buildings with fewer maintenance problems.

issued largely, but not exclusively, without subsidy.¹¹ Similar financial arrangements have been in use in the U.K., Canada, France, and Germany. Indeed, while not provided by the private sector in transition economies, this approach is also being implemented on a small scale by a public agency in Moscow.¹² Moreover, these kinds of exchanges have also been long undertaken in socialist economies where a pensioner would bequeath the tenancy rights to his or her apartment upon death to a caregiver in return for care during their remaining life.¹³

Reverse mortgages provide homeowners with a loan collateralized by the equity in the home. In contrast to regular mortgages in which the buyer makes monthly payments to the lender, with a reverse mortgage the process is “reversed,” the homeowner receives payments from the lender, thereby increasing rather than reducing debt as is the case with the more traditional mortgage instrument. The lender uses the value of the home as an eventual source of repayment and accrued interest. The payments to the homeowner can also be structured as an annuity, making the reverse annuity mortgage a special case of a general annuity contract.

Annuities are contracts between an insurance company and an individual under which the insured person receives a monthly sum as long as he or she lives in return for a one-time flow of premium payments. The market for annuities in the U.S. has grown rapidly in recent years, with more than 23 million individual annuities in force in 1995, and almost \$800 billion in reserves to cover the promised payments to individuals.¹⁴ To illustrate, consider the situation of a 65 -year -old man purchasing a typical \$100,000 single-premium annuity. In return for the payment of this premium, he would receive a monthly payment of \$ 794 for the duration of his life. Because women on average live longer than men, a 65 -year -old woman would be eligible for a monthly payment of only \$648. Similarly, because the older a person is the shorter is his or her expected life span, older purchasers will receive higher monthly payments. For instance, a 75 -year-old man making the same purchase described above would receive over \$1,000 per month.¹⁵

Currently in the U.S. there are several public and private sector programs available which allow older homeowners to use their housing equity as the basis for the purchase of an annuity or a reverse mortgage. These contracts usually entail either one-time payments targeted toward specific purposes, such as home repairs, or annual payments to be used to cover property taxes or defer payments for housing repair expenditures. As is the case with all annuity contracts, private companies offer a variety of payment options, including up-front lump sum payments, fixed monthly or annual payments, credit lines, or a combination of the three. Payments may be made for a specific time period or as long as the homeowner lives in his or her home. The common feature of reverse mortgage programs, whether annuity or not, is that the lender is repaid from the proceeds of the house value when the homeowner dies or moves from the house.

¹¹ See Kutty (2000), and Szymanoski (1999) for a discussion of the evolution of reverse mortgage loans in the US.

¹² The Moscow program, called *Mossotsgarantia*, was created in 1995 with authorized capital of 55 million rubles. It is designated to provide social assistance to lone pensioners and invalids in exchange for the voluntary conveyance of their properties to the city. The Government of Hungary has also prepared a study of the desirability of establishing such a program.

¹³ Problems can arise with such individual based life annuity schemes. For example, there is the well known French experience of a Madame Calmant of Arles who wrote a viager, i.e. - reverse mortgage – contract with a notary public at the age of 75. Her notary predeceased her as she lived to be 122.

¹⁴ American Council on Life Insurance (1996).

¹⁵ Data on payment rates are from Mitchell et al. (1999).

Lenders face various risks in offering reverse mortgage loans. Most importantly, they face the adverse selection risk that characterizes all annuities. This risk arises because borrowers know more about future mortality than do lenders. As a result, those individuals with shorter than expected mortality may not purchase the annuity leaving only those with average or longer expected mortality in the pool of annuitants. With this composition of annuitants, a lender would make more payments than predicted by the expected mortality rate. Certainly the mortality tables for the general population and annuitants in the U.S. indicate much lower mortality rates for the latter group.

As argued by Diamond (1977) such adverse selection is the primary reason that market failure has characterized annuity markets in the U.S. However, Mitchell et al. (1999) show that in the U.S. the scale of the costs of adverse selection has declined significantly over time. Hence, while there still are market imperfections that reduce the supply of such loans in the U.S., over time, these obstacles are declining so that the elderly are increasingly able to buy annuities at fair prices. There are also other nontrivial moral hazard problems involved in buying a reverse annuity mortgage that are not present in typical annuities – such as whether after the transaction the homeowner will continue to maintain the home.¹⁶

IV. The Potential Demand for Financial Instruments by Elderly Homeowners in Russia.

Outside of the approximately 2,300 reverse annuity mortgages made available by the city of Moscow by early 2000, in Russia there is no supply of reverse annuity mortgages, or for that matter any kind of annuity.¹⁷ There are any number of reasons why this might be the case. For example, given the disruptions that the financial sector and the economy has experienced, the problems for lenders in making such loans go well beyond the adverse selection and moral hazard concerns of market economies. To mention just the most obvious problem with supplying such loans, they are longer term and few long-term loans are being supplied by the Russian financial sector.¹⁸

There are also problems in the housing market that compound the contracting problems that occur in market economies. In particular, very little progress has been achieved in establishing responsibilities for maintenance and upkeep of residential common areas. Now, after ten years of such neglect, many buildings face significant deferred maintenance problems. The risks of providing households credit based on the stability of the value of a housing unit in such an environment is, of course, problematic. Finally, there is the question of trust. Many Russian households have lost most of the value of their cash savings either through inflation or the collapse of a bank. These families are unlikely to be aggressive demanders of financial products that give the title of their only safe asset to a financial institution.

Recognizing that outside of one small program there is a lack of supply, our approach considers what the possible potential demand could be. That is, we use the approach taken by

¹⁶ See Szymanoski (1994).

¹⁷ Program size of *Mosstsgarantia* is small: as of November 1999, only 2,337 contracts were signed. The average monthly payment of 947 rubles (less than \$ 40) is not indexed for inflation and is not differentiated according to the sex of the borrower (Interview with Irina Urevina Balzamova, General Director, *Mosstsgarantia*, November, 1999).

¹⁸ See, for example, Bernstam and Rabuska (1998).

Merrill et al. (1996) and the U.S. Department of Housing and Urban Development (2000), to consider the possible demand for these loans. To do this we first estimate whether there are a large number of elderly households with enough housing wealth that they could in effect reshuffle their "savings portfolios." In other words, are there many households with both sufficient housing wealth and low incomes who could use a reverse mortgage to markedly improve their situation if there were means available to do so?

The answer to this question requires information on the extent of housing wealth required to generate a sufficient income stream, as well as information on how long this income stream has to last. That is, how old are the owners and how much housing wealth do they have. For the U.S., Merrill et al (1996) argue that the potential demanders of reverse mortgages would be those with lower incomes, i.e. incomes less than \$30,000 per year, and with house equity of at least three times that amount. With these restrictions they find that about 12 percent of the U.S. elderly-headed households, or about 1.5 million households, would be potential demanders of reverse mortgages.

For Russia to make a similar calculation requires three kinds of empirical data for the elderly: income; the value of the housing owned by them, particularly by those with lower incomes; and, finally, their expected life span, what is known in the insurance industry as the "life tables." Using this information, one can determine of how much of the poverty of the Russian elderly could in principle be addressed by new financial instruments.

Empirical Methodology. We combine income and housing data from the Moscow Longitudinal Household Survey (MLHS) with Russian life tables for men and women.¹⁹ We use them to modify an actuarial model devised by the U.S. Department of Housing and Urban Development to answer to two empirical questions. First, is there a significant group of elderly with substantial amounts of home equity and limited income who might benefit significantly from increased liquidity? Second, is the age distribution of the elderly population such that the payments that could be realized are large enough to lower the incidence or incidents of poverty?

Our use of data on Moscow, rather than the entire country, is dictated partially by data availability with respect to housing. Moscow does differ from the rest of the country. Socio-economic conditions are unquestionably more favorable in Moscow. Pension incomes are higher, reflecting higher relative cost-of-living prices and an additional cash supplement provided by the local government. Finally, the Moscow real estate market has tended to be more active than most other markets, and apartments command prices above those in other cities, as described below. Consequently, our results cannot be taken as representative for the entire country. We present the evidence on Moscow as a first, if somewhat exaggerated, empirical

¹⁹ The MLHS is an annual panel survey of 2,000 dwellings conducted every December in 1992-1995. We use data collected in the fourth wave, in December 1995. The data set contains comprehensive information pertaining to housing, including estimates on unit values, housing types, housing conditions, and privatization experiences. It also contains important demographic information about the household, such as the number and ages of family members, and sources of income. With the exception of housing assets, absent from the data set are non-income sources of wealth and consumption estimates which are important in determining the household's true standard of living. However, we are reassured by the fact that the salary estimates produced by the data are comparable to those reported in official statistics for the same time period. The average salary in the sample is 947,000 rubles compared to 930,600 reported by the State Committee on Statistics (Goskomstat). 1996. *Sotsial'no-Ekonomicheskoe Polozhenie Rossii, 1995 g.*, p. 487.

perspective on the issue. We suspect that if there is not potential demand in Moscow it is not likely to be present elsewhere.

Due to the limited availability of socio-economic indicators, we use total monthly disposable income in the analysis. This figure includes wages and salaries, social security transfers, private transfers, and unearned income. We use the designated poverty line for Moscow city households reported in Round 6 of the Russian Longitudinal Monitoring Study (RLMS).²⁰

The value of the units was estimated using two self-reported measures. Respondents who purchased their apartments were asked to say how much they paid. Respondents who had not purchased were also asked if they knew the value of apartments similar to theirs which had been recently sold, and if they could provide a dollar figure. The residents who responded to these two questions provided a sample of 381 observations which was used to estimate a model of hedonic house price characteristics.²¹ Before estimating the model, high and low outliers were assigned an appropriate per square meter price. The model imputes the price per square meter, adjusted for various qualitative characteristics which when multiplied by the unit's total space, yields an approximation of the unit value of constant quality. All independent variables included in the final model were significant at the .10 level or higher.

Analysis of the data indicates that a substantial share of pensioner households have incomes that hover just above the poverty line. Just under one-quarter of all elderly households and over one-third of single (mainly female-headed) elderly households are near poor. If we were to extrapolate the figures presented in Table 1 to Moscow, we would find that the number of lower income elderly households living alone or in couples is about 164,000, slightly more

²⁰ The RLMS was carried out in October, just one month prior to the MLHS. We increased the poverty line by 5 percent to account for inflation and other adjustments. The 5 percent figure reflects the increase between the October and November official poverty lines reported by the State Committee on Statistics (Goskomstat). 1996. *Sotsial'no-Ekonomicheskoe Polozhenie Rossii, 1995 g.*, p. 487. This poverty line was developed by researchers at the University of North Carolina in collaboration with the Institute of Sociology, Russian Academy of Sciences, the Institute of Nutrition, Russian Academy of Medical Sciences, and Paragon Research International. It is based on the cost of food baskets designed to meet the nutritional needs of men, women, and children of varying ages. Thus, the poverty line consists of a set of thresholds for five population groups: men and women in the post-work ages (ages 60+ and 55+, respectively), working-aged men, working-aged women, and children under 7 years of age, and children aged 8 to 18. The poverty line for elderly persons in 1995 is: 191,257 rubles. The thresholds are adjusted with equivalence scales ranging between .68 to 1 according to the size of the household. For detailed information on the construction of the RLMS poverty line, see: Popkin et. al. (1996). The subsistence minima reported in the State Committee of Statistic publications have been criticized for being too high and thus, unrealistic. See for example, Poduzov and Kukushkin (1999). The subsistence minimum for the elderly living in Moscow in November 1995 is 160 percent higher than the RLMS poverty line. We also experimented with other poverty lines, including the official poverty line for Moscow city (known as the subsistence minimum (*prozhitel'ni minimum*)). The subsistence minima for the five population groups were considerably higher than the poverty thresholds used in the RLMS and identified 48 percent of pensioners to be poor compared with other official estimates of 18 and 19 percent. However, when the RLMS poverty thresholds were applied, the share of the sample deemed poor fell to 8.2 percent, about 10 percentage points less than the official estimates. When the two samples of elderly and non-elderly households are compared, the figures are very similar: 9.5 percent of Moscow households are poor in the RLMS, compared to 11 percent in the MLHS. We thus employ a restrictive poverty definition in which only a small fraction of the elderly population is identified as being poor.

²¹ This model was developed by Claire Romanik at the Urban Institute. It is described more fully Romanik and Struyk (1996).

than 5 percent of all of the households. This group comprises what we term the “social safety net eligible” component of the market for reverse mortgages and other financial products. These are the pensioners who have the legal right to sell their apartments. If we extend eligibility to include all households containing an elderly person with total income not exceeding 150 percent of the poverty level, an extension not permitted, for example by the Moscow agency which makes such loans, then the number increases by another 80,000 families. In sum, under the broader definition, slightly more than 8 percent of Moscow households would be eligible.²²

Table 1. Poverty Incidence (in Percent)

	Poor	Near Poor	N
All Elderly Households ²³	8.2	21.9	318
Single elderly households	1.8	35.6	83
Elderly couple households	0.0	11.5	17

Not surprisingly, given our earlier discussion of the housing delivery system of the old regime, the data analysis finds that the value of the housing units occupied by the elderly poor is not far below that occupied by the elderly non-poor. The median value was \$50,387 for non-poor households and \$45,826 for poor households (1995 dollars). The poor are equally likely to live in the city center and live in superior apartments as the non-poor. In short, as expected, they hold a significant amount of housing wealth. An approximation of the size of the asset base that could be annuitized by lower income elderly can be calculated by multiplying the mean price by the number of near poor elderly households. According to our broader definition of eligibility that would include almost 250,000 housing units worth more than \$45,000 each, or about \$11 billion.²⁴

Thus, since the near poor elderly in Moscow account for only about one-third of elderly households, the total amount of housing wealth held by the elderly is potentially enormous. Based on McHale and Pankov (1999), for example, it is an amount that was more than half of the \$20 billion capitalization of the stock market in the same year. One reason this figure is so large is the legacy of the past that we discussed earlier. For example, the 20 percent of elderly households who have incomes in the lowest income quintile own housing worth an average of \$44,503. As a result, the house price-to-income ratio for these elderly households is 37, a figure that is more than 6.5 times higher than the typical house price to income ratio reported for families in OECD countries in 1990 by Hegedus, Mayo and Tosics (1996). When the average monthly income of elderly couple households with incomes 50 percent above the poverty standard is only \$111 per month, owning an apartment worth on average over \$40,000 makes these families, by almost any imaginable standard, unusually house - rich and cash poor.

²² Only lone pensioners who are 65 years and older, married couples in which the spouse has reached the age of 65, single Group I invalids who are 55 years and older, and single Group II invalids who are 60 and older are eligible to participate in the City of Moscow Reverse Annuity Mortgage Program. Under current law, all household members registered as living in a dwelling unit must agree to privatize the unit before it can be privatized. Thus, for the sake of simplicity, we confine the analysis to households which contain elderly members only.

²³ Elderly households include multi-generational households that contain an elderly family member who may or may not be the household head.

²⁴ With the devaluation of 1998 this value is of course lower in dollar terms.

In principle, then, there is a large potential demand for home loans and other types of credit by the “house-rich yet cash poor” elderly. The final step in determining whether this wealth could be used to reduce poverty is to convert this wealth into an individual income stream. To do this we employ the U.S. Dept. of Housing and Urban Development’s actuarial model used in underwriting the insurance it provides for qualifying reverse annuity mortgages.

This model allows us to determine the maximum amount of credit that, for instance, a typical elderly Russian woman living alone could safely borrow against the value of her apartment. It estimates the amount that can be borrowed, under conservative assumptions about house price appreciation and interest rates, such that an insurance premium collected from all borrowers would provide a sufficient cash reserve to cover losses from cases for which the loan principal plus accrued interest would exceed the value of the house at loan termination. An analysis of the program shows that over the past decade that the HUD program has operated on an actuarially sound basis (Rodda and Lim, 2000). The model has been simplified and adapted with Russian single year mortality tables.

The model’s primary function is to provide an estimate of the share of house value, based on actuarial tables and assumptions about house price behavior, that could be safely borrowed for each combination of borrower age and expected interest rate-- what is termed the principal limit factor. This factor can be seen as the present value of the annuity expressed as a percentage of the property value; see Szymanoski (1994) for a discussion of the details of the model. This ratio can then be multiplied by the property value to give the dollar limitation for a specific loan. By pooling premiums and estimating future losses based on house appreciation, interest accrual, and mortality rates, the model estimates the actuarially fair share of house value that can be converted into debt for the insurance premium rate charged.

Table 2 illustrates the derivation of the principal limit factor for a 75 year old female borrower at interest rates between 8 and 12 percent, with the highest rate approximating the current dollar interest rate for mortgages in Russia.²⁵ With the underlying assumptions that annual mean nominal house price appreciation will be 5 percent – so that real interest rates are about 5 to 7 percent -- with a standard deviation of 10 percent, the result is a principal limit factor of 0.495. That is, the table indicates that for a small fee a borrower can insure lenders that the present value of the payments on a reverse mortgage equal to about half the value of a house will not exceed the initial property value.

Table 2. Principal Limit Factors for Russian Women

Interest Rate	Age of Borrower at Loan Origination		
	<u>65</u>	<u>75</u>	<u>85</u>
8.0%	0.511	0.629	0.747
10.0%	0.359	0.495	0.645

²⁵ In 2000 interest rates on dollar-denominated mortgages were in the 10-15 percent range for most banks (Pastukova and Rogizhina, 2001, Table 6.1); and since then macroeconomics conditions have improved.

12.0%		0.255		0.390		0.557
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The table also shows principal limit factors for other combinations of borrower age at closing and interest rate. For any given interest rate, older borrowers have higher principal limit factors. Similarly, for any given borrower age, lower interest rates produce higher factors. The table shows quite concretely the benefits of macro stability. A more stable macroeconomic environment – e.g., one that lowers interest rate from 12 to 10 percent -- can increase the amount that can be borrowed by about 10 percent. The estimate assumes an annual nominal property appreciation of 5 percent, with a standard deviation of 10 percent.²⁶

One way to consider the implications of the data in Table 2 is to consider the income stream that could be generated for a hypothetical elderly person without reference to other sources of income. For instance, consider the prospects faced by 65 and 75 year old women at a 10 percent interest rate (the middle row of the table). These individuals would be able to borrow approximately 36 and 50 percent of their house value, respectively. Based on our estimates of 1995 house value, this corresponds to about \$15,000 and \$23,000. To be conservative, assume that they can convert their premium payments into annuities at a rate say 30 percent lower than that provided by the more competitive U.S. market. In this case, they would be able to receive the following life-time monthly payments: the 65 year old would receive monthly payments of \$86; and the 75 year old monthly payments of more than \$160. The former figure on an annualized basis equals \$1,042, a figure which by itself is only slightly below the per capita median income of \$1,147 in 1995. The latter annualized figure of \$1,920 would, without relying on any other source of income, place the annuitant firmly in the middle class.

But, rather than just focusing on the income stream that could be generated by this financing, we also take another, more poverty-oriented perspective. Consider how this income stream might be used to “top up” other forms of income. For this perspective we focus on the situation of the average elderly homeowner whose current income leaves him or her in poverty. We then calculate how much that person would have to borrow to avoid having an income less than 150 percent of the poverty line.

For example, consider the case of an elderly Russian woman living alone experiencing a poverty spell at some point in her uncertain life span as being an insurable, even if off past trends, as a likely event. At present, the occurrence of such an event in Russia is, in some respects, like the situation facing a car driver in the U.S. Over a long period of time the driver is quite likely to realize some relatively small insurance claim for damage to his or her car, even if he or she is a good driver. However, even if the likelihood of experiencing the event in both cases is high, the average loss per insurable event is in both cases relatively low. That is, in the Russian case the amount of income needed to avoid poverty after other sources of income have been exhausted is small, particularly relative to the amount of housing wealth.

²⁶ This assumption is consistent with the behavior of residential real estate prices in Moscow. In ruble terms the price in 2001 of housing is slightly higher in 2001 than it was prior to the crisis. See the web page of the Russian Guild of Realtors. If the loan were denominated in dollars, not rubles, this assumption may not be sufficiently conservative.

Suppose, to continue the example, that the elderly homeowner had the ability to dissave from her housing wealth only during periods of poverty. That is, they could do this **only** under such *force majeure* circumstances that this ability could be viewed, in some ways, as being similar to the pay-out on a deductible insurance contract – i.e., paid out only after other sources of income have been used and some definable event occurs. In this case, a single elderly annuitant would need to borrow less than one-third of one percent of house value; elderly couples would need to borrow less than one-fifth of one percent of house value per year.²⁷ With this rate of capital decumulation most elderly should be able to use these instruments to avoid poverty, and still be able to provide bequests of a substantial proportion of their home at the time of their death. When the poverty spell was a one-time event, the premium, even with accumulated interest, should usually be a small share of total house value.²⁸

In short, there appears to be considerable latitude to exploit the existing distribution of wealth in ways that address the income concerns of the lower income elderly. Certainly this is the case in Moscow and we suspect elsewhere too. It is of course true that we cannot say how many of the more than the 250,000 lower income, elderly households in Moscow would in fact demand such instruments. To mention just one of the difficulties with such estimates, as argued by Venti and Wise (1990), the demand in the U.S. has been lower than anticipated largely because many households apparently want to preserve their house as a last resource. However, while it is true that U.S. homeowners have not embraced the annuity based instruments that would ultimately yield their ownership rights, they have, as Fratantoni (1999) shows, been quite willing to borrow to protect themselves against unanticipated shock.²⁹ It is also the case that for the Russians: (1) the income shocks experienced have been much more severe than those that motivated U.S. borrowers; (2) their income is much lower; and (3) the house value to income ratio of many would permit such insurance with little reduction in the value of their housing bequests.³⁰ Thus, abstracting from the trust and information concerns, we would expect that a substantial portion of Russia's 38 million pensioners would be interested in these loans.

Before concluding we first briefly review the experience of a recent spontaneous emergence of a similar market for financial services -- the establishment of a secondary market in life insurance policies. We review this event because we want to consider both some of the broader gains and impediments to the introduction of the kinds of financial instruments generally offered by a market economy.

²⁷ In 2001 Sberbank, the largest deposit-taking bank with the most branches in Russia, began to make Pensioner ATM Cards available. Such cards could be a convenient way to access such assistance.

²⁸ One could argue, as do Lokshin and Yemtsov (2000), that making timely payments of pensioners' income is the government's responsibility and not an obligation that should be shifted onto pensioners. However, this responsibility has been repeatedly violated by government, and at present house rich pensioners often have no other option but to reduce consumption to very low levels.

²⁹ He shows that it is this preference for such protection that drives the disproportionate demand for the line of credit rather than reverse annuity mortgages.

³⁰ House prices are higher in Moscow, but, relative to pensioners' incomes, are nevertheless high elsewhere as well. For example, under reasonable assumptions about the amount of housing consumed, our data indicates that for families of two pensioners the house price to income ratio was 15.8 in St. Petersburg, 20.0 in Kaliningrad, and 17.2 in N. Novgorod in 1997.

V. Reverse Annuity Mortgages in Russia and Viatical Settlements in the U.S.

As shown by Kohn (1994), in recent years viatical settlements, or more morbidly “death futures,” were a financial market response to the AIDs epidemic. Today, these trades allow even perfectly healthy people to trade their life insurance benefits upon their death for a cash payment. Like reverse mortgages these transactions essentially involve a “bet” on when death will occur. The experience with these instruments is of some interest in determining whether the market, by itself, will be able to bring a sufficient number of buyers and sellers together so that transactions occur.

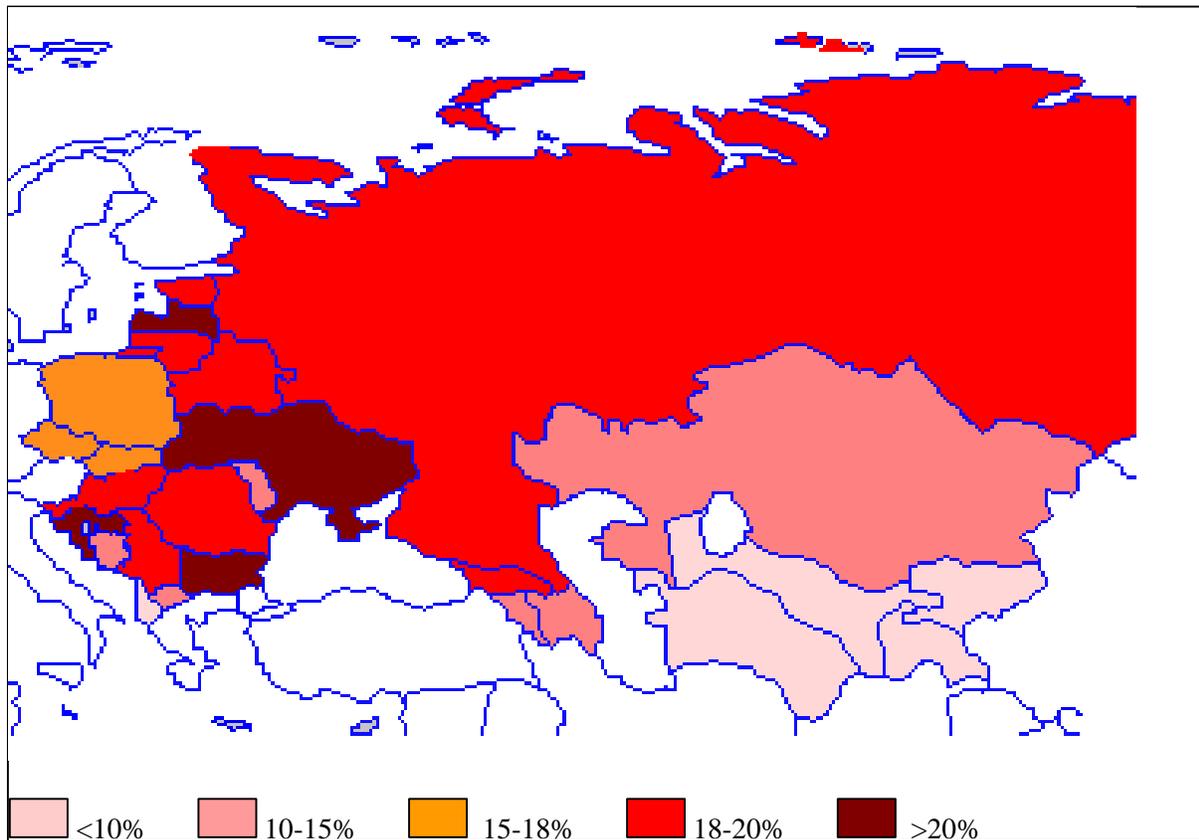
In this instance, until there were a large number of people with reasonably certain and shorter than had been expected life spans, as well as high needs for current income, there was no market for such trades. Until the establishment of this secondary market for their policies many U.S. life insurance beneficiaries held assets which yielded a return which could be realized only after it would have been useful for addressing current, often catastrophic, income concerns. In effect, this secondary market permitted policy-holders to react to changing circumstances. With it, they could opt out of the perhaps ultimate “deferred gratification” implied by life insurance pay-outs after their death. Like homeowners with reverse mortgages they could use some of their illiquid future wealth to pay for current needs.

The viatical experience suggests that if left to their own devices, markets do eventually develop. However, it also suggests that development may require a catalyst to reach some threshold level, such as the simultaneous appearance of many demanders of a product. For elderly Russian homeowners there is no question that housing privatization there has led to a rather sudden creation of a potential market demand. What is considerably less clear is whether these potential demanders understand the possibilities implied by their wealth, and whether they trust market-based financial mechanisms to help realize these possibilities. In such a context, and particularly given the informational complexities involved, a public role would appear to be justified.

VI. Discussion and Conclusion

The answers to the questions raised at the beginning of the paper all appear to be positive, suggesting that reverse mortgages could contribute to an effective safety net for pensioners in Moscow. They might also be expected, according to a recent Bank of Japan Report, Nakagawa (1999) to help address pension reform issues in aging societies. Moreover, given the potential scale of the demand implied by current housing wealth, the situation of the elderly in Moscow or even Russia is by no means an isolated event.

Figure 1
Share of the Population Older than 60



As highlighted by Figure 1, the elderly share of the population of many of the transition countries is higher, and sometimes considerably higher than it is in developing countries where 9 percent of the population are elderly, or even the older OECD countries, where the elderly account for 14 percent of the population, see World Bank (1997). The transition countries tend to be older societies. Moreover, they are societies where poverty among the elderly has increased substantially even if not disproportionately. Poverty has increased at the same time that the elderly have become owners of significant amounts of unencumbered housing wealth. At the same time, financial markets remain underdeveloped throughout the region and, at least in the short run, are unlikely to be able to innovate to address these potential demands.

Of course, it may be expensive to overcome the elderly's potential initial lack of both understanding of the product or distrust in the providers of such services. However, these costs should also be weighed against the effects that the transition process itself has imposed on the elderly through changes in the distribution of risk. In particular, by changing the income streams of the elderly from being among the most stable in the economy to being among the most volatile, the transition has made pensioners among the most vulnerable to shocks of all groups. Unlike younger workers, many of the elderly have little in the way of marketable human capital

(Brainerd, 1999). In addition, outside of their housing wealth, the only source of income for many elderly families has been public pensions, the produce of their garden plots, and transfers from family members. The first and last of these sources of income are likely to be particularly sensitive to broader economic trends. That is, when macroeconomic conditions deteriorate so too, and usually by even greater extent, may these sources of income.

Thus, from a financial perspective the general problem faced by the elderly in Russia is not so much that they are poor as it is that their wealth holdings are under-diversified. As a result they are much less able to exploit their wealth to cushion the shocks they have experienced. It follows that a policy that helps them diversify their risk exposure would be an effective component of the social safety net even if the unsubsidized demand for these transactions was low or non-existent.

There are, of course, also problems with the introduction of such instruments. One is the difficulty of anticipating all the effects of their widespread adoption. For instance, not only would the elderly be affected by the provision of such instruments but so too could be others who, as a result, would be less able to purchase the housing units that the elderly continue to occupy. Countering this particular view is the low anticipated mobility of the elderly in any case. In addition, it worth noting that by 2002 on the order of half of the pensioners alive when the transition began have already died, and therefore are not longer holding their units off the housing market. Hence, the effects of such instruments on the rate of market development are likely to be both small and rapidly decreasing.

Another potential impact is on housing maintenance. Some observers believe that one of the reasons that the Russian housing stock continues to experience under-maintenance is that many households cannot afford to make the necessary payments. As we have shown, however, many of the families thought to be unable to pay have substantial housing wealth even if they have low incomes. By permitting low-income families to be able to use their wealth to make rent and utility payments, reverse mortgages could also have beneficial welfare effects beyond those immediately engaged in the transactions.

Another problem with these instruments is that the costs involved with marketing the concept and implementation of the necessary financial control mechanisms could be very high. It may, for instance, be expensive to explain to an elderly borrower the fair price for a reverse mortgage. The difficulty arises because the contract would in many ways be similar to the trade of a lifetime annuity for what is essentially an elderly household's sale of a "call" option on their property. Valuing such a transaction may be particularly difficult for elderly households who have limited experience with financial assets, may have lost his or her savings due to bank failure or who has heard stories of fraud and corruption relating to housing. Indeed, the initiative to create the Moscow-city agency that makes such loans arose at least in part in response to concerns that the elderly were being exploited by unscrupulous real estate dealers.

There is no question that the elderly will tend to need assistance to be able to make informed judgments about such transactions. But, it is worth noting that while the actuarial calculations are not obvious, they are quite mechanical and hence not subject to widely variable estimates (again see Rodda and Lim, 2000). In other words, as long as a disinterested appraisal and advisory system is in place, it should be a relatively simple exercise to determine the fairness of the exchange. That is, the annuity value should not be widely variable across lenders and accordingly should be easy to estimate.

Thus, if actuarially fair annuity prices could be generated, then the only public costs would be that of assisting the elderly in making informed decisions and regulating or administering a system that did so.³¹ In Russia these latter costs will be modest, given local wage rates. In addition, in contrast to all other components of the safety net, the finance itself would not require direct subsidies. In short, the costs would be those of bringing information about opportunities to a group that has been identified as marginalized and passive.

Another factor that may limit the usefulness of such instruments is whether the elderly would want to use their housing wealth to finance current income expenditures. We simply do not know how many of the elderly would rather convey their savings to their children in bequests rather than dissave. Certainly, a significant portion of the housing wealth of the Russian elderly, like that of their American counterparts (see Venti and Wise (1990)) is being held to make such bequests. However, as noted above, these transactions do not have to take the form of an annuity. In the U.S. program, by far, the most popular approach is the one which yields significant protection against poverty and yet entails very little reduction in the amount of housing wealth available for bequests – that is, the equity line of credit during periods of cyclical stress.

A final reason elderly households may not want to use these instruments is because it would prevent them from purchasing what might be termed implicit home service assistance. For example, Bernheim et al. (1996) have shown that in the US one of the most important motivating factors for bequests is that they are a form of strategic behavior through which the elderly essentially “purchase” home services assistance from some of their children. Consider how this motivation might affect the preferences of a younger Russian family who owns their own apartment and also cares for and is financially responsible for an elderly parent who has his or her own separate apartment. One way the younger household could augment income is to either rent out or sell one of the two apartments, and move the extended family into one, often small unit. With reverse mortgages, in contrast, this overcrowding could be avoided without losing the income stream implied by the elderly’s wealth. In other words, an elderly person might be better able to engage in strategic bequest behavior with a reverse mortgage than they could by bequeathing their unencumbered apartment to their children.

To conclude, there are many questions relating to the efficacy and management of reverse mortgages in Russia. However, given that history has resulted in the Russian elderly having a good deal of housing wealth relative to their income, and given the costs and risks that the

³¹ In the U.S. much of this education is carried out by grants to NGOs from HUD. Educational packets for NGOs have been prepared by Ken Scholen of AARP who has been a leader in this field writing 5 consumer manuals.

disruptions of the adjustment process have imposed on them, at a minimum it makes sense to investigate further the costs and benefits of expanding the provision of reverse annuity mortgages. In addition, because of the important role historical factors appear to play in the elderly holding so much housing wealth in the FSU, it would be useful to see if the circumstances in these other economies yield similar results.

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