

**Land Value Taxation for Local Government
Finance in the Russian Federation:
A Case Study of Saratov Oblast**

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**Lincoln Institute of Land Policy
Working Paper**

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Lincoln Institute Product Code: WP06KZ1

Abstract

As the Russian Federation restructures its local government finances to provide greater local fiscal autonomy, it is changing the way it taxes land. Instead of using normative measures such as area or values based on subjective adjustments to area, the Federation is basing land taxes on cadastral value. This paper discusses the changing system of local government finance and the new system of cadastral valuation of land being used by the Russian Federation, using Saratov Oblast as a case study subject. Along with an extensive review of the valuation process, the paper discusses important administrative, economic, and fiscal issues associated with the restructuring.

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Land Value Taxation for Local Government Finance in the Russian Federation: A Case Study of Saratov Oblast

Introduction

The Russian Federation is carrying out a radical restructuring of its local government finances to join the many nations that are moving toward some degree of greater local fiscal autonomy. In conjunction with this reform it is also restructuring its property tax system and continuing its program of land privatization that began in the early 1990s after the demise of the Soviet Union. These three significant and interrelated developments create the potential for government that is more responsive to the citizenry and for more efficient land use, especially in the context of a growing market economy. When complete, this restructuring will change the face of local government finances, the tax system, and how governments benefit from productive allocation and use of private real property resources.

Because these developments represent a considerable change over past practices, they have significant challenges associated with them. This paper describes and analyzes both the developments and related challenges, using the Saratov Oblast as a case study. The Saratov Oblast represents a region that has been a pioneer in land reform in Russia, beginning with Stolypin's reforms early in the twentieth century and continuing to the present. Particular attention will be given to property taxation and, within that category, to the taxation of land because property taxation is the linchpin for the restructuring.

As the Russian Federation strives to increase private land ownership and to promote economic growth and development, application of a property tax represents an important and bold strategy to help achieve these objectives. As Youngman and Malme observe, "perhaps the most important effect of a property tax is its reservation of a portion of private real estate value, importing a public element into the basic structure of property rights."¹ With a value-based property tax, the government shares in the proceeds of improving property values but it leaves property allocation and management decisions to private owners. It retains an economic interest in the property and shares in property value increases that result from development of the public community but it does not own the property. In other words, the government has a stake in what happens with the property but it is not an owner.

Youngman and Malme go on to say that this interest is "particularly relevant to the situation in transition countries, where there is often strong support for retaining a public interest in land as a fixed, nonrenewable element of common heritage which, once sold, cannot be reproduced."² In a market system, private owners have the appropriate

¹ Joan Youngman and Jane Malme, "The Property Tax in a New Environment: Lessons from International Tax Reform Efforts," Andrew Young School Fourth Annual Conference on Public Finance Issues in an International Perspective: Challenges of Tax Reform in a Global Economy, Stone Mountain, Georgia, May 24 – 25, 2004.[ONLINE: <http://isp-aysps.gsu.edu/academics/conferences/conf2004/Youngmanmalme.pdf>]

² *Ibid.*

incentives for the most productive and efficient use of property. Unlike a tax based on the property's physical dimensions alone, a tax based on value of the property gives the government some fractional claim on the proceeds of the property without interfering with productive private use of that property. The fact that the Russian Federation in general and Saratov Oblast in particular is advancing toward property ownership and property taxation for local governments represents an important movement toward economic progress and productive use of the vast land resources of the nation.

Conceptually a local property tax, particularly the component on land, provides for private ownership that allows the entire citizenry to retain a stake in this non-reproducible resource, resulting in the efficient use and development of real property in a fashion that is consistent with public and individual demand. In practice, the way the property tax is designed and administered can either help or hinder achievement of the policy objective. Therefore it is critical that its design and application be done within the framework of best international practices to ensure a positive outcome.

The transformation of the local government finance system, the property tax system, and land ownership system is not without important challenges. Four significant issues must be managed if the full returns from these changes are to be realized. Briefly, they are the following:

(i) Land in Russia has historically been held in common ownership and not all factions in the country accept a change from that tradition. The state land monopoly allowed government to dictate rules of usage and rights of users were vague and changeable. Governments will need to change the way in which they regulate land use as privatization of land ownership expands. This will represent a radically different way of influencing economic growth and use of land resources. Ownership of agricultural land has been an issue of particular importance, but the transformation towards private ownership has not been easy. Even after privatization, the resale of land plots is difficult due to the lack of market demand. The land market is still thin and illiquid. Current and prospective land owners do not have access to credit, crippling both their ability to buy land and to acquire costly equipment necessary to cultivate it at a competitive scale of operation. In addition, financial institutions avoid financing land-related transactions due to high risk levels. Land is not wanted as a collateral and there is no crop insurance to reduce the default probability of the borrower.

(ii) Local governments have historically been dependent on fiscal choices made by those at national or oblast levels. Fiscal restructuring will require local governments to raise their revenues from property taxes rather than relying on transfers, tax sharing, and taxes established on their behalf by other governments. Their ability to make reasonable choices in this unfamiliar area will be important for a successful transformation. Independent tax rate setting will be critical as it never has been before.

(iii) Because of the long state monopoly on land ownership, there still is no organized land market and, accordingly, no clear indication of market values for land. Transactions are recorded by the registration chamber, but there are few of them; the market is very thin. The system for land taxation will require valuation of land, but not initially according to the international standard of market value. The development and application of criteria for valuation that create values that are viewed as acceptable across various property parcels will be vital for the ultimate success of the system. Unless property holders perceive at least a rough equity across properties, the system will always be under great pressure and will ultimately fail.

(iv) The transformation brings together a new system of land ownership, of property valuation, and local government finance. Almost by definition, those responsible for operation of each component have minimal experience with their part of the transformation and certainly are unfamiliar with operation of other components of the system. The transformation will take administrators over uncertain and unfamiliar ground. Providing them with guidance, advice, and training will be critical for success of the transformation. The system must be uniquely Russian, but it can be informed by international experience.

The overall intent of this working paper is to provide an information baseline, preliminary analysis of the transformations, and identification of issues of concern in the development of local finance, property taxation, and land policy. It accomplishes these objectives in the following way. First, a discussion of the historical background of land reform in Russia and, specifically in the Saratov Oblast is presented. This is followed by a brief explanation of the three taxes present under the old system of property taxation. Then a brief discussion of the changing nature of local government finance in the Russian Federation is provided along with official Russian views on the new system of land valuation. The new system of cadastral valuation is described in detail. Finally, issues that surfaced during the research on this topic are presented and briefly discussed.

Saratov Oblast and Land Reform in Russia: Transition from the Soviet System

Land ownership is a relatively new concept for the Russian Federation, particularly regarding agricultural land. Through most of its history, land has been owned communally or by the state, thus constraining the capacity for economic development and efficient utilization of this valuable resource.

On the verge of the 20th century agricultural lands were either owned by nobility or communally owned by *sels'koye obshchestvo* (*obshchina*, *mir*; *zemelnoe obshchestvo* – a later definition in the 1922 Land Code) with male heads of households receiving a land plot that reverted to the commune upon death. Several *obshchestvo*'s composed one *volost*' – a local self-government authority endowed with administrative, fiscal and police functions. Land relationships were regulated locally by the *skhod* – a local gathering of

obshchina members³. The land tax (*vyt'* or *sokha*) was levied at the *obshchina* level. The rate of taxation depended on geographical location, methods of cultivation and the taxing tradition of the region. Once the tax had been levied, *obshchina* members divided the burden among themselves according to the amount and quality of land possessed by each household and the number of dependents and working adults, usually males, in the family. Equity and fairness of taxation among the members were important to prevent free-riding. Historians indicate that the progressivity of the tax burden often led to disputes and even separation of *obshchina*'s wealthiest members. Periodically, both the tax base and the rates were renegotiated between *obshchinas* and *volost* authorities⁴.

Low crop capacity, limited land cultivation areas, and underdeveloped stock-breeding translated into the low productivity of lands in Russia. Severe climate conditions reduced agricultural cultivation to 125-130 working days per season (approximately from mid-April to mid-September), which induced the division of labor among *obshchina* members in order to optimize the production cycle. Such common land ownership also benefited its members by minimizing the cost "so that the modest revenues could cover the expenses and generate some net profit" and re-divided yields among its members depending on the need.⁵ Land repartitions that occurred every 3 to 12 years allowed peasants to achieve intertemporal equality in the apportionment of land within the commune and minimized the risk of crop failure to an individual family⁶. Under these circumstances, the *obshchina* served as an optimal social construction for Russia's peasantry: it represented the interests of the peasant community and protected its poorest members.

The Emancipation of 1861 and rapid population growth resulted in an increase of land purchases by the peasants. Since the inception of the Peasant Land Bank in 1883, records indicate a four-fold increase in the volume of transactions from 6,818 thousand *desiatinas* in 1880 to 24,591 thousand *desiatinas* in 1905.⁷ Availability of credit and rising demand inflated land prices thus benefiting the seller – most often the nobility. On the buyer side, three quarters of purchases were made by *tovarishchestvos* (peasant associations), around one quarter by *obshchinas* and only 2.2% were individual purchases (although individuals bought the largest parcels) between 1883-1905⁸.

As of January 1, 1901, Saratov surpassed all other guberniyas by the amount of land purchased (416.8 thousand *desiatinas*)⁹. In 1907-1911 of all privately cultivated

³ Kabanov V.V. *Krest'ianskaya Obshchina i Kooperatsiya Rossii XX Veka (Peasant Obshchina and Cooperation in the 20th Century Russia)*. Institute of Russian History. Moscow, 1997, p.21.

⁴ Kozlov S.A. and Dmitrieva Z. V. *Nalogi v Rossii do XIX veka. Kurs Lektsii i Materialy Dlia Seminarikh Zaniatii (Taxes in Russia Before the XIX Century. A Course of Lectures and Seminar Materials)*. 2nd ed. 2001. Istoricheskaya Illustratsiya, p.203.

⁵ Rittikh A. A. *Krestianskoie zemlepolzovaniye. (Land Use by the Peasants)*. Saint-Petersburg, 1903, p.3.

⁶ Pallot, Judith. *Land Reform in Russia 1906-1917. Peasant Responses to Stolypin's Project of Rural Transformation*. 1999. Clarendon Press, Oxford, p.69.

⁷ Anfimov A. M. *Krestianskoie Khoziaistvo Evropeiskoi Rossii 1881-1904. (Peasant Household of the European Russia 1881-1904)*. 1980. Nauka, Moscow, p. 56. A *Desiatina* = 1.03 ha

⁸ *Ibid* p. 57.

⁹ *Ibid* p. 61. A *guberniya* is roughly the pre-Revolutionary version of an oblast or regional government.

agricultural lands in Saratov guberniya (contemporary *oblast*) 45.6% were inherited, 19.5% directly purchased and 34.9% rented¹⁰. Clearly rentals were much more popular in the region compared to the overall average of 20.2% in European Russia. Anfimov explains this differential by a significant portion of state-owned lands in the region available for lease. In 1902, 53% of these state-owned lands were rented by *obshchinas* and 47% by individual farmers¹¹. The largest individual landlords cultivated one-third of their lands themselves and rented out the rest. Overall, short term leases prevailed: 27% one-year leases versus 20.7% multi-year contracts; about 16.3% of rents were paid for by *ispola* (crop shares, often 50%).¹²

The Peasant Land Bank reform of 1885 permitted the Bank to purchase land for its portfolio, thus further increasing the demand and inflating prices. This translated into collections from those unable to pay and escalating rent payments. Rapid social stratification began: mounting land disputes, social unrest, and meager overall agricultural output created pressure for modernization of land relations. The revolution of 1905 provided an impetus for reforms in the agricultural sector. The land reform initiated by Sergey Witte¹³ and implemented by the Prime Minister Piotr Stolypin¹⁴, former governor of Saratov region, initially intended to provide changes to peasant land tenure and to transfer land to peasants via the Peasant Land Bank. Theorists of the reform believed that the current state of affairs was due to peasant's backwardness and 'benightedness'; they viewed 'the new farmers' as independent husbandmen able to live and work outside of the *obshchina*.¹⁵ An investigation conducted by Rittikh¹⁶ in 1902 on behalf of Sergey Witte concluded that land fragmentation caused difficulties for farming, and the fear of land repartitions and lack of credit precluded individual capital investment.¹⁷ Therefore, the second stage of the reform emphasized physical reorganization of lands: villages were to be dismissed and peasants re-settled into *khutora* (individual farms). The results of the Stolypin land reform are highly debatable by historians. They are viewed either as an administrative utopia or a brave attempt towards

¹⁰ Anfimov A. M. *Zemelnaya Arenda v Rossii v Nachale XX Veka (Land Lease in Russia at the Beginning of the XX Century)*. 1961. Academy of Sciences of USSR, Moscow, p.31.

¹¹ Anfimov A. M. *Zemelnaya Arenda v Rossii v Nachale XX Veka (Land Lease in Russia at the Beginning of the XX Century)*. 1961. Academy of Sciences of USSR, Moscow, p.39.

¹² Anfimov A. M. *Krupnoie Pomeschchichie Khoziaistvo Evropeiskoi Rossii (Major Landowner Households of the European Russia)*. 1969. Nauka, Moscow, p.31.

¹³ Sergey Witte (1849-1915) served as Russia's Finance Minister Finance Minister from [1892](#) to [1903](#), Chairman of the Committee of Ministers (1903 – 1905) and Chairman of the Council of Ministers (1905 – 1906). http://en.wikipedia.org/wiki/Sergey_Witte.

¹⁴ Reform's chief legislative acts: 1906 Edict, 1907 Order to Land Planning Commissions, 1911 Law on Land Planning.

¹⁵ Pallot, Judith. *Land Reform in Russia 1906-1917. Peasant Responses to Stolypin's Project of Rural Transformation*. 1999. Clarendon Press, Oxford, p.1.

¹⁶ Rittikh A.A. served as an administrative head of the land reform. *Source*: Pallot, Judith. *Land Reform in Russia 1906-1917. Peasant Responses to Stolypin's Project of Rural Transformation*. 1999. Clarendon Press, Oxford, p.44.

¹⁷ In Saratov oblast, for example, some land plots consisted of over 100 *arshin-wide* stripes (arshin = 2.33 feet). *Source*: Anfimov A. M. *Krestianskoie Khoziaistvo Evropeiskoi Rossii 1881-1904. (Peasant Household of the European Russia 1881-1904)*. 1980. Nauka, Moscow, p. 102.

market liberalization. Nonetheless, by 1916 some 27-33% of households departed *obshchinas*¹⁸.

Lenin's Decree on Land of October 26, 1917 affirmed land as national property and confiscated all lands from the nobility and the landlords. Their properties were transferred to *volost'* land committees until the final decision by the nation-wide constitutional convention¹⁹. Land was distributed to the rural population, mostly going to individual peasant families for indefinite gratuitous use. They were to be cultivated individually or within a peasant association with no hire of labor permitted.²⁰ The 1918 Law on Socialization of Land codified land and natural resources as a state property. In line with the new status of land, the 1918 Decree on Taxes in Kind introduced taxes in kind levied on any agricultural output produced above some minimal threshold level, entirely replacing the land tax.

The 1922 Land Code of the Russian Socialist Federation of Soviet Republics completed nationalization of land and private ownership became a thing of the past. The code nationalized all land; prohibited its purchase, sale, bequest, and mortgage; divided land in the countryside among peasant families; and made land and buildings in cities state property. Short-term land rent and the hire of labor were permitted only under special circumstances. The status of *zemelnoie obshchestvo* (formerly *obshchinas*) and individual households, was codified. The Code established the framework for land use and land register. Taxes in kind levied on every type of agricultural output followed. In 1927, Stalin began the collectivization program that eliminated individual farming and established the collective (*kolkhozy*) and state (*sovkhozy*) farms.²¹ The 1935 Instruction by the Soyuz Narodnykh Komissarov established the registration procedure for *kolkhozes* and cooperatives as land users with unlimited tenure. Russian farmers were forced to put their farms with all inventory possessions into these units; by the end of the 1930s, about 30,000 socialized farms held 98 percent of agricultural land. In 1939 members of *kolkhozy* constituted 47.2% of the total population, with their share declining to 31.4% in 1959, and to 20.5% in 1970.²² However, rural households were able to cultivate plots of less than half a hectare or less than 0.2 hectare on irrigated lands for subsistence production. Thus, the Soviet period saw commercial production from large collective and state farms and subsistence production from household plots within the collectives.

¹⁸ Kabanov V.V. *Krest'ianskaya Obshchina I Kooperatsiya Rossii XX Veka (Peasant Obshchina and Cooperation in the 20th Century Russia)*. Institute of Russian History. Moscow 1997, p.21.

¹⁹ Belikhin N. G. *Reformirovanie Zemelnykh Otnoshenii v Rossii v XIX-XX vv. (Reform of Land Relations in Russia in the XIX-XX centuries)*. 2000. Moscow, p. 29.

²⁰ Of 20 million hectares distributed to rural populations during 1917 – 1919, 95 percent went to peasants and only 5 percent to collective and state farms. Zvi Lerman and Natalya Shagaida, "Land Reform and Development of Agricultural Land Markets in Russia," Discussion Paper No. 2.05, Center for Agricultural Economic Research and Department of Agricultural Economics and Management, Hebrew University of Jerusalem, February 2005: 3.

²¹ Belikhin N. G. *Reformirovanie Zemelnykh Otnoshenii v Rossii v XIX-XX vv. (Reform of Land Relations in Russia in the XIX-XX centuries)*. 2000. Moscow, p. 192.

²² Belikhin N. G. *Reformirovanie Zemelnykh Otnoshenii v Rossii v XIX-XX vv. (Reform of Land Relations in Russia in the XIX-XX centuries)*. 2000. Moscow, p. 252.

The 1966 Law established the basis for land relationships in the Soviet Union and its republics: the right to indefinite or term gratuitous land use; land distribution procedure and rules for land use; and land alienation by the state. It outlined major categories of land and their respective uses; the role and functions of the state land cadastre; established the system of land planning; and instituted procedures for dispute settlement and penalties for violating land legislation. Similar to previous acts, it prohibited any transactions with land such as sale or purchase, mortgage, inheritance, donation or land lease, as well as any unauthorized exchange of land parcels.

With the end of the Soviet system, the state monopoly on land ownership began to crumble. A new program for private ownership began with the 1990 Constitution, but progress was slow. Land ownership continued to be controversial as many elements of government and society continued to regard land as something that should only be held in common, an attitude that remains strong in some parts of the nation even today.²³ There was resistance to land privatization and the right to buy and sell land. However, in 1991 the national duma passed a federal law “On the Payment for Land” that set normative land values by region that were to be used for taxation and as a basis for land rent and purchase.²⁴

During 1992-1993 the state monopoly of land was abolished and transition to variable forms of land ownership began. All citizens interested in acquiring personal subsidiary and horticultural plots were provided with such plots. Collective and state farms were reorganized and their property was privatized with subsequent transfer to peasant holdings and farming enterprises. Private ownership brought the possibility of a land tax as owners became eligible to pay on these land assets.²⁵ The Land Code for the Russian Federation took effect in late 2001 to provide a basis under the federal law for land ownership in urban areas. Urban areas account for only 2% of total land in the country, but are where most of the population lives and where most (non-agricultural) economic activity occurs. Among other things, it gave owners of buildings the right to purchase (from the state or municipality) the plots of land under these buildings and gave similar rights to investors considering development on plots of land. It also established a formula to calculate the price at which owners of existing buildings could purchase the land upon which the buildings are situated. The formula is based on the size of the plot, the land tax rate, the purpose for which land and buildings are used, and other coefficients. Agricultural land was not, however, covered by the 2001 Code.

Saratov has been a leader among the regions in the push for private ownership, even in the midst of difficult times for agriculture. In the first half of the 1990s, the number of farming enterprises in the region increased 224.5 times compared to the 5.7 Russia average. Mostly a rural area in the early 20th century, Saratov region was included in the

²³ Leonid Limonov, “Land Reform and Property Markets in Russia,” *Land Lines*, April 2002: 1 – 4, provides a brief review of the historical record.

²⁴ Russia Federation Law On Payments for Land. October 11, 1991.

²⁵ Because private land ownership effectively ended in 1917, figuring out ownership was an important issue in the reform system and in ultimately creating a land tax.

virgin lands' development zone in the postwar years: during 1956 – 1964, 875 thousand of hectares of virgin lands were tilled there. In 1970-90s, the irrigated area increased from 58 thousand to 500 thousand hectares in the region. The 8% of irrigated tillable lands produced some 20-22% of crops. The sharp decline of agricultural production in the early 90s was mainly a result of breakdown of large specialized enterprises. Over the last decade, the number of unprofitable agricultural enterprises and farms has increased and the value of fixed assets in agricultural sector have declined rapidly. This decrease in agricultural production in the Saratov region has been one of the sharpest among all Russian regions. The agricultural crisis of the period can be explained by the lack of legislative basis for transactions in this newly liberalized sector, among other things. Although private land ownership was legalized by the Constitution and numerous legislative acts (RSFSR Act On Land Reform of November 23, 1990; Federal Law On Payments for Land of October 11, 1991; Article 36 of the Constitution of December 12, 1993), free disposal of land has been impossible due to the lack of an overarching federal law regulating land relations.²⁶

The Saratov region was the first, in December 1997, to adopt a Law About the Land permitting buying and selling of privately owned land, including agricultural land, thus creating the basis for ownership and land markets. Russia's first land auction occurred in March 1998 in Balakovo, in which twenty plots of state owned urban and agricultural land were sold. The Land Policy Committee in the oblast continues to work with a program of land ownership as a basis for revitalization of the economy and continued improvement in resource utilization. Currently, 58.6% of the region's land is private property (9% owned by farmers), state and municipal property accounts for 35.7%, and legal entities owning the remaining 5.7%. Official records show 30 thousand land transactions annually in the region, about one third of these being sales or purchases.

Figure 1 illustrates the total value of purchased and rented land from the municipal property of the city of Saratov in 1998-2001 and Table 1 provides descriptions of intended parcel use of the plots sold. During 1998-2004 local self-governments conducted 453 auctions where they sold 1,635 parcels of the total of 19.1 thousand hectares; 183 parcels or 98.5 % of the total area were for agricultural use. At the auctions of 2004 the average price for agricultural land were 232 rubles/ha hectare and 225 300 rubles/ha for commercial parcels.

About 90% of land sold in Russia has been located in Saratov region. Following this example, other Russian regions adopted legislation on land relations.²⁷ The Saratov law About the Land is an important crosswalk between the Soviet land legislation and the Russian Land Code of 2001. For example, it allows for unrestricted transactions with land – something nonexistent in Soviet legislature, but prohibits land purchase by

²⁶ The restriction remained on the newly privatized land parcels that could not be sold freely.

²⁷ Vladimirov N.V., Deanes V.A., Nikolaev A.N. *Sovremennyi Opyt Resheniya Zemelnogo Voprosa (Solving the Land Issue: a Contemporary Experience)* in *Sobstvennost Na Zemliu v Rossii. Istoriya i Sovremennost (Land Property in Russia. History and the Present Days)* ed. by Ayatzkov D.F. 2002. Russian Political Encyclopedia. Moscow, p. 522-580.

foreigners and allows for indefinite land use – both items suspended by the Federal Land Code. Chapters of the Saratov law have been introduced into the 2001 Federal Land Code. Since the adoption of the Saratov land law, the region has been developing its land administration system and has improved and updated the state land cadastre. Agricultural land use monitoring via satellite technologies and the creation of a regional GIS system are under way.

Three Taxes Under The Old System of Property Taxation

As previously noted, a property tax provides an important bridge between government and private ownership of land and real estate. Since the early days of post-Soviet Russia there have been three property taxes in existence: a regional tax on enterprise asset (book) value, a local personal property tax, and a local land tax. The local land tax is of primary interest because its nature is changing and because the approach to land taxation can have a significant impact on the prospects for economic development. However, both the enterprise asset tax and the personal property tax deserve some attention because they may be affected by the planned reform to the fiscal structure.

Enterprise Asset Tax

Russian and foreign legal entities are subject to a regional tax on fixed assets (excluding land and other natural resources) on their balance sheets.²⁸ Property tax is assessed on all enterprises, agencies, banks, credit institutions, and foreign entities owning any property in Russia.

The basis of the tax is net book value (balance sheet value) of fixed assets, intangible assets, inventories and deferred expenses incurred as of the balance sheet date. Under certain tax treaties, if the foreign entity does not have a permanent establishment in Russia, only the immovable property for which the entity has property rights may be subject to the tax. Depreciation is allowed in accordance with Russian statutory accounting standards. In some instances a foreign legal entity may use the depreciation rates established to arrive at the book value of the assets as long as the following limits are not exceeded: five percent for buildings and structures; 25 percent for passenger cars, office furniture and equipment, computers, information systems, and data processing equipment; and 15 percent for other property.²⁹

The rate of the tax cannot exceed 2.2 percent; regional authorities may establish differential rates for certain categories of taxpayers or properties. Exemptions from property tax exist for certain assets, namely monetary assets, securities, social and cultural assets, environmental protection assets, agricultural equipment, pipelines, electricity lines and land. Local authorities may exempt other properties. The tax is self-assessed.

²⁸ Articles 372-386, Chapter 30 of RF Tax Code of 01.01.04 introduced by RF Law No.139-Φ3 of 11.11.04.

²⁹ KPMG, Russia Tax Overview 2004, <http://www.kpmg.ru/russian/supl/library/taxlegal/Tax%20Overview.pdf>

Personal Property (Real Estate) Tax

The local personal property tax is levied throughout the Russian Federation on individuals who are recognized owners of residential houses, apartments, summer houses, garages, and other buildings.³⁰ Revenues are assigned to local authorities. Valuation of property is done by the local branch of the Bureau of Technical Inventory (currently Bureaus of Technical Inventory are established as federal, regional (e.g. oblast) or municipal unitary enterprises, while the creation of private valuation enterprises with functions similar to those of the BTI is anticipated in the near future) and is based on the cost of reproducing (reconstructing) the structure minus depreciation. The process is conducted according to adopted standards and has minimal if any relationship to market conditions.

Tax rates are set by local authorities and may be based on total value, type of use, and other criteria. There are national rate limits established for the tax:

<u>Value of Property</u>	<u>Maximum Rate</u>
Up to 300 thousand rubles	0.1 percent
300 – 500 thousand rubles	0.1 – 0.3 percent
Above 500 thousand rubles	0.3 – 2.0 percent

Both regional and local governments may establish various tax preferences. The former may provide preferences both for categories of taxpayers and individual taxpayers while the latter may establish preferences only for individual taxpayers.

By March 1st of each year the local Bureau of Technical Inventory must transfer information about the value and ownership of all registered structures to the local tax inspectorate (a branch of the federal ministry). Tax notices must be sent by the inspectorate to property owners by August 1st. Taxpayers may pay in equal September 15 and November 15 installments.³¹

Land Tax

Taxes on land in Russia and other transition countries have traditionally been based on area or on values based on subjective adjustments to area. The system Russia installed in 1992 based taxation and rents on normative land prices, which were values differentiated by value zones and region but unrelated to what market values might be.³² The country had no land market, given the absence of private ownership, so there was little alternative. However, the 1990s brought substantial inflation, and the normative values soon had little meaning; even without transactions occurring in organized markets, it was clear that the normative values had little relationship to the values that would occur

³⁰ RF Law No. 2003-1 of 09.12.91, Instruction of the RF Ministry of Tax Service of 02.11.99 No.54

³¹ Timofeev, Andrey, "Land and Property Taxes in Russia" in *International Handbook of Land and Property Taxation*, Richard M. Bird and Enid Slack, editors (Northampton, MA: Edward Elgar, 2004), p. 240.

³² Article 25 of Federal Law "About Land Payments."

if the properties were sold. Local and regional authorities in some areas made adjustments to the normative values, but these changes were not systematic and the tax levied on comparable properties in different jurisdictions soon varied according to no logical pattern. Even within oblasts, the normative values showed no sensible relationship to the perceived quality and productivity of parcels of land.

The land tax in the Saratov oblast currently yields about six rubles per hectare per year. As is the case in the entire federation, it is an area based tax whose rate is set by negotiation, not according to an objective standard. This land tax is currently in the process of transformation, as will be described fully in a later section.

The Changing System of Local Government Finance

The federal government historically has maintained a monopoly on tax policy and administration in the Russian Federation. The taxes that can be levied by each level of government are controlled by federal legislation which defines the base of each tax and constrains the rates that may be applied to the base by the subjects of the federation (ethnic republic, krai, oblast, okrug, autonomous area, or independent city, generically referred to as regions) and by local governments within these subjects. The taxes are administered by the federal Ministry of Taxation.

Because they lack revenue autonomy, local governments have little meaningful control over the size of their service programs or how these programs are financed. These decisions are made at the federal or regional levels where allowable taxes, base definitions, rates, and transfer programs are approved. In effect local governments in Russia have been largely financed by revenues determined by the national or regional dumas. Even taxes whose revenue has been assigned by national law to local use provide little local autonomy because their base and rates are established at the national level and are not subject to any local control. For some taxes, however, local governments may provide exemptions, though they lack control over their rates or bases. Local governments have generally been assigned a long list of taxes, none with particularly significant yield, and even that list has been significantly reduced over time.

A new federation law, to become effective on January 1, 2009, will change the nature of local self-government.³³ Municipalities will have independent budgets and responsibilities and higher tier governments are not permitted to interfere in municipal affairs unless they also provide funding to pay for any new responsibilities. The new system prescribes substantially greater autonomy for units of local self-government. One vital element of this autonomy is increased authority to finance local operations, through meaningful taxing authority unlike any they have had in the past. This taxing authority will involve only two local taxes: the land tax and the tax on individual personal property.

³³ Originally the effective date was January 1, 2006 but was changed in July 2005 by the RF State Duma because of concerns that local units of self-government were unprepared for the change.

The new national law establishes a framework for units of local self-government that will be substantially financed from land taxation. Those units will be able to levy taxes on cadastral values within established maximum and minimum rates, to adjust land prices within certain limits, and to grant tax preferences to certain categories of taxpayers. This authority can provide an important mechanism for local governments to respond to citizen interests and preferences for local services. The land tax will be paid by organizations and individuals that have title to land plots, the right to permanent (unlimited) use, or the right to lifetime ownership with the right of inheritance. Possession of land under rights to gratuitous limited use and lease are not taxable.

The tax base equals cadastral value on January 1 of the tax period. The maximum tax rates are

- a) 0.3 percent for plots set aside for agricultural purposes, for plots occupied by housing or occupied by housing and utilities infrastructure, or for plots for private part-time farming and
- b) 1.5 percent for all other land plots.

There are provisions to increase the tax on plots with housing under construction as an incentive for completion.

The law also establishes a list of concessions, although the list is shorter than under the old law. Personal deductions of 10,000 rubles are provided for the following categories of taxpayers:

- Heroes of the Soviet Union, Heroes of the Russian Federation, full cavaliers of the Glory honors.
- Invalids (disabled persons) of III category with limitations of working ability, and also invalids who have established I and II categories prior to January 1st, 2004 without limitations of working ability;
- Invalids since childhood;
- Veterans and invalids of WW II, and also veterans and invalids of military actions;
- Individuals who have the right to obtain social security according to the law “On the social security of citizens who have been radiated as a result of Chernobyl catastrophe” (June 18, 1992 No. 3061-I), according to the Federal law (Nov. 26, 1998 No. 175-Φ3) “On social protection of the citizens of RF who have been radiated as a result of accident on the enterprise Mayak and discharges of radioactive substances into the river Techa” and according to the Federal law “On social guarantees to citizens radiated as a result of nuclear experiments in Semipalatinsk region”.
- Individuals who have participated in the special risk units and took part in testing with nuclear and thermo-nuclear weapons or liquidation of nuclear mountings on the objects of weaponry and military objects.

- Individuals who have been contaminated and have ever obtained radiation sickness disease or have become invalids as a result of tests, studies or other works related to any kind of nuclear equipment including nuclear weapons and space equipment.

Some organizations or uses of property are also fully exempt from the tax, including religious organizations, invalid organizations, scientific organizations, etc.

Tax declarations must be submitted no later than February 1 of the year following the tax period. Land lease payments are regulated by other legislation, with rates established depending on whether the land is owned by national, regional, or local government.

Legal entities and individuals who are independent entrepreneurs define the tax base themselves, according to information in the state land cadastre. For other individuals, the tax authorities define the base according to the cadastre.

The other local tax, the tax on individual personal property, remains as it has been in the past. Its proceeds will also contribute to the finances of the localities. (See the preceding section for a description).

Russian Official Views on Land Taxation

As might be expected with any significant change in policy, the issues of land tax and effective land use have been actively discussed in the media and by the government at the Russia Federation subject assemblies. Both theoretical aspects and applications of the tax have been debated. The most controversial topic remains, as it was in 1992 when land ceased to be a gratuitous resource, the need for cadastral land valuation as a basis for taxation. Not surprisingly, opinions of economists and state administrators vary.³⁴

In 2003, the Head of the Federal Agency on State Cadastre, P. Sai, expressed optimism about the use of cadastral valuation as a basis for land taxation for agricultural lands. He opined that setting cadastral value as a tax base will increase the share of property taxes in Federation tax system and it may serve as a valuable information resource that can be used to pinpoint underdeveloped territories. Finally, Mr. Sai thought that these values could prove useful to businesses in their investment decision-making.

A different opinion is voiced by O.Nikolaichuk.³⁵ He insists that it is premature to apply fixed tax rates based on cadastral values due to declines in agricultural production, price disparities, and the lack of demand for Russian products. Land tax revenue collections at the levels comparable to those of the Western countries only will be possible after the crisis in the agricultural sector has ended. Prior to that time land rent (the surplus from

³⁴ As of January 1, 1992 land ceased to be a gratuitous resource according to the RF law No.1738-1 "On Payments for Land" of 11.10.1991.

³⁵ Nikolaichuk, O. Sposoby Iziatija Zemelnoi Renty (*Methods of Land Rent Extraction*). Agropromyshlennyi Complex (a journal). 2004. No.2, pp. 63-71.

cultivating fertile land) can be only collected indirectly via pricing mechanisms. These pricing mechanisms differentiate among procurement costs as well as intra-seasonal and inter-seasonal prices for agricultural produce, thereby redistributing the rent income (surplus) within the agricultural sector. In his view, direct extraction of land rent (surplus) via the taxing mechanism will be ineffective for the Russia Federation given its current social and economic condition.

Loshchilovskyi and Mozol consider the issues of land tax and land rent (surplus) as being inter-related, because both are rent concepts.³⁶ Rent concepts define the functions of the land tax and justify tax rate levels. They support the land tax as a tax on rent income (surplus income) for the following reasons:

1. Land rent (surplus) is a stable and excessive type of income obtained by the land owner from the most fertile and conveniently located (with regard to the market) land parcels.
2. Land rent (surplus) extraction does not include entrepreneur's profit. The profit from innovations in manufacturing are retained by agricultural producers.

Considering the two arguments above, what fraction of land rent (surplus) should be extracted as a land tax? Some economists insist that the entire land rent (surplus) should be withheld, while others argue that a fraction of land rent ought to remain with the producer in order to promote effective land production and land use. They suggest that *differential rent I* related to soil fertility and location should be withheld, while *differential rent II* resulting from capital investments to the land plots should remain with the agricultural producer. However, it is difficult to distinguish between the differential rents I and II in practice.

In Russian economic literature, the rent approach dominates the land valuation and land taxation approaches. Rent income is defined based on the labor cost theory, and the differential rent (I and II) theory by Karl Marx. Within this framework, Loshchilovskyi and Mozol raise the following questions:

- (i) Who should pay rent (surplus) on agricultural lands? Rent payments are to be withheld from land owners. Lessees can be exempt if such payment is factored into their lease payments.
- (ii) Prices for what kind of agricultural produce will serve as the basis for differential rent (surplus) calculation? According to the above, both differential rent (surplus) and land valuation ought to be based on cadastral prices because they consider the cost of production in poor conditions (i.e. land parcels with poor fertility). In practice, it is the realized profit of the agricultural producer that is

³⁶ Loshchilovskyi, P. and Mozol, A. Teoreticheskie i Prakticheskie Osobennosti Nalogooblozheniya Zemelnykh Resursov v Sovremennykh Usloviyakh. (*Theoretical and Practical Aspects of Contemporary Land Resource Taxation*). 2003. Institut Privatizatsii i Menedjmenta. p.668-684.

taxable. Thus, rent income (surplus) ought to be estimated from current procurement or market prices.

(iii) How should the rent income (surplus) be transferred to the public? Apart from the land tax, this income may be transferred through the agricultural enterprise income tax or personal income tax. The degree of transfer depends on distribution of taxing functions among the different taxes.

(iv) Is land conservation promoted by the land tax? It is, if the rates are levied on the unit of area independent of the agricultural output. Land conservation, however, is also dependent on the level of tax rate as are the tax collections.

Loshchilovskiy and Moroz consider taxation based on the market-value of immobile property of a legal entity as an alternative to a rent-based land tax. In this instance the land tax becomes a component of the tax on immobile property. Its proceeds may be used for land use and social infrastructure development. They argue that the tax rate should not be above one to two percent of a property's book or market value. The authors do not believe that taxing land parcels in addition to taxing immobile property is feasible, as Russia today faces weak economic stability and underdeveloped real estate and land markets.

Starodubtseva, an expert with the Institute of Transitional Economy, considers immobile property tax an important local tax that well corresponds to the international practices of taxation.³⁷ As an alternative to changes proposed by the Government into the Tax and Budget Code, she offers to transfer all revenues from property tax collection to the municipalities. Only then, she concludes will a single tax on immobile property be feasible. Pronina estimates the municipal tax revenue increase at 170 billion rubles annually, if all the revenues from property taxes are fully transferred to the municipalities.³⁸

The uses of land rent revenue extracted through the land tax is also a controversial issue. The RF Tax Code presents an official RF Government opinion: land tax is a local tax so that the land rent is distributed according to the geographic principle. Samokhvalov and Kunikeev state that the design of land taxation ought to be related to the economic effect of the use of natural resources: it should be based on rent, and should be collected and distributed between all levels of the budget system, with a major fraction remitted to the local budgets.

³⁷ Starodubtseva, I. Commentary to Amendments Project to the Tax and Budget Codes, introduced by RF Government on the financial foundation of local self-government. www.iet.ru.

³⁸ Pronina, L. Sovershenstvovaniye Sistemy Imushchestvennykh Nalogov v Tseliakh Sozdaniya Finansovoi Bazy Dlia Reformy Mestnogo Samoupravleniya. (*Improving Property Tax System to Create Financial Basis for the Local Self-Governance Reform*). 2003. Finansovoe Pravo No.7-8, p.45-66. The estimate is based on 2003 Federal budget data).

The New System of Cadastral Valuation

To understand the new land tax proposal requires an understanding of how the tax base is valued. This section provides a detailed description of the new system of cadastral valuation.

The new land tax system prescribes a cadastral formula assessment system for use throughout the Russian Federation. Local taxes based on these values are to be effective by 2009 and are intended to be a primary source of revenue to finance local services. In contrast to the normative value scheme which produced low values with variation from subject to subject, the new system is intended to be uniform throughout the federation.³⁹ The common system for valuation – with formulas established at the national level – has been applied at the regional government level.

A number of entities are involved in the valuation process. At the federal level the development of land policy involves a plethora of agencies including the Federal Agency of the Cadastre of Immobile Property (formerly Rosnedvizhimost) and the Federal Agency of Federal Property Management, both within the Ministry of Economic Development and Trade; the Federal Agency of Geodesy and Mapping Service within the Ministry of Transportation; the Federal Agency of Construction and Housing Policy within the Ministry of Regional Development; the Ministry of Justice; the Ministry of Natural Resources; and the Ministry of Agriculture of Russia Federation.⁴⁰

With respect to cadastral valuation specifically, on the local level the Land Committee, a subordinate body to the Federal Agency of the Cadastre of Immobile Property works with this Agency to maintain cadastre records and to provide cadastral valuation. This Federal Agency also works with the municipally owned Bureaus of Technical Inventory (BTI) to provide physical description of the parcel: the Agency is responsible for identification of land parcels in the cadastre, while the BTI provides the description of buildings and structures. The Registration Chamber is responsible for registering transactions with land parcels and immobile property.

Before the advent of cadastral valuation there was no standard for the determining the tax base. Different regions used different methods to assess the value of agricultural land. This has now been standardized with the passage of regulation #945 concerning “State Cadastral Value of Land” (August 25, 1999) and regulation #316 “On Approval of the Norms of State Cadastre Land Assessment” (April 8, 2000) The Russian Federation has provided the funding to construct a reliable database of parcel information now in existence at the local level. The latter regulation established the rules and regulations for

³⁹ Cadastral values are not market values, even where there is an effort to make them approximate what the market would produce. Real market values cannot be gauged where land does not trade freely. As late as 2002 no land sale had ever happened in fourteen Russian regions, so the problem is obvious. (Yevgenia Borisova, “Land Reform: The Race is Over,” *The Moscow Times*, February 4, 2001.

⁴⁰ http://www.government.ru/data/static_text.html?he_id=1052

estimating state cadastre value of land for the purposes of taxation. These rules and regulations cover each of the seven categories of land:

- (i) agricultural land;
- (ii) industrial land and land under transport, communications, and other utilities;
- (iii) land under settlements;
- (iv) forest land;
- (v) land occupied by water resources;
- (vi) land in specially protected areas; and
- (vii) land reserves.

The local Land Committee is responsible for cadastral valuation and uses private contractors for the assessment of property, as Russian Federation law requires. The contractors are certified by the Federal Agency of the Cadastre of Immobile Property. In the case of the Saratov oblast, the contractors were submitted through a bidding process. Three contractors were involved in the cadastral assessment process – Volga Region Assessment Agency, REAN, and Land Resources.

The rules and regulations establish a specific method for cadastral valuation for each land category. The method of valuation for each is discussed below, with particular application to Saratov oblast.

Agricultural Land

The Russian Federation has one of the most accurate and complete soil cadastres in the world. This is the direct result of the Soviet concept that land was a publicly owned natural resource that had value based only on soil productivity, an idea consistent with the Soviet orientation toward production of things as the source of value. These data create the basis for the cadastral valuation of agricultural land under the new system.⁴¹

Agricultural valuation is crucial because so much land is in that use. For example, 82.7 percent of total land area in Saratov Oblast is agricultural and it is held in large parcels. There are only around 12,000 land parcels in the entire oblast, with an average parcel size of 725 hectares or 1,790 acres. Initially collective farms held agricultural land, but now all land has been put into private ownership. There are four categories of private agricultural enterprises: private farmers, agricultural production cooperatives, joint stock companies, and limited joint stock companies (OOO companies).

Cadastral valuation is based on the net income (differentiated income) generated by the parcel. Net income is determined based on specific information concerning a parcel including (i) location (distance to market), (ii) fertility properties of the soil (there are 1,280 different soil types in the oblast), (iii) topography of the parcel, and (iv)

⁴¹Unfortunately Soviet value concepts were not as clear for other uses of land, meaning there is no comparable reservoir of high quality data for other land types.

configuration of the parcel. In Saratov oblast, the valuation is based on information collected over twenty years by numerous organizations.

Saratov oblast completed the land cadastre assessment in April 2005. Assessment results have been approved by the oblast Government and these values will become the basis for the new land tax. These land cadastre values have been continuously estimated long before the land tax reform for other purposes such as land inventory, land planning and land use. With the new system, these values shall also come to serve as the basis for the new land tax⁴².

The agricultural land valuation system is complex with interrelated components among the Federation level, Russia Federation (RF) subject level, individual land rayons (land valuation zones), and the cadastre objects themselves. Once calculated at the RF rayon level (land zones), land values are aggregated to the RF subject level (i.e. Saratov oblast).

Land Valuation in Rayons. Land valuation is initially performed in rayons and then aggregated to the RF subject level. Then, rayon differentiation coefficients are calculated as a reference shortcut in order to maintain and update cadastre records⁴³.

Land Valuation in RF Subjects. The following algorithm serves as the basis for valuation of agricultural land in RF subjects.

- a) Determine the estimated productivity in centners (100 kilograms) of fodder units per hectare. Average yields of all crops are determined based on historic data over a 33 year period (1966-1998) and converted to fodder units for ease of comparison. These values are weighted by the area of cultivation for the particular year in the RF subject, resulting in the average productivity for the RF subject.
- b) Express the estimated productivity in rubles per hectare. The average yield of each crop is multiplied by its normative sales price and weighted by its respective area of cultivation for a given year.
- c) Estimate the cost of cultivation. This number is initially calculated at the regional level based on the weighted averages (by crop and by area) of the actual cost data. Cost differentials between the subject and the Russia Federation are computed for future reference. Later, for cadastre updates and maintenance these cost differentials are used as shortcuts⁴⁴.

⁴² The most recent Russia-wide full round of cadastre valuation of lands for the purposes of land planning and land use was completed in 1989-1991 and is being constantly updated. Now it is also aimed to serve as an accurate basis for the new land tax as regions transfer into the new land tax system. (Methodic recommendations on state cadastre land valuation of agricultural lands in Russia Federation Subject. May 15, 2000. Approved by Russia State Committee of Land Resources).

⁴³ Rayon's differentiation coefficient for productivity = estimated productivity in rayon / estimated productivity in RF subject. The rayon's differentiation coefficient for cost = estimated cost in rayon / estimated cost in RF subject.

⁴⁴ The adjustment coefficient for a RF subject = production cost in the RF subject / production cost in the Russia Federation. RF subject production cost = RF production cost * adjustment coefficient.

- d) Estimate cost with profit. Because the minimum level of profit is set at 7 percent, the estimated cost of cultivation is multiplied by a factor of 1.07.
- e) Calculate differentiated rent which is equal to the estimated productivity in rubles per hectare minus estimated cost plus profit.
- f) Absolute rent is set at a 1% of the gross value (rub/ha) of agricultural produce for Russia as a whole. This rent was 12 rubles per hectare in 1999 according to Methodic recommendations.
- g) The total land rent is the sum of differentiated and absolute rents.
- h) Cadastral value is equal to total land rent multiplied by capitalization period (33 years).

Because the historic data used in estimating productivity and costs of cultivation are from different time periods (the productivity index uses data from 1966 to 1998, while the cost index data covers 1992 to 1998, an adjustment must be made to make the data comparable.⁴⁵ No such adjustment is made in the Table 2 of the example, however. Also, fallow lands should be removed before calculating the productivity and cost indices in order to avoid possible bias. Finally, a deduction of 3% from the total cost is acceptable should any resources be wasted during the agricultural production process.⁴⁶ Table 2 provides values for the various steps in the above algorithm for Russian Federation in general and for Saratov oblast, which is a RF subject.

Valuation of individual parcels (cadastre objects). The valuation of individual parcels (cadastre objects) is derived from RF subject values, but involves a complex algorithm (See the appendix for the detailed algorithm).⁴⁷ The algorithm is similar to that used for valuation in a RF subject, and estimates productivity of the parcel, estimated cost of production for the parcel, differential rent generated by the parcel, estimated rent for the parcel (which is the sum of differential and absolute rents), and, finally, it capitalizes this rent to arrive at cadastral value for the parcel.

⁴⁵ An example may help explain how the adjustment is made. If productivity over 1971-1998 was 18 centners of fodder units (c. f. u.), and productivity over 1991-1999 was only 16.5 -- a shift in productivity has occurred (difference = 1.5 c.f.u.). (A centner equals 100 kilograms.) If cost was 760 rub/ha over 1991-1999 with productivity over this period 16.5 then cost due to productivity is 0.235. Adjusted cost due to productivity alone is equal to 179 rub/ha. for 1 c.f.u. ($760 \cdot 0.235$). This is equal to $179/16.5 = 10.8$ rub/ha. Estimated cost of cultivation should be adjusted by 16 rub/ha which is equal to $10.8 \cdot 1.5$ (the difference in productivity between the two periods). Therefore, the corrected cost = 776 (760 + 16 rub/ha). In words, as productivity changes over time, the cost of land cultivation changes proportionately to these changes in productivity. The adjustment procedure above attempts to align yields and cost of cultivation due to productivity more accurately. *Source:* Methodic recommendations on state cadastre land valuation of agricultural lands in Russia Federation Subject. May 15, 2000 , p.110.

⁴⁶ These misallocation expenses or “write-offs” do not have a parallel concept in a market-based capitalist society, the closest equivalent would be “unexpected losses”. These “write-offs” usually have a maximum cap and in this case the maximum is 3%.

⁴⁷ Individual parcel valuation was performed between 1987 and 1989 during the 4th round of state cadastre valuation, and only maintenance work on the values is now being performed.

Parcel productivity is based on the estimated productivity of land in the RF subject adjusted by the soil yield class of the parcel relative to the average soil yield class for the RF subject as a whole. In a similar sense the estimated cost of production for a parcel is dependent on the estimated cost of production of land in the RF subject adjusted for soil yield of the parcel relative to the soil yield class average for the RF subject and parcel-specific non-yield factors such as transportation and storage expenses.

The calculation of differential rent for an individual parcel is based the difference between soil productivity and the estimated cost of production, adjusted for differences in parcel's technological properties and location. The difference in a parcel's technological properties is determined relative to the average for the RF subject and the difference in the parcel's location is calculated as the deviation of the parcel's market remoteness from the average of the RF subject.

Estimated rent for the parcel is the sum of differentiated and absolute rents, which is equal to one percent of the value of agricultural produce in the Russian Federation. Absolute rent was equal to 12 rub/ha in 1999. Finally, the cadastral value of a parcel is its estimated rent multiplied by 33, the capitalization factor.

Unfortunately no analysis of specific parcel cadastral values is possible due to data limitations at present. However, the parcel specific data are used to calculate an average cadastral value for regions in the oblast, allowing a glimpse at how the valuation system has operated across portions of the oblast. Table 3 presents data on agricultural land cadastral values per hectare in the municipalities of Saratov oblast. These values were calculated for the oblast as a whole, using average fertility rates and land characteristics, rather than being calculated from individual agricultural parcels. However, it provides a good idea of how the cadastral values for plots will vary across the municipalities.⁴⁸

There are several interesting and fiscally significant patterns apparent in the distribution of agricultural cadastral values per hectare across the municipalities in the oblast:

- (i) The data show great variation across the units, from 444 rubles per hectare in Aleksandrovo –Gaiskyi in the eastern section to 19,312 rubles per hectare in Turkovskyi in the north west section: the highest valuation is almost forty-four times that of the lowest.⁴⁹ That certainly contrasts with the problem of little differentiation by quality of land that characterized the old normative value structure for land valuation. The cadastral formulas for agricultural land do provide substantial value differentiation per hectare across the oblast.

⁴⁸ It should be noted that these cadastral values are significantly above the average prices realized on land sales in the oblast.

⁴⁹ Aleksandrovo –Gaiskyi is in the south east part of the oblast next to Kazakstan, It is nonirrigated desert and far from rail and other communications. The extremely low cadastral value reflects the low potential for the land.

(ii) In general, the agricultural cadastral values are highest in the north west and south west sections of the oblast, territory on the west side of the Volga River, where fertility is high. Values are lowest in the more arid central and eastern sections. And there is considerable consistency of values within the geographical sections of the oblast. Agricultural cadastral values are also low in the Volga section (the Saratov City area) where the agricultural share of land use is much lower than is typical for the rest of the oblast.

(iii) Although there are considerable differences in values per hectare across the geographic sections of the oblast, only in the east are there great differences between municipalities within the geographic sections. In this section, while all municipalities have low cadastral values per hectare than is typical for the oblast, some low values are extreme (Aleksandrovo – Gaiskiy and Novouzenskiy are both below 2,000 roubles per hectare). The range from highest municipality to lowest municipality in the other sections of the oblast is minimal.

(iv) The pattern of cadastral values contrasts considerably with that for the existing property tax, revenue that includes both the old land tax and the tax on individually owned buildings. Cadastral values per hectare are negatively correlated with property tax per capita (-22.35), whereas there is no relationship between cadastral values and property tax per hectare in the region. Looking at the sections of the oblast, the northwest and southwest sections, where agricultural cadastral values per hectare are the highest, both are characterized by generally the lowest property tax per hectare. The correlation between cadastral values and monthly wages, urbanization levels and manufacturing output is insignificant, while they are positively correlated to housing (11.70).

(v) Lowest per capita property tax payments are in the northwest and southwest sections. These are the sections with highest agricultural cadastral values per hectare. This raises the prospect of some rather significant changes in relative tax burdens with the implementation of the new taxation system.

(vi) The agricultural share of land is greatest in the eastern section, where cadastral values are lowest. But the share is second highest in the south west, where cadastral values are second highest. Values are also low in the Volga section, where the agricultural share is lowest and population density, average monthly wage, and property tax per capita are highest.

(vii) It should be noted that there is no apparent relationship between the agricultural cadastral values and the average monthly wages (the best available indicator of household incomes) in the sections.

Industrial Land and Land under Transport, Communication, and Other Utilities.

This category of land is divided into six groups: land associated with largest enterprises (e.g., energy plants and airports); land associated with road services (e. g., gas stations and motels); defense enterprise land; land associated with smaller enterprises; land under

communication properties; and land under railroad properties. Land associated with Largest Enterprises, such as energy plants and airports, is assessed on the basis of market value using the methodology contained in the “Methodology for Market Value Assessment” document as are lands associated with Objects of Services Associated with Roads (gas stations, motels, etc.). Land associated with Facilities used by Smaller Enterprises; Military / Defense Enterprise Areas; Land under Communication Properties, and Land under Railroad stations and which Service Railroads is valued according to whatever procedure is used to value the land contiguous to it.

Enterprises are being required to pay the tax even if they do not use the land they hold, thus encouraging use of the land and encouraging distribution of the land to those who will use it productively.

Land under Settlements (Urban Land)

There are fourteen categories of land use in settlements and valuation coefficients have been derived for each. The categories of urban land use are these⁵⁰:

- Category 1: Lands under residential housing – multi-storied buildings.
- Category 2: Lands under individual residential houses.
- Category 3: Lands under dachas (summer houses) and gardening unions.
- Category 4: Lands under garages and auto parking.
- Category 5: Lands under retailers, catering services, household services, gas stations, and auto service stations.
- Category 6: Lands owned by educational institutions and organizations, lands under health and social security, physical education and sport, arts, and cultural institutions, as well as religious objects.
- Category 7: Lands under industrial objects, housing infrastructure (heating stations, etc.), objects of material, technical, and food supply, sales and storage, under objects of transportation, and under objects of communications.
- Category 8: Lands under administrative, managerial, and communal objects; lands of businesses, organizations, and institutions in finance, credit, insurance, and pensions.
- Category 9: Lands under military objects.
- Category 10: Lands under health improvement and recreational objects.
- Category 11: Agricultural lands.
- Category 12: Lands under forests in settlements (including forests within city limits), under other plants (bushes, etc.) not counted as forests (including parks, forest-parks, lawn, and boulevards).
- Category 13: Land under stand-alone water objects.
- Category 14: Other land in settlements (including reserved lands, etc.)

The tax base equals the value per square meter in a block, as determined by the land use category, multiplied by the area of the plot of land.

⁵⁰ Addendum to the Resolution of Saratov region government as of January 24, 2003 No. 6P on Government Cadastre Valuation of Settlement Lands in Saratov oblast.

Valuation coefficients were derived for the city of Saratov in the following manner. The city was divided into 1,028 cadastral quarters and an electronic cadastral map was produced that indicated how the quarter fared with respect to a number of factors derived from federal guidelines contained in the Methodics for settlements⁵¹. Each individual municipality developed its own parcel valuation factors. Table 4 contains parcel valuation factors used by Engels, a city located directly across the Volga River from the city of Saratov.

Information about the impact of these factors was gathered through a questionnaire administered to different categories of social experts including municipal officials, architects, attorneys, and others. The same questionnaire was used in each settlement in the Russian Federation with a population exceeding 50,000. Coefficients of value were generated by a mathematical model based on the information in the questionnaires. The coefficients provide a measure of the quality of the cadastral quarter, thereby providing a cadastral value for one square meter in each quarter for each of the fourteen possible land uses.

Below is an example of a row of coefficients of value for the fourteen land use categories for one of the 1028 cadastre quarters in the city of Saratov. (Note the numbers in the column headings below correspond to the numbers listed next to the land use categories noted above.)

**Government Cadastre Valuation of Lands in Saratov Oblast
Rubles per m²**

Cadastre quarter	Land Category (as above), rub/m ²													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
01 01 02	257.88	23.61	22.75	271.30	200	258.41	10	47.8	108.69	42.32	1	15.84	1.31	30.86

Smaller settlements compiled their own individual matrices, which include coefficients of values for all 14 types of allowable land use for areas within their borders. By definition these matrices are less complex than that generated for the city of Saratov.

In Soviet times, only structures could be owned, not the land under those structures. This is particularly relevant for apartment buildings. Previously, people owned their apartments but not the land on which the buildings were situated. Under the reformed system, apartment buildings formed condominium organizations that own the land under the buildings. Apartment owners then own shares of the land, according to the area of their apartments and will pay the land tax according to that ownership.

⁵¹ Methodic recommendations by the Federal Service of Land Cadastre of Russian Federation developed by the Ministry of Property of Russia in accordance with the Resolution # 519 "On Approval of Assessment Norms" by the Russian Federation Government on July 6, 2001.

Forest Land

Forest land is in light use and is valued without the value of growth on the land. Currently the cadastral value is 3,460 rubles per hectare.

Land Occupied by Water Resources

Water is federal property, is not taxed, and has no cadastral value established for it.

Land in Specially Protected Areas

These lands include hunting lands, national parks, recreation lands, children's camps, sanatoriums, and the like. The land is assessed at market value.

Land Reserves

Government owned land that is not taxed.

Issues Associated with the Change in the System of Land Taxation

Although much of the necessary work for the new property tax structure and mechanism for finance of local governments has been finished, the new system will not be in full operation Russia-wide until 2009 at the earliest. The impacts, problems, and issues from its implementation are not yet known. Nevertheless, an analysis of the system as it is presently in place shows that there are some issues that will require attention in operation of the system if it is to fulfill its considerable promise.

Land Tax versus Land Rent⁵²

Land holding in Russia requires payment to government (since 1992). The payment can be either through the land tax or through a land use fee. (Taxes are paid to the tax authorities for further distribution while rents are paid directly to the government that owns the property.) For lands that are state (national or regional) or municipal, the payment is a land use fee or lease. The amount and terms of the lease payment are set in each individual lease, according to rates for the type of use and category of lessee established by the respective legislatures. For lands in ownership or possession of legal entities or physical persons, the payment is the land tax, according to valuations and rates established by governmental bodies. In other words, there is payment for using or holding land, the type of payment depending on the ownership of the land.

The issue for the development of a robust system of private land ownership and the incentive impacts that it promises is clear: the relationship between land tax and lease payments cannot be such that a land user finds it less expensive to lease the land than to own it and pay tax on the land. If lease payments are kept below the land tax rate, the objective of moving toward land privatization will be thwarted, not by some regulatory

⁵² It may be argued that land rent represents a payment for ownership while land tax represents a payment for local services. By that logic, both payments should be due on land owned by the state. This treatment would eliminate the need for balancing the relationship between land rent and land tax. That has not, however, been the approach followed in Russia.

process but by simple market economics. Users of land will, all other things being equal, be expected to choose the use arrangement that results in lower costs. Hence, the legislative bodies setting land lease rates and land tax rates must be keenly aware of this required balance between the lease and tax rates if private ownership is to be encouraged. It is generally anticipated that rent should be higher than the tax in order to encourage private ownership. However, not all Russian regions are likely to be as committed to private ownership of land as is Saratov oblast and manipulation of this balance could be a powerful tool to slow down or thwart private ownership.

Tax on Land and Tax on Structures

The local property tax system in place at the beginning of 2009 will include two distinct taxes: the land tax on cadastral value and the local personal property tax on individuals.⁵³ The law and administrative structure for the two taxes are distinct, even though the proceeds of each will flow to local governments and even though the rate for each will be established by local governments (within national rate limits). Individual personal property (apartments, dachas, garages, etc.) are subject to a graduated tax structure that varies according to property value at maximum rates from 0.1 percent to 2.0 percent of value.⁵⁴ Land will be taxed according to two classes: agricultural and residential property with a maximum rate of 0.3 percent and other land with a maximum rate of 1.5 percent. Within those limits, local governments are expected to set their statutory tax rate.

This system creates many complicated alternatives for the local governments. In order to avoid discriminating against investment and economic development, it is advisable that the land tax rates not be lower than rates applied to structures.⁵⁵ Unfortunately, the rate limits for the land tax will be, for many individuals, considerably lower than the limits for personal property. That is certainly the case for agricultural and residential land. It is less likely to be the case for industrial and settlement land. Structures owned by legal persons, of course, are not taxed under the local property tax regime but those values are taxed under the regional tax on balance sheet values of fixed assets. However, it will be extremely difficult to strike the appropriate balance between the effective tax rate on land and the effective tax rate on structures. Not only is there the complication of different statutory rate rules, there is also the fact that the valuation structures for the two classes of property are dramatically different due to the fact that land is valued under the cadastral system and structures are valued under the rules of technical inventory. In addition, it is not clear how rates must be set if there is a desire to provide the proper developmental incentive within the locality.

⁵³ There is no clear concept of single ownership title to the combination of land and structures in Russia. They are in general considered two separate properties. Any merged real estate tax – like that in the Novgorod and Tver experiment – would need to surmount that complication.

⁵⁴ If the intent of graduation is to discourage large property holdings, property ownership in multiple jurisdictions will be a means of avoidance.

⁵⁵ There are, of course, strong economic development incentives for taxing only land and leaving structures untaxed. It would be possible to operate a system of local government on this basis. This is the system that has been adopted in Estonia, for instance.

Clearly arriving at a sensible relationship between the two tax rates will be a challenge, even for an entity with significant rate setting experience. The task will be almost impossible for local governments in RF due to their inexperience in property tax rate setting and the balancing act is made even more complicated because neither land nor buildings will be valued for tax purposes according to market values, but both according to discrete and unrelated formulas. Therefore, comparative effective rates on land and improvements will depend on both statutory roles and assessment practices.

Updating Cadastral Values

Cadastral values will need to be updated regularly to ensure that values are both equitable and efficient. The task of updating values will be the responsibility of municipalities, and no financing source has yet been identified for this effort. The initial work on cadastral values was funded by the national government, but there appears no such plans for national financing for updating of these values.

If land markets develop as anticipated it will be imperative that updates of cadastral values occur on regular cycles. There eventually will be divisions of land plots that will have to be tracked through the cadastral valuation system to get accurate division of values. Changes in land use are likely and different uses have different valuation formulae. Finally, should there be a movement toward current market valuation, the need to update will be immediately apparent.

The need for updating exists, however, even if the system retains its cadastral or formula foundation. Unfortunately, inflation is not yet fully under control in the Russian Federation, although rates are much lower than was the case only a decade ago.⁵⁶ This means that cadastral values, in real terms, will decline significantly from year to year, will be moving further and further away from any connection to market values, and, because local governments using the property tax as a means of financial support are severely limited in their ability to increase their land tax rate, revenue yields from the tax on those values will not be able to increase sufficiently to maintain purchasing power. Local governments will quickly run into significant financial problems unless there is a way to adjust cadastral values to reflect inflation. Even if the decision is made to apply flat correction percentages to the value of each individual property, there will be costs associated with that updating. And, should there be any effort to do more than simple flat adjustments, the cost will be greater still.

If the market value of some parcels declines, property owners will feel mistreated unless there is a mechanism to reduce cadastral values and taxes accordingly. Indeed, there are already questions about agricultural land valuations based on soil quality. The quality studies were done during the 1969 – 1989 period and in some areas quality has changed because of erosion, depletion of nutrients, management practices, or spread of waste. Basic survey data will need to be updated and may, indeed, already need to be updated.

⁵⁶ The recent record on inflation (CPI) is as follows: 2001, 18.6 percent; 2002, 15.1 percent; 2003, 12.0 percent; and 2004, 11.7 percent. World Bank Moscow Office, *Russian Economic Report*, No. 10, March 2005 and Central Bank of the Russia Federation, *Russia: Economic and Financial Situation*, January 2005.

Unfortunately, the cadastral valuation process will never be completed if the tax that it supports is to have a continuing role in government finance. There will need to be a regular valuation cycle established to provide maintenance of the valuations. Attention needs to be given to how cadastral values will be adjusted over time, whether there will be more than simple adjustment coefficients used, what entity will be responsible for the revaluation, and how the costs of that revaluation will be covered. With controlled tax rates, these details are critical for the viability of the tax as a source of local government revenue.

Transparency and Challenging Values

The property valuation system is done by government officials or their representatives. In such a taxpayer-passive administrative system, it is crucial that taxpayers understand the valuation system and have an open avenue for appealing the decisions and judgments made by these officials. And there needs to be a clear test for these value decisions.

Unfortunately this standard presents a challenge for the cadastral valuation system wherever it applies. Under this prescribed system, the only check is whether established valuation methods have been followed. The test is not the valuation itself – which is likely the only thing that a property holder would see. Any arbitrariness in the system, the application of the system, or any mistakes in preparing the valuation will not be readily apparent to the property holder and hence will not likely be challenged. Indeed, it is not an exaggeration to argue that it may be impossible for a taxpayer to challenge the outcome of cadastral valuation. In order to make such a challenge, the taxpayer would need to know whether their share of the cost of financing local governments is equitable, i. e., whether his or her tax burden is comparable to that borne by other comparable taxpayers. To establish this, the taxpayer must determine whether all properties have been valued for tax purposes according to the same standard, a virtually impossible task for the average taxpayer.

As the system of valuation continues in existence, the equity and efficiency of cadastral values will deteriorate and property holders will have diminished capacity to challenge those values. Yet, in order to encourage acceptance of the system, taxpayers must understand the process and have an accessible way to challenge the manner in which the process was applied to their property. Transparency and openness are important to the long term acceptance of the valuation system. Therefore this dilemma represents an important challenge for the system if it is to become a major contributor to local government finance: governments cannot be successful in the long haul if the public believes that their means of finance are flawed.

There is currently no appeal system for property taxes in Russia. As the importance of the taxes for support of local governments increases, an accessible system will need to be created.

Bringing Legal Persons into the System

The property tax structure that will be in place for 2009 and beyond consists of three dissimilar taxes: the regional tax on balance sheet assets (excluding land) of legal entities, the local land tax, and the local personal property tax on individuals. The basis for these taxes differs, as do the rate structures / limits. Two are local and one is regional. The different taxes will almost certainly create differential incentives due to variations in effective rates. Keeping a roughly equal and non-distorting relationship among the taxes will be a considerable challenge, particularly in light of the differing tax limits and levels of government involved.

Rates Too High for the Populace and Too Low for Municipalities

The new system of cadastral valuation that includes valuation of land used for residential, agricultural, and commercial purposes combined with the new expectations placed on the land tax for support of units of local self-government potentially creates a difficult quandary. The maximum tax rate that can be levied by one of these local units is rigidly controlled and the limit is, by international standards, quite low. However, the expectation under the new system of local government finance is that the taxes on property will be the predominant source of financing for services provided by these units.

The problem is clear: will the permitted rates be sufficient to provide adequate support for the government services provided by these units? It is a cruel hoax to provide local autonomy and the benefits in terms of responsiveness to the populace on the one hand, while setting those governments up for failure due to lack of adequate fiscal resources on the other. The finances of these municipalities must be carefully monitored in the early period of restructuring to insure that the fiscal rules have not been established in a way that prevents successful operation of these governments. The rate limits may be too low for fiscal viability of these units of local self-government.⁵⁷

The other side of the taxes concerns the burden on property holders. While Russia has transitioned to a system in which all land use must be paid, either through taxes on owners or through rents paid by occupiers, this represents a change from the idea of common or social ownership of the past and extremely low payments for land use in recent times. Landholders are accustomed to low payments for land and, while tax rates are controlled, the burdens of the new taxes may be extreme, relative to the low incomes of many people (pensioners, etc.). It would be the height of cruelty for even the low rates to be sufficiently high that people must abandon or sell their apartments because of the land tax to support local services or if the relationship between taxes and rents becomes such that people choose to de-privatize their properties. There are many people in Saratov oblast (and throughout Russia) with extremely low cash incomes who face difficult land tax obligations from their privatized apartments or land plots, so great attention must be given to protecting them from unplanned impacts of the new land tax system.

⁵⁷ Earlier assignments of taxes to local governments have included a long list of sources with almost trivial revenue productivity. It would be a cruel hoax to finally provide them with a broad-base tax, but leave localities no more fiscally self-reliant because of crippling limits on use of the base.

While some categories of taxpayers are entitled to personal deductions, there is no relief program that is driven by income status of the property owner. This omission has the potential for creating considerable hardship as the taxes develop.

Capacity for Tax Policy-Making and Administration

The taxation of land and personal property involves a considerable array of administrative bodies, some federal, some regional, and some local. Their responsibilities are divided among land policy, valuation, recordkeeping, and tax administration. Coordination among these entities is important to an efficiently and effectively administered tax system. As the property tax moves toward becoming a local fiscal tool, coordination may be both a short-term and long-term challenge as responsibilities change. Therefore it is important to sort out responsibilities and duties and to ensure that all the parties involved understand the nature and operation of the complete property tax system and that all are capable of performing their new tasks.

Units of local self government face new responsibilities under this new structure. One important task that they must perform is that of establishing the tax rates that will apply to land and to personal property. There are limits on the rates that must be respected and there is the need for the rates to provide sufficient financing for the services to be provided by the unit. This is a new responsibility and units have little guidance for this role. Most appear to be concerned about successful accomplishment of this task. At this point in time it is unclear who will be involved in the setting of rates for land taxation. In the Saratov oblast it appears municipalities will form a working group to set the rates. In turn, these rates will be subject to approval by the Municipal Meeting of Deputies.

Municipalities are also receiving cadastral records and their maintenance is a responsibility that they have not had in the past. These records are crucial for operation of the land tax system, so successful performance of the associated responsibilities is vital for the system to function. Municipalities appear to be apprehensive about accomplishing these tasks as well.

The Federal Agency of the Cadastre of Immobile Property emphasizes that informational and technical infrastructure is needed to promote and improve cadastral accounting. An electronic document exchange system among the cadastre authorities, state registration authorities on immobile property, the tax authorities, and local governments has already been established. The Agency intends to implement a centralized cadastre accounting system, which will require technological infrastructure and special resources including security of information provision. This system will include a multi-service network of specialized data centers accessible to the local authorities and organizations as well as data processing centers at the Federal and regional levels. The new system will include information from diverse systems: the land cadastre, technical inventory data, city planning cadastre, departmental inventories and registers. According to the Agency, the varying degree of preparedness for implementation of the cadastre land accounting system among regions remains the most acute problem. For example, in Southern federal

district only 10-20% of parcels are accounted for, while in Saratov oblast a single cadastre system and cadastre valuation system were completed by March 2005.

Finally, the new property tax structure most likely will involve municipal tax collection. Currently, there is no municipal tax service in place to administer local taxes in Russia. Therefore, the legislative basis for tax collection and budget execution must be established if there is to be a system. Local authorities have a choice between establishing their own local tax administration or sharing tax administration with the federal tax service and the federal treasury, but appropriate preparations are not in place. And, of course, should local authorities opt for local administration under the legislation, when it is adopted, they will then face the challenge of putting that administration together.

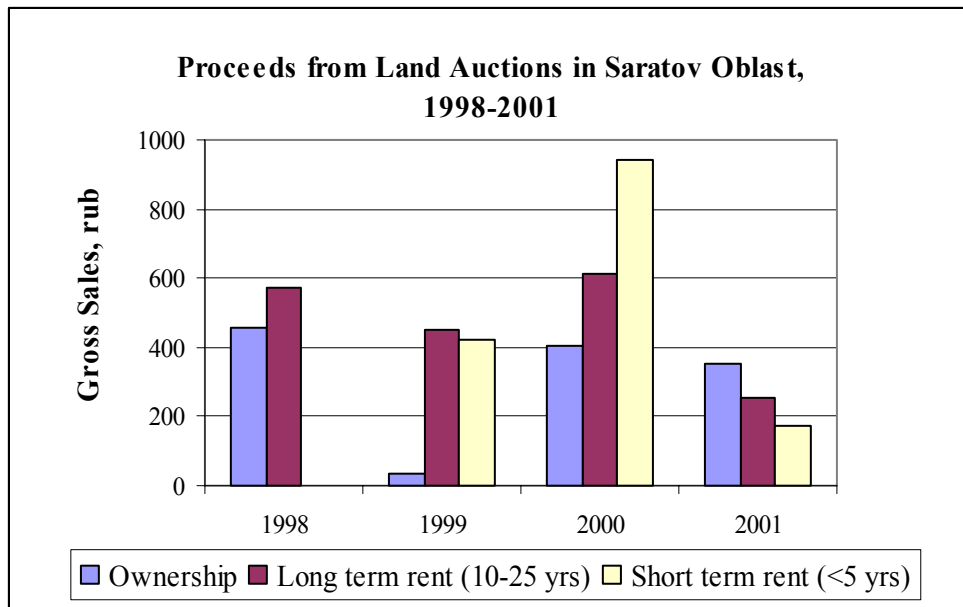
Another Transition

Both land and real estate values emerge from formulae and are not presently calibrated to market value. In most areas there are likely too few true arm’s length sales to provide a foundation for such valuation. But markets will develop if economic transition continues on its present path. Eventually there may be the desire to make the transition to current market value assessment, but that will be problematic because many property owners will have a strong incentive to preserve whatever distribution is in place under the system based on cadastral valuation and because property owners will be familiar with that system. The political barriers will be significant, based on international experience.

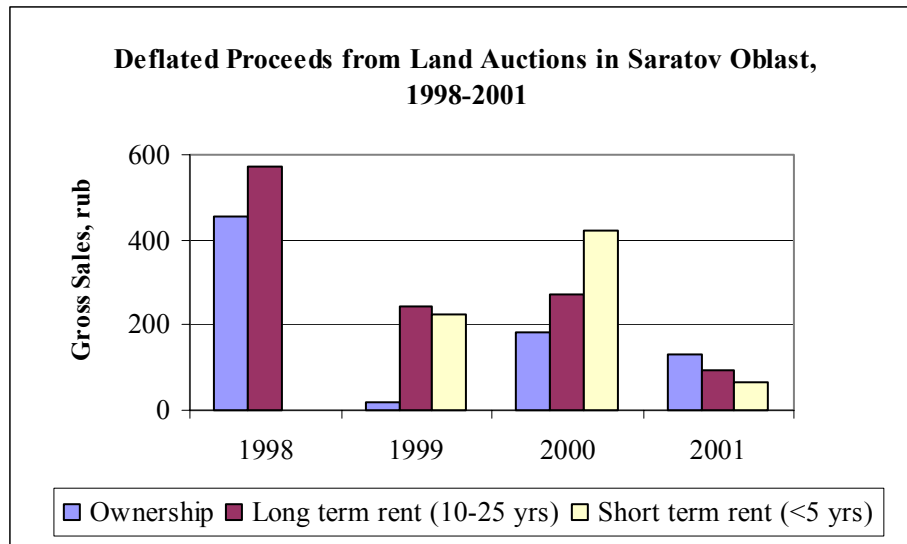
If market valuation is an ultimate objective, a quick and somewhat imperfect transition is likely to be more successful than one that awaits ideal and voluminous market indicators. A policy of waiting may allow forces opposed to transition to become impossible to overcome. Rent-seekers do not cheerfully surrender their advantage.

Figure 1.

Panel A



Panel B



Source: Saratov Property Management Committee, Russia Federation Ministry of Finance (CPI index).

Table 1

Auctioned Land Parcels in Saratov Oblast, 1998-2001

Year	Number of parcels sold	Total area, thousand m ²	Type of sale	Intended Use	Total sales value, thousand rub
1998	8	19.3	Ownership	Residential construction (6) Strip mall (1) Mini-store (1)	455.5
1998	15	15.9	Long-term rent	Mini-stores (12) Parking (1) Apartment buildings (2)	570.1
1999	3	3.3	Ownership	Residential construction (3)	36.3
1999	14	8.6	Long-term rent	Stores or mini-stores (11) Parking (1) Public access building (1) Recreational area with café (1)	453.0
1999	11	9.1	Short term rent	Mini-stores (7) Mini-stores with parking (2) Parking (1) Residential construction (1)	419.7
2000	21	18.9	Ownership	Residential construction (21)	405.8
2000	28	12.1	Long-term rent	Mini-stores Parking	611.6
2000	18	5.1	Short term rent	Mini-stores (4) Public access building (1) Commercial space (9) Recreational area with café (1) Information pavilion (3)	944.0
2001	13	12.1	Ownership	Residential construction (5)	352.8
2001	19	5.4	Long-term rent	Mini-stores Parking	252.0
2001	5	1.1	Short term rent	Mini-stores Commercial space	173.1

Source: Saratov Property Management Committee.

Table 2**Stages of State Cadastre Land Valuation in a Russia Federation Subject
(Actual Data for 1999)**

Region	Area of agricultural lands, thousand ha	Estimated productivity		Estimated cost of cultivation, rub/ha	Estimated cost with 7% recovery margin (profit)	Land rent, rub/ha			Cadastral value, rub/ha (33 years capitalization)
		rub/ha	centers of fodder units/ha			differentiated	absolute	total	
Saratov	8,281	919	8.6	640	685	234	12	246	8,120
Russia Federation	195,207	1269	10.7	890	953	323		335	11,040

Source: State Cadastre Valuation of Agricultural Lands. 2nd ed. Moscow, 2001.

Table 3.
Agricultural Cadastral Values per Hectare and Other Data, Municipalities in Saratov Oblast

	Cadastral Value per Hectare	Total Area of Unit (km ²)	Agricultural Land Share of Total	Population Density	Average Monthly Wage	Per Capita Property Tax
Central Section						
Bazarno-Karabulakskiy	10,978.0	2,294	0.735	16.6	1,402.1	47.4
Baltaiskiy	10,292.0	1,254	0.699	10.7	2,267.0	336.8
Dukhovnitskiy	8,098.0	1,978	0.749	8.6	1,524.0	75.0
Ivanteevskiy	8,492.0	2,048	0.899	8.4	1,497.8	142.1
Lisogorskiy	7,512.0	2,336	0.717	9.4	1,680.3	125.1
Novoburasskiy	10,703.0	1,735	0.751	10.8	1,442.4	212.9
Tatischevskiy	8,414.0	2,081	0.686	13.8	3,223.8	803.1
Hvalinskiy	6,766.0	1,920	0.657	15.3	1,617.9	78.5
Eastern Section						
Alexandrovogaiskiy	444.0	2,699	0.956	6.8	2,738.3	479.2
Dergachevskiy	4,029.0	4,500	0.939	6.5	1,251.8	41.8
Ershov	5,131.0	4,215	0.911	13.1	2,054.6	207.4
Krasnokutskiy	5,171.0	2,930	0.859	13.3	1,783.9	84.4
Krasnopartizanskiy	6,811.0	2,393	0.846	7.8	2,190.2	75.5
Novouzenskiy	1,870.0	4,123	0.932	8.7	1,242.6	40.8
Ozinskiy	2,496.0	4,094	0.932	6.9	1,447.5	74.6
Pereljubskiy	6,574.0	3,691	0.940	5.3	1,715.8	810.8
Piterskiy	4,210.0	2,584	0.933	7.8	1,638.6	17.2
Rovenskiy	3,594.0	2,145	0.807	9.0	1,409.5	470.5
Sovetskiy	7,023.0	1,434	0.916	21.2	3,112.7	352.9
Fedorovskiy	7,335.0	2,521	0.927	9.6	1,663.4	125.3
Balakovskiy	8,161.0	3,137	0.804	72.5	3,505.4	897.0
Krasnoarmeiskiy	4,535.0	3,316	0.689	14.8	1,919.5	261.8
Marksovskiy	8,436.0	2,894	0.820	23.9	1,685.8	176.8
Pugachevskiy	8,391.0	3,826	0.990	17.7	1,888.5	148.5
Engelsskiy	6,683.0	3,125	0.697	86.2	2,664.4	480.4
North West Section						
Arkadakskiy	15,608.0	2,237	0.825	14.6	1,700.3	107.8
Ekaterinovskiy	16,207.0	3,035	0.895	7.9	2,135.2	92.4
Romanovskiy	16,618.0	1,287	0.824	14.7	1,358.8	30.1
Turkovskiy	19,312.0	1,407	0.846	1.3	1,424.0	31.4
Balashovskiy	17,401.0	2,854	0.798	45.8	2,152.4	182.9
Rtischevskiy	17,221.0	2,270	0.826	28.3	2,854.3	289.6
South West Section						
Kalininskiy	13,350.0	3,258	0.873	12.7	1,695.6	113.2
Samoilovskiy	14,765.0	2,592	0.910	103.	1,429.2	21.7
Atkarskiy	11,176.0	2,683	0.804	17.6	1,999.6	295.4
Petrovskiy	13,085.0	2,295	0.835	21.8	1,652.4	108.6
Volga Section						
Voskresenskiy	6,399.0	1,451	0.638	9.1	2,235.4	392.3
Saratovskiy	8,104.0	1,955	0.617	23.7	2,941.0	330.9
Volskiy	6,744.0	3,692	0.567	27.5	2,378.3	283.5
Saratov	8,271.0	911	0.034	959.4	2,384.2	331.4

Table 4

**Parcel Valuation Factors
Engels Municipality**

NAME OF THE FACTOR
I. Location, proximity to city center, to employment locations and to cultural and welfare facilities.
1.1. Public transportation infrastructure
1.1.1. Traffic intensity within the cadastre quarter and at adjacent territories.
1.1.2. Accessibility of public transportation stops from the cadastre quarter
1.1.3. Accessibility of railway stations (platform) from the cadastre quarter
1.1.4. Accessibility of subway stations from the cadastre quarter
1.1.5. Availability of the express transportation within cadastre quarter and adjacent territories
1.2. State of the general transportation infrastructure
1.2.1. Availability of access railroads within cadastre quarter
1.2.2. Availability of river cargo port within cadastre quarter
1.2.3. Availability of thoroughfares leading to key cities
1.2.4. Availability of obstacles to movement (rivers, water reservoirs, channels, railway) within cadastre quarter.
1.3. Proximity to city downtown from the cadastre quarter
1.3.1. Pedestrian proximity to city downtown from the cadastre quarter
1.3.2. Proximity to city downtown by public transportation from the cadastre quarter
1.3.3. Proximity to city downtown by automobile transportation from the cadastre quarter
II. Engineering infrastructure and land improvements
2.1. Supply of engineering systems within cadastre quarter
2.1.1. Availability of centralized heat supply systems within cadastre quarter
2.1.2. Availability of centralized water supply systems within cadastre quarter
2.1.3. Availability of centralized gas supply systems within cadastre quarter
2.1.4. Availability and sufficiency of telephone lines
2.1.5. Availability of centralized sewage within cadastre quarter
2.1.6. Availability of energy supply systems within cadastre quarter
2.2. Land improvement conditions within cadastre quarter
2.2.1. Street lighting within cadastre quarter
2.2.2. Water runoff system within cadastre quarter
2.2.3. Roads covered with hard surfaces within cadastre quarter
2.2.4. Automobile parking within cadastre quarter
III. Level of development of cultural and welfare facilities
3.1. Availability and access to local cultural and welfare facilities
3.1.1. Availability of pre-school institutions and secondary schools within cadastre quarter
3.1.2. Availability of stationary catering services, consumer services and post services within cadastre quarter
3.1.3. Availability of adult and children's out-patient clinics (polyclinics) within cadastre quarter

3.1.4. Availability of retail centers within cadastre quarter
3.1.5. Availability of sports grounds within cadastre quarter
3.2. Access to citywide cultural and welfare facilities
3.2.1. Access to citywide hospitals
3.2.2. Access to main transportation engineering constructions (railway stations, etc.)
3.2.3. Access to cultural centers, religious centers, sport centers of citywide scale, educational and scientific institutions.
3.2.4. Access to recreational and entertainment facilities
3.2.5. Access to citywide stationary retail centers (<i>major retailers – O.K.</i>)
3.2.6. Access to least attractive social objects (<i>need to see their specific definition – my guess would be prisons – O.K.</i>)
4. Environmental conditions
4.1. Air, soil and groundwater pollution
4.1.1. Air pollution within cadastre quarter
4.1.2. Soil pollution within cadastre quarter
4.1.3. Groundwater pollution within cadastre quarter
4.2. Pollution by noise, electromagnetic waves and radiation
4.2.1. Noise pollution within cadastre quarter
4.2.2. Level of electromagnetic fields within cadastre quarter
4.2.3. Radiation level within cadastre quarter
V. Aesthetic and historical value of constructions, landscape value of the territory
5.1. Architectural, aesthetic and historical value of the construction
5.1.1. Architectural and aesthetic value of buildings within cadastre quarter
5.1.2. Availability of historic complexes or individual historical or cultural monuments within cadastre quarter
5.1.3. Availability of old and decrepit constructions within cadastre quarter
5.1.4. Location of the cadastre quarter in the historic district
5.2. Recreational and landscape value of the territory
5.2.1. Access to citywide recreational objects from cadastre quarter (parks, national forests, nature preserves)
5.2.2. Access to citywide seasonal recreational objects from cadastre quarter (beaches, ski resorts, etc.)
5.2.3. Availability of greenery within cadastre quarter
5.2.4. Availability of valuable landscapes within cadastre quarter
5.2.5. Availability of nature preserves, nature parks or water preserves within cadastre quarter
VI. Engineering and geological construction conditions and the probability of exposure of the territory to natural and technogenic disasters.
6.1. Engineering and geological construction conditions
6.1.1. Locations with elevated (high) waterbeds within cadastre quarter
6.1.2. Soil shifts due to excavations (mineral or other resource extractions) within cadastre quarter
6.1.3. Presence of rocks within the cadastre quarter soils
6.2. Exposure of the territory to natural and technogenic disasters
6.2.1. Probability of floods and presence of flooded territories within cadastre quarter
6.2.2. Soil damage by karst erosion, landslips; presence and strength of loose soils within cadastre quarter.
6.2.3. Susceptibility of the cadastre quarter territory to devastating natural events and disasters

Appendix

Detailed Algorithm for Individual Parcel Valuation

The algorithm for individual parcel valuation follows:

a) Estimated productivity_{parcel} = estimated productivity_{RF subject} * [B_o/B_{RF subject}]

where

B_o = soil yield class of a parcel,

B_{RF subject} = average soil yield class of RF subject.

Soil yield class values are located in a soil yield class maintained at the RF subject level. The values range from 0 to 100, although exceptionally fertile soils may rate above 100.

Soil yield class is based on the following characteristics: strength of organic horizon, humus content (percent) and granulometric composition (percent of physical clay). Soil yield class is calculated as the average of these three scores and is adjusted for parcel's PH level. Table 1 provides an example. Table 2 provides a crosswalk example that shows the relationship between the individual parameter properties and their scores. Should the cadastre object contain several soil yield classes, the weighted average (B_o) is calculated by weighting by areas. The number of factors or soil yield classes is individually determined by the RF subjects to better suit their valuation needs. The data is often archived in a database for the ease of reference.

b) Estimated cost of production_{parcel} = estimated cost of production_{RF subject} * (1 – cost attributed to soil yield class, percent) + estimated cost of production_{RF subject} * (cost attributed to soil yield class, percent) * [B_o/B_{RFsubject}]

where

the first component {estimated cost of production_{RF subject} * (1 – cost attributed to soil yield class, percent)} adjusts for parcel-specific non-yield features such as transportation and storage expenses

the second component {estimated cost of production_{RF subject} * (cost attributed to soil yield class, percent) * [B_o/B_{RFsubject}]} adjusts for the parcel's soil yield class.

If one parcel contains several soil yield classes, they are respectively weighted by area. The breakdown of costs attributed to soil yield class and to other characteristics is directly related to parcel productivity (Table 3).

c) Differential rent = (Estimated productivity_{parcel} – Estimated cost of production_{parcel}) + ΔTechnological Properties + ΔLocation

where

Estimated productivity_{parcel} = defined above

Estimated cost of production_{parcel} = defined above

ΔTechnological properties = (Estimated cost_{subject}*1.07)*Cost share attributed to technological properties⁵⁸ * (1 – [Technological properties index_{parcel} / Technological properties index_{RF subject}])

ΔLocation = (Transportation cost_{subject} – Transportation cost_{parcel})*1.07

In words, differential rent based on soil yield class is calculated as the difference between soil productivity and the estimated cost of production, adjusted for differences in parcel’s technological properties and location. The difference in the parcel’s technological properties is calculated as a deviation of that parcel’s properties from that of the average for the RF subject. The difference in the parcel’s location is calculated as the deviation of the parcel’s market remoteness from the average of RF subject.

A more detailed description of the Δtechnological properties and Δlocation variables follow.

ΔTechnological properties variable Recall that:

ΔTechnological properties = (Estimated cost_{subject}*1.07)*Cost share attributed to technological properties⁵⁹ * (1 – [Technological properties index_{parcel} / Technological properties index_{RF subject}])

The last component {1 – [Technological properties index_{parcel} / Technological properties index_{RF subject}]} accounts for difference between parcel-specific properties and the average of RF subject. This difference may range from 0 to 1.

The technological properties index is defined as:

Technological properties index = [Cost share attributed to power intensity of soil * soil power intensity score + (Cost share attributed to technological properties - Cost share attributed to power intensity of soil)*100*K_{relief}*K_{stones}] / Cost share attributed to technological properties * Shape of the parcel score.

⁵⁸ Table 3.

⁵⁹ Table 3.

Input data used to calculate this index is located in the following:

- Cost share attributed to power intensity of the soil – Table 3;
- Cost share attributed to technological properties – Table 3;
- Power intensity scale⁶⁰ – Table 4;
- Power intensity of the soil = power intensity (kg/cm²)*200;⁶¹
- K_{relief} – Table 5;
- K_{stones} – Table 6;
- Shape of the parcel score – Table 7

Commonly, the technological properties index falls somewhere between 0.65 and 1.35. The higher the index, the more difficult it is to cultivate land, the lower the differential rent is, and the lower the cadastral value. If a cadastre object consists of several soil types, the technological properties index is calculated for each type separately and an average is weighted by area:

$$\text{Technological properties index}_{\text{parcel}} = \frac{\sum \text{Technological properties index}_i * \text{area}_i}{\text{Total area}},$$

where

i – soil type.

Since technological properties indexes are related to the average of a RF subject, it makes them incomparable across RF subjects. Therefore, a comparison can be made to a benchmark parcel only (i.e. technological properties index of a benchmark = 1). In a benchmark parcel the fields are located within 1 km from the farm center, soil resistance score = 100, shape = 100 (rectangular and a larger plot), even relief (K_{relief} = 1.00) and no stones (K_{stones} = 1.00).

The technological properties index can be approximated by the inverse of the labor and machinery productivity score in agriculture for the prevailing type of crop on any given parcel. This information can be located in document No.0235324 of the 4th round of land valuation documentation.

The remoteness from markets (location factor) is calculated as difference between the average remoteness from markets in a RF subject and that of a parcel:

⁶⁰ Power intensity refers to how hard it is to turn the soil or how much force is needed to lift the soil. The scale can be adjusted for excess moisture by multiplying by excess moisture coefficient in the range of 1.05 to 1.30.

⁶¹ Table 4 indicates power intensity in [kg/cm²]. To transfer this into a score (to be used in the formula), the values of the table should be multiplied by 200. For example, if power intensity = 0.35 kg/cm², in order to calculate TP Index, need to calculate the score = 0.35*200 = 70 (that goes into the TPI formula).

ΔLocation. Recall that:

$$\Delta\text{Location} = (\text{Transportation cost}_{\text{subject}} - \text{Transportation cost}_{\text{parcel}}) * 1.07$$

where

$$\text{Transportation cost, rub/ha} = \text{Distance, km} * \text{Cargo Type, ton/ha} * \text{unit transportation cost, rub/ton}$$

For comparability transportation cost is adjusted for cargo types and road quality. Distance traveled (Distance, km in the transportation cost equation above) to the point of processing or sale for each crop is adjusted for the quality of roads on each route. The adjustment coefficients are as follows:

Road adjustment coefficients are as follows:

class I (paved or asphalt roads) = 1

class II (unpaved roads) = 1.5

class III (dirt roads) = 2.5

Each crop is converted to the first class cargo according to the following scale:

cargo class I (grain, potatoes and vegetables) = 1

cargo class II (milk, livestock) = 1.25

cargo class III (wool) = 1.67

To find the average distance, divide by total amount of cargo:

$$\Sigma \text{cargo}_i * \text{distance}_i / \text{cargo}$$

where i = type of crop⁶²

⁶² An example may help with the understanding of how Distance, km (what is referred to as average distance) is calculated. Assume that a farm produced 1000 ton of livestock and 1500 ton of corn. The livestock is delivered to the slaughterhouse, which is 10 km away by a dirt road, and corn is transported to the market by an asphalt road, which is 20 km away. In order to calculate equivalent distance:

1. Adjust for the quality of roads:

Livestock: 10 km away (dirt road) = 10*2.5 (adjustment coefficient) = 25 km by asphalt road (1st class road equivalency)

Corn: 20 km (asphalt) = 20 km*1 (adjustment coefficient) = 20 km (1st class road equivalency).

2. Adjust for cargo class:

Livestock: 1000 tons livestock = 1000 * 1.25 (adjustment coefficient) = 1250 (1st class cargo equivalency)

Corn: 1500 tons of corn = 1500 * 1.00 (adjustment coefficient) = 1500 (1st class cargo equivalency).

3. Weight*Distance traveled:

Livestock: 1250 kg * 25 = 31,250 [kg*km]

Corn: 1500*20=30,000 [kg*km]

4. Average distance (Distance, km): (31,250 + 30,000)/(1250+1500) = 22.27 [km]

As distance increases, the roads worsen and the volume of transported cargo increases, the differential rent of such parcel relative to other parcels declines and so does the cadastre value. Average $\Delta\text{Location} = 0$ for the RF subject.

d) Estimated rent_{parcel} = differentiated rent_{parcel} + absolute rent

where absolute rent is equal to 1% of value of agricultural produce in Russia Federation (12 rub/ha in 1999).

e) Cadastre value of the parcel is equal to estimated rent multiplied by 33, the capitalization period.

Appendix Table 1
Calculation of the Soil Yield Class Factor: an Example

Soil Type Number	Soil Valuation Group Code	Score				Adjustment coefficient	Soil yield class
		Strength of organic horizon	Humus content	Granulometric content	Average		
0627	0100	69	67	71	69	0.88	61
0628	0099	69	69	95	77	0.88	61

Source: State Cadastre Valuation of Agricultural Lands. 2nd ed. Moscow, 2001.

Appendix Table 2
Soil Yield Class Valuation Scale,
An Example of Omsk Oblast

Strength of organic horizon		Humus content		Granulometric composition (particle size)		
cm	score	%	score	physical clay, %	score ⁶³	
					1	2
5	28	2.0	50	15	27	48
10	36	2.5	55	20	39	59
15	44	3.0	60	25	50	71
20	52	3.5	65	30	60	85
25	60	4.0	70	35	70	100
30	68	4.5	75	40	80	90
35	76	5.0	80	45	90	80
40	84	5.5	85	50	100	70
45	92	6.0	90	55	92	62
50	100	6.5	95	60	84	55
55	105	7.0	100	65	76	
60	108	7.5	103	70	70	
65	110	>7.5	105			

Source: State Cadastre Valuation of Agricultural Lands. 2nd ed. Moscow, 2001.

⁶³ For types of soil: 1- steppe, 2- ash soils

Appendix Table 3
Cost Structure Used in Agricultural Land Valuation, shares

Productivity, centners of fodder units/ha	Cost share attributed to technological properties*		Cost share attributed to soil yield class
	total	of the total, cost share attributed to power intensity of the soil**	
2	0.42	0.13	0.08
4	0.41	0.13	0.10
6	0.40	0.12	0.12
8	0.38	0.12	0.14
10	0.36	0.11	0.17
12	0.35	0.11	0.19
14	0.34	0.10	0.21
16	0.32	0.10	0.23
18	0.31	0.10	0.25
20	0.30	0.09	0.27
22	0.29	0.09	0.28
24	0.28	0.09	0.30
26	0.27	0.08	0.31
28	0.26	0.08	0.32
30	0.25	0.08	0.34
32	0.24	0.07	0.35
34	0.24	0.07	0.36

* Non-yield technological properties are: power intensity, relief, perimeter (shape), stones

** Power intensity refers to how hard it is to turn the soil or how much force is needed to lift the soil.

Source: State Cadastre Valuation of Agricultural Lands. 2nd ed. Moscow, 2001.

Appendix Table 4
Power Intensity of the Soil

Granulometric composition	Power intensity of the soil, kg/cm ²		
	Ash soils	Steppe soils	Saline soils
Sandy	0.35	0.37	0.39
Semi-sandy	0.38	0.40	0.42
Lightly loamy	0.42	0.45	0.48
Loamy	0.45	0.50	0.53
Gravelly loamy	0.48	0.52	0.55
Clayey	0.50	0.55	0.58

Source: State Cadastre Valuation of Agricultural Lands. 2nd ed. Moscow, 2001.

**Appendix Table 5
Relief Valuation Scale**

Distance between adjacent contour lines (mm) on a scale			Down gradient, degrees	Coefficient of relief, [K _{relief}]
1:25,000	1:10,000	1:5,000		
Intersecting relief every, m				
5	2.5	1		
Above 11.4	Above 14.3	Above 11.4	Below 1	1.00
11.4-3.8	14.3-4.8	11.4-3.8	1-3	1.02
3.8-2.3	4.8-2.9	3.8-2.3	3-5	1.05
2.3-1.6	2.9-2.0	2.3-1.6	5-7	1.09
Below 1.6	Below 2.0	Below 1.6	7-9	1.16

Source: State Cadastre Valuation of Agricultural Lands. 2nd ed. Moscow, 2001.

**Appendix Table 6
Stoniness Valuation Scale**

Stoniness class	Quantity of stones in 25 cm of soil, m ³ /ha	Average stoniness	Range of stoniness coefficient
1	Less than 1	1.00	Below 1.01
2	1-10	1.04	1.01-1.07
3	10-25	1.10	1.07-1.12
4	25-50	1.15	1.12-1.18
5	More than 50	1.21	Above 1.18

**Appendix Table 7
Parcel Shape Valuation Scale**

Parcel area, ha	Parcel shape score			
	Rectangular shape	Parcel contour complexity level		
		1	2	3
Above 100	100	99		
100	98	97	96	
65	96	95	93	90
40	94	93	91	88
25	91	89	86	82
15	88	86	83	79
10	83	80	76	70
5	75	72	67	60