A model of Russian local public …nance and social asset divestiture

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Abstract

The division of tax revenues between the federal, regional and local layers of government of the Russian Federation has undergone continuous reform and thus received a lot of attention both in the public discussion and in the related research on …scal federalism. Another important unsettled issue of property rights in the country is the absence of market for land and its implications to the tax structure. A third and often overlooked phenomenon is the participation of industrial …rms in infrastructure and social service provision. Despite a massive transfer of social assets to the public sector, …rms still participate in these activities to some extent, in many cases receiving bene…ts from the government for doing this. In earlier research, the fact that the industrial …rms might still produce public goods has not received much attention. In this paper, we analyse the issue of public good production by looking at the implications of the non-existence of property rights over land and the absence of land markets through an optimal local public …nance model. We …rst introduce the possibility that the industrial …rms in a certain locality may take part in public goods provision. Second, we prove that when the land distribution is given, it may be bene…cial to levy a turnover tax on the …rms and redistribute (part) of the housing stock to the public sector.

Keywords: Local turnover tax, Russian local tax system, divestment of housing

JEL classi…cation: H7,P3

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1. Introduction

The division of tax revenues between the federal, regional and local layers of government of the Russian Federation has received a lot of attention both in the public discussion and in the related research on …scal federalism. The tax system has undergone major reforms ever since the Soviet Union collapsed, the most recent being put into force from the beginning of 2002.

Another important unsettled issue of property rights in the country is the question of land ownership and its implications to the tax structure. The land market is nonexistent, a fact which has been blamed for seriously hindering the development of the …nancial market as land-holding agents cannot utilize it as collateral.

A third and often overlooked phenomenon is the participation of industrial …rms in infrastructure and social service provision, sometimes considered a problem already solved but in practice still continuing in the regions. Previously, it was customary in Russia, or the then Soviet Union, that the …rms took care of their workers social needs by building and maintaining housing projects, health centers, kindergartens and so on. They also took part in local infrastructure building. Despite a massive transfer of social assets to the public sector, …rms still participate in these activities to some extent, in many cases receiving bene…ts from the government for doing this.

In earlier research, the fact that the industrial …rms might still produce public goods has not received much attention. Zhuravskaya's (2000) …ndings on the …scal incentives of the local level government show that the unde…ned property rights over tax revenue make local authorities try to capture part of …rms' revenue.

Haaparanta and Juurikkala (2002) extend the Zhuravskaya (2000) model to …rms producing public goods and argue that the unde…ned property rights over the tax revenue by the various layers of the government may provide a reason why private …rms produce public goods: it is a means to transfer tax revenue to local and regional authorties.

In this paper, we analyse the issue of public good production by looking at the implications of the non-existence of property rights over land and the absence of land markets through an optimal local public …nance model. We …rst introduce the possibility that the industrial …rms in a certain locality may take part in public goods provision. Second, we prove that when the land distribution is given, it may be bene…cial to levy a turnover tax on the …rms and redistribute (part) of the housing stock to the public sector During the housing divestiture project in the mid 1990's, this kind of tax was widely considered the most e¤ective tool used in pacing up the transfer of apartment buildings from the …rms balance sheets to the governance of the municipalities.

2. Local service delivery: the transfer of housing to the municipalities

Before the reforms of the 1990's, Russian industrial …rms had an active role in the municipalities, providing local infrastructure and welfare services not only for the …rm's own purposes but in some cases to the general public as well. After the collapse of the communist system, massive restructuring took place throughout the economy. Assets such as housing projects, health centers and kindergartens were transferred from the industrial enterprises to the municipal governments. Even though this transfer process has been conceived mostly a success, the service provision by the …rms still continues to some extent. From …rm perspective, this is

not always simply an inherited burden but instead a conscious choice. Reasons are many: bargaining and power plays with the government, especially the local level, or worker compensation just as in any country. The …rms might also keep assets such as apartment buildings or holiday resorts as they anticipate possibilities to privatise the land under them at a good pro…t later on, when the appropriate legislation is put in place, and, as a result, the land market has developed. All in all, Ericson (1999) has called the system Industrial Feudalism, where the federal authority is weak relative to the regional and municipal authorities and people are tied to the local economy through the provision of public services.

The …rms still provide both infrastructure and welfare services. In this paper we concentrate on housing, which has arguably been the most important category of assets transferred.[1] In 1990, 42% of the total housing stock in Russia belonged to enterprises. Before reforms started, over half of all workers enjoyed some social services provided by enterprises. Basic legal documents requiring divestiture of housing and the main part of social assets within 6 months after the enterprise was privatised were adopted in 1992-1993. Instead of immediate privatisation, the assets were to be divested to the local authorities, which were made responsible for the provision of the services. Regardless of the regulations, enterprises might continue to fund and administer the provision of services as no monitoring mechanisms were established. By the end of 1997 the majority of assets were transferred. Roughly 80% of housing stock became municipal between 1993-1997. According to Leksin and Shvetsov (1998), in 1998, practically in all Russian regions enterprises' social infrastructure had already long ago become semi-municipal. Up to 50% of the service users were not employees of that enterprise and …rms thus …nanced municipal social infrastructure. Starodubrovskaya (2002) reports that more than

90% of enterprise housing and other social assets had been accepted to municipal ownership at the time of writing.

A special device was in use to accelerate the housing divestment by the …rms. A 1.5% turnover tax was introduced in 1995-1996 to …nance housing and social facilities. As long as enterprises continued to hold the assets on their balance, they were allowed to deduct their social expenditures from this tax. It created a mechanism for the municipalities to receive funding after transfer without interference from the regional or federal governments, and was perhaps "the only serious local tax in the Russian tax system". The tax was then abolished in the 2000 tax reform. After the reform, federal subsidies remained the only source of …nancial compensation for housing accepted in the ownership of the municipalities. The success in the housing asset transfer has been largely accredited to the use of this turnover tax.

The pace of divestiture varied in di¤erent locations. Starodubrovskaya (2002) argues that this is a result of complex relationships between the main players-enterprise management, local and regional governments, and di¤erent groups of population. Enterprises were mostly for divestiture, as they saw …nancial and managerial gains in it and the …rms' attractiveness for investors would also grow. On the other hand, keeping social assets would increase their bargaining power. Municipalities where then mostly against divestiture since it caused them additional …nancial and managerial burden, even though they were able to receive new …nancial revenues from the turnover tax. The industrial structure, the original share of enterprise housing of the total and the reative wealth of a city should and did also a¤ect the outcome of the process.

3. The Model

The local consumers are all identical and consume three goods: one private good (x) produced at the locality but which can be traded freely in the whole country and the locality takes its price (=1) as given, one pure public good (z) that uses the private good as an input (one unit of the public good requires one unit of the private good), and one impure public good (h), housing services. Housing services can be produced both by the private …rms and the local authority. The total housing stock is given but its quality can be enhanced or maintained by the use of labour. The division of the housing stock between the …rms and authorities (implying the sharing of the maintenance) is a decision variable of the authorties. Let n_i denote the amount of labour allocated to the activity i. The Pareto-optimal allocation of the economy is the solution to the following problem assuming that all consumers are identical:

$$\max \quad u(x;z;h) \tag{1}$$

s.t.

(i) $h = q_A\bar{h}_A + q_B\bar{h}_B$ and $\bar{h}_A + \bar{h}_B = \bar{h}$

(ii) $nx + z \cdot f(n_p; l_p)$

(iii) $n_p = n \,¡\, n_A(q_A)\bar{h}_A \,¡\, n_B(q_B)\bar{h}_B$

where $n_i^0 > 0$; $n_i^{0^0} > 0$; $i = A;B$ and $n_i(\underline{g}) = 0$. Here $q_i; i = A;B$ = quality of housing to be maintained with labour, $\bar{h}_i$ = housing allocated to i, i = A = local authority, B = …rm, $n_i(q_i)$ = labour required to produce the indicated quality level, n = total supply of labour, n_p = labour allocated to private production, l_p = land allocated to the private production (given by the history). Decision variables

are $q_A; q_B; \bar{h}_A; x$. The role of housing services in the utility function is somewhat special as we have assumed that the consumer welfare depends on average housing quality (we can set $\bar{h} = 1$ without loss of generality) instead of the quality of the apartment where the consumer lives. The idea behind this speci…cation is that the housing services contain also the quality of the neighborhood, not only the quality of the single apartments. We could have used the following speci…cation as the individual utility function: $u = u(x_i; z; q_i)$, $i = A; B$, where now x_i = consumption of the private good by the consumer residing in an apartment whose maintenance is i's responsibility. The results with this speci…cation[2] would be the same as they are now.

Substituting the constraints into the objective function (1) and maximizing reaches the following …rst order optimality conditions:

u_x :

$$u_x - u_z n = 0 \;\Rightarrow\; u_x = n u_z \tag{2}$$

u_{q_A} :

$$-u_z f_n n_A^0 \bar{h}_A + u_h \bar{h}_A = 0 \tag{3}$$

u_{q_B} :

$$-u_z f_n n_B^0 (\bar{h} - \overline{h_A}) + u_h (\bar{h} - \bar{h}_A) = 0 \tag{4}$$

$u_{\bar{h}_A}$:

$$-u_z f_n(n_A - n_B) + u_h(q_A - q_B) = 0 \qquad (5)$$

These equations have straightforward interpretations. (2) is the standard optimality conditions for the provision of the public good, (3) and (4) require that the the marginal bene…t from increasing housing quality equals its cost, (5) states that the allocation of the housing stock must be based on the quality di¤erence, larger share of the stock will be allocated to the sector that provides higher quality.

4. Optimal taxation without land markets and land taxation

Next we consider the optimal public …nance problem. The following special aspects that broadly conform to the Russian practice are incorporated in the optimisation problem: i) No land markets exist and no rights to land ownership exist. hence, land rents and land cannot be directly taxed. ii) The choice of local tax parameters is restricted. First, the turnover tax was until recently a signi…cant source of income for local authorities. Given that it is a highly distortionary tax one may wonder why the authorities used it. Our aim here is to link its use to the absence of property rights to land. As an alternative tax we consider the government income tax (tax on corporate pro…ts). In the base for the corporate income tax we take into account the absence of land markets. The corporate income tax is an important source for regional and local authorities.

As usually in the optimal tax context, the government is a Stackelberg leader, knowing what e¤ect a tax will have after being imposed on the …rm.

The distribution of land is given by past, i.e. …rms

$¿^{¼}$ = pro…t tax rate

τ^t = turnover tax rate

Assume that all consumers own an equal share of the …rms. Consumer welfare maximization problem thus becomes

$\max_x \quad u(x; z; h)$

s.t.

$x = w + \pi^{AT}/n,$

where w = wage rate and π^{AT} = after tax pro…ts. Consumer welfare is now $u = u\left(w + \pi^{AT}/n; z; h\right)$ and …rm's after tax pro…ts are:

$$\pi^{AT} = (1 - \tau^{\pi})\left[f(n_p; l_p) - wn_p - wn_B(q_B)\bar{h}_B\right] - \tau^t f(n_p; l_p) \tag{6}$$

This pro…t function is crucial for the model. The …rm has land at its disposal but does not pay any rental on it because there is no proper land market and/or because it does not own the land since property rights are ill-de…ned. It can, however, deduct the expenses on housing improvement.

(6) implies that the …rm will always choose the lowest level of housing quality since

$$\frac{\partial \pi^{AT}}{\partial q_B} = -(1 - \tau^{\pi})wn'_B(q_B)\bar{h}_B < 0$$

Hence, $q_B = \underline{q}$ and thus $n_B = 0$. Firm's choice of labour is given by

$$\frac{\partial \pi^{AT}}{\partial n_p} = (1 - \tau^{\pi})[f_n - w] - \tau^t f_n = 0 \tag{7}$$

This gives

$$f_n = (1 - \tau^{\pi})w/(1 - \tau^{\pi} - \tau^t) \tag{8}$$

(8) can be inverted to get the wage function as a function of taxes and allocation of labour:

$$w = \frac{(1 - \tau^{\pi} - \tau^{t}) f_n \left[n - n_A(q_A)\bar{h}_A ; l_p \right]}{(1 - \tau^{\pi})} \tag{9}$$

Optimal tax problem is now:

$$\max \quad u(w + \pi^{AT}/n; z; h) \tag{10}$$

s.t.

(i) $h = (q_A - \underline{g})\bar{h}_A + \underline{g}\bar{h}$

(ii) $z + w n_A(q_A)\bar{h}_A \cdot \tau^{\pi}\pi + \tau^{t} f(n_p; l_p)$

(iii) $n_p = n - n_A(q_A)\bar{h}_A$

(iv) $w = \frac{(1 - \tau^{\pi} - \tau^{t}) f_n \left[n - n_A(q_A)\bar{h}_A ; l_p \right]}{(1 - \tau^{\pi})}$

(v) $\pi = f(n_p; l_p) - w n_p$

Decision variables are $\tau^{\pi}; \tau^{t}; z; q_A; \bar{h}_A$

The …rm maintains the lowest possible quality of housing, denoted by $\underline{g}$ in the maintenance constraint. Thus it does not employ anyone in housing maintenance and in the labor market, the population is divided into those who work in the production and those in the public housing maintenance.

The …rst order optimality conditions for the above problem are the following:

u_z :

$$u_z - \lambda = 0 \tag{11}$$

Using (11) and the envelope theorem the remaining optimality conditions can be written as:

u_{q_A} :

$$u_x - f_{nn}\frac{(1-\tau-t)}{(1-\tau)}\left[\frac{n-(1-\tau)n_p}{n}\right]^{\frac{1}{2}} + \frac{u_h}{n_A^0} + u_z - f_n\frac{[1-\tau(\tau+t)]}{(1-\tau)} + f_{nn}\frac{(1-\tau-t)}{(1-\tau)}(\tau+n_p)\Big]^{\frac{1}{2}} = 0 \tag{12}$$

$u_{\bar{h}_A}$:

$$u_x - f_{nn}n_A\frac{(1-\tau-t)}{(1-\tau)}\left[\frac{n-(1-\tau)n_p}{n}\right]^{\frac{1}{2}} + \frac{u_h}{n_A^0}(q_A - \underline{g}) + u_z - f_n\frac{[1-\tau(\tau+t)]}{(1-\tau)} + f_{nn}\frac{(1-\tau-t)}{(1-\tau)}(\tau+n_A\bar{h}_A)\Big]^{\frac{1}{2}} = 0 \tag{13}$$

u_τ :

$$u_x\left[-f_n\frac{t}{(1-\tau)^2}\left[\frac{n-(1-\tau)n_p}{n}\right]^{\frac{1}{2}} - \frac{\tau}{n}\right]^{\frac{1}{2}} + u_z\left[\tau + \frac{f_n t}{(1-\tau)^2}(\tau n_p + n_A\bar{h}_A)\right]^{\frac{1}{2}} = 0 \tag{14}$$

$u_{¿t}$:

$$u_x \left[\frac{¡ f_n}{(1 ¡ ¿^{¼})} \cdot \frac{n ¡ (1 ¡ ¿^{¼}) n_p}{n} \right]^{¾} + u_z \left[f + \frac{f_n n_A \bar{h}_A}{(1 ¡ ¿^{¼})} \right]^{¾} = 0 \qquad (15)$$

4.1. Results

Proposition 1 Without the turnover tax, the ordinary Samuelson condition for the Pareto-optimal supply of the public good holds.

Proof. When $¿_t = 0$; (14) implies that $u_x = nu_z$, which is the ordinary Samuelson condition for the Pareto-optimal supply of public good. ■

Proposition 2 If the land rent $= f_{l_p} l_p$ is high enough, the introduction of the turnover tax in addition to the pro…t tax is bene…cial, assuming constant returns to scale.

Proof. Start now from a situation in which only pro…t tax is in use ($0 < ¿^{¼} < 1$) and then analyze whether the introduction of a small turnover tax is bene…cial. Use condition (2) (from 1^o) in the left hand side of (15) to get the following expression $\frac{u_x}{n} \left[\frac{¡ ¿^{¼} f_n n_p}{(1 ¡ ¿^{¼})} + f \right]$:Assuming further the the …rm has constant returns to scale we know that $f = f_n n_p + f_{l_p} l_p$. (??) can be written as

$$\frac{u_x}{n} \left[\frac{(1 ¡ 2¿^{¼}) f_n n_p + (1 ¡ ¿^{¼}) f_p l_p}{(1 ¡ ¿^{¼})} \right]^{¾}$$

which is positive if the land rent $= f_{l_p} l_p$ is high enough. If this holds then the introduction of the turnover tax in addition to the pro…t tax is bene…cial. ■

The interesting point is that the turnover tax can be rationalised as a means to tax the land rent.

Proposition 3 With the turnover tax the public good supply is excessive.

Proof. Condition (15) can be rewritten as

$$\frac{u_x}{u_z} = \frac{f + \frac{f_n n_A \bar{h}_A}{(1 - \theta)}}{\frac{f_n}{(1 - \theta)} \frac{n - (1 - \theta) n_B}{n}} \tag{16}$$

Using the labour market equilibrium condition and the linear homogeneity of the production function it is straightforward to show that the RHS of (16) is larger than $\frac{1}{n}$, if it is optimal to introduce the turnover tax in the …rst place. ■

Proposition 4 With the turnover tax, it may be optimal to divest housing from the …rms to the local authority.

Proof. In the equation for the allocation of the housing stock, (13), for the initial levels of consumption the LHS gets larger as the turnover tax is increased if the following condition holds:

$$-\theta f_n - \theta f_{nn} + (n_A - 1) f_{nn} n_A \bar{h}_A > 0 \tag{17}$$

With (17) it is optimal to divest housing from the …rms to the local authorities if the turnover tax is introduced. ■

It has been claimed that this was the rationale for the introduction of the tax, the …rms accepted it to be able to get rid of their old housing stock.

5. Conclusions

In the Russian Federation, two important issues of poorly de…ned property rights have been under reform e¤orts ever since the early 1990's, and continue to be so. The revenue division between the three levels of government has been a major target of the recent tax reforms. The development of land markets is much awaited for. In this paper, we analyse these issues through an optimal local public …nance model.

Under the basic assumptions in these models, land taxation is an important tool locally. In Russia, this is impossible as the land is neither a source of costs nor a source of revenues for the …rm. We take the land distribution as given and introduce the possibility that industrial …rms may take part in public goods provision. Further, we investigate the e¤ects of a turnover tax in this setting. In reality, the …rms still provide both infrastucture and welfare services to some extent, even though restructuring of the related assets has been conceived mostly a closed book. In this paper we concentrate on housing divestiture. A speci…c turnover tax was levied in the mid 1990's to pace up the transfer of the apartment stock of the …rms to the municipalities.

Our results show …rst that with only a pro…t tax in use, the ordinary Samuelson condition for the Pareto-optimal supply of the public good holds. Second, we …nd that the introduction of a small turnover tax may be rationalised as a means to tax the land rent, in a situation where property rights to land are unde…ned and land market does not exist. Third, in case it is optimal to introduce the turnover tax in the …rst place, the public good supply is "excessive". In conclusion, when the land distribution is given, it may be bene…cial to levy a turnover tax on the

…rms and redistribute (part) of the housing stock to the public sector.

It has been found in previous studies that a major factor behind the social asset and service provision by the …rms is their willingness to keep the workers tied to their current location. Our natural next step is to extend the analysis into a situation of mobile labor force, as the people with high valuation for the local public good are more likely to stay.

Notes

[1]Starodubrovskaya (2002) is a good up-to-date source for housing issues.

[2]In this case we could have used $\bar{h}_A u(x_A; z; q_A) + \bar{h}_B u(x_B; z; q_B)$ as the planner's objective function or carried out the routine Pareto-optimum calculations.

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