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**THE PRACTICE OF MUNICIPAL INFRASTRUCTURE FINANCE IN
HUNGARY**

Modelling municipal investment activity

Tézisgyűjtemény

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THE BACKGROUND OF THE RESEARCH

Among the Central-European transition economies, Hungary was one of the firsts to reform its municipal system, to introduce rules accelerating the decentralisation process.

Since 1990 the state administration was decentralized leaving a great deal of autonomy to the local self-governments.

In Hungary, the public and private sectors are no longer separate. Due to their increasing deficit caused by vanishing state subsidies and privatisation, municipalities have been forced to involve the private sector into their investments.

The biggest challenge of the coming years is whether municipalities will be able to meet the requirements set by the private sector, and whether the state can speed up the reforms that are still needed to make municipalities creditworthy.

The investments of the municipal sector

There is a big gap between the environmental and infrastructural situations of the current and future member countries of the European Union. In order to reduce this gap, according to the co-operation agreement with the EU, Hungary has to improve its infrastructural and environmental situation. According to conservative calculations, in the environmental sector alone some 6,8-7,6 billion euros will have to be spent in order to solve the problems (Kerekes – Kiss [1998] pp 23.).

On the other hand, it is not only the EU that urges these improvements. They are necessary in order to avoid future environmental problems, and the level of services is not sustainable with the current physical infrastructure. The

decentralisation process also pushes local governments to make these developments.

Sources of investments

In an investment process an important question concerns the financial sources. When talking about investment financing sources, the first one that financial officers usually think of is the “cheapest” one -- the central or regional subsidy. Next is the municipality’s own revenues that are available in the budget (income from privatisation), then subsidised loans, and finally, market loans. The involvement of the public sector as partners in financing is also more frequent.

Some municipal infrastructure investments in the long term generate revenue directly through service fees (such as water and sewage investments) while others contribute to local development (such as road investments). As a consequence, infrastructure investments should be financed from loans (Bird - Tassonyi [2001]).

Municipalities and the credit market

Even in countries where municipalities are free to participate in credit market transactions, the central government might set limits for municipal borrowing. This is needed because the market often assumes the existence of central guarantees of local debt, even where not explicit, which might seriously undermine the creditworthiness of the state. Other reasons for central intervention are: (i) local borrowing raises the cost of capital for the private sector; (ii) the state might compete for the same resources as the municipalities and (iii) it worsens the balance of the central budget.

Among the levers of control of the central level one can identify (i) passive tools (when the limits laid down in different laws prohibit over-spending) and (ii) active tools (when the higher levels of government prescribe an approval process before borrowing).

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The use of active tools for controlling municipal credit market activity is too costly in countries with a high number of local governments. Hungary is an example of such a country, where instead of active tools, the state uses passive control to limit municipal debt. The limit on municipal borrowing is 70% of the municipality's own adjusted current income, which means that a municipality cannot have loans in an amount more than 70% of the difference between its short term income and short term obligations (in a given year).

On the other hand, to some extent the state might support municipal borrowing. The reasons are:

Local borrowing decreases the financial burden on the central budget.

- (i) Local borrowing decreases the financial burden on the central budget.
- (ii) Loans are usually more efficient than grants (the efficiency of capital increases).
- (iii) Municipalities realise improvements from loans that are closer to the needs of citizens as compared to grants.
- (iv) The repayment of the debt can last the whole lifetime of the realised asset.
- (v) Local borrowing provides a good investment opportunity for the local financial market, pension funds and insurance funds.

The Hungarian municipal credit market

Hungarian laws about municipal borrowing leave a great deal of freedom to municipalities, but they do not take advantage of this opportunity.

One reason is that other municipal revenues such as central grants and income from privatisation proved to be enough in the last ten years and the fiscal behaviour of the typical municipal financial officer could be characterised by conservatism. (Barati [1999]). The other reason is that in case there is no state guarantee on municipal debt, then there is a strong market control on borrowing. In Hungary, the state does not repay municipal debt, so municipalities can raise loans if they meet the criteria set by the lender.

Market control over municipal borrowing

Local governments are considered creditworthy when they meet the following requirements:

- Income sources of the municipalities

The most important requirement for local creditworthiness is the existence of a stable income, the amount of which depends on the municipality, and not on the will of the central government or economic cycles.

- Management

The due diligence of local managers should result in their ability to; (i) respond to changes in local market conditions, (ii) recognise problems, (iii) implement alternative solutions to solving problems, (iv) evaluate and compare solutions, and (v) make long-term forecasts. Furthermore, if a bank finances a municipal project, it must thoroughly analyse the feasibility of the project, its liquidation value and the political stability of local management. The situation in Hungary in this respect is very good, because the local government

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sector as a whole operates with surpluses, which means that most of them are following a rather conservative fiscal policy.

- Local politics

Local politicians must often make unpopular decisions (introduction of new taxes, increase of the old taxes), which they must be able to explain. The explanation of why changes are necessary and inevitable could be based on theories of public policy -- e. g. where local taxes are higher, the municipality is able to spend more on public services, increasing the net benefit to the taxpayer.

- Creditworthiness of citizens

In the literature published in Hungary on this subject, this is a question that has not been adequately dealt with. No matter how brilliant the local government policy may be, if the citizens or local companies are not able to pay the taxes and user fees, the municipality will not be creditworthy.

- Trust in the municipality

Based on experience, if the market does not trust the municipality, a bond issue becomes practically illiquid. The good news is when there is no news.

As Hungarian municipalities do not meet the market criteria, they are in a very difficult situation, as the due to the lack of traditional financial sources, but also based on economic rationality, they will have to use loans for their investments.

Municipalities need the assistance of the state to become creditworthy. The central government has two main tasks related to the creditworthiness of municipalities. First, it has to keep its own creditworthiness as high as possible in

order to maintain the creditworthiness of the municipalities and secondly, it has to create the institutional and legal background for municipal credit market participation. Based on international experiences, if we decrease the risks associated with municipal lending, we can help the development of credit markets and as a consequence, the local investments.

The purpose of the dissertation

The dissertation describes the structure of Hungarian municipal finance and the features of municipal investment activity in detail, gives a full picture of the revenue-raising possibilities, and also introduces the opinion of Hungarian and international researchers on the subject. It introduces a regression model that enables governmental decision-makers to assess municipal investment capability based on independent data, such as the amount of municipal loans, the size of the settlement, or the geographical location of the municipality. In the dissertation I also describe an institution that, by encouraging municipal credit market participation, would have a positive effect on investment activity.

The hypotheses to be examined in the dissertation are as follows:

1. Municipal credit market behaviour depends on the size of its budget, its geographical location and the number of inhabitants.
2. Similar municipalities (same group, similar size, and same region) behave in a similar way when investing.
3. Loans play an important role in investments made by smaller municipalities, although their acceptance in the credit market is low.
4. Municipal investment behaviour is predictable if we know the municipality's location, its tax base, its borrowing, and its budget.

THE METHODS OF RESEARCH

Literature analysis

The background of the research includes studies written by researchers at the Public Policy Department of the University of Economics and Public Administration, the outcomes of international projects such as the Subnational Development Program,¹ and international public policy literature from recent decades.

Data analysis

In 1995 the Social Research Institute (TARKI) started to develop a database on municipalities. It is based on a questionnaire sent out to each municipality every year. The average response rate has been about 35%. The data were weighed based on the municipal data of the Central Statistical Office (regional, settlement type and population) so that they represent the whole country. The first three questionnaires were almost identical and did not include questions about economic expectations. In 1999 and 2000 the revised questionnaires included questions about municipal budgets and economic expectations, making it possible to analyse the changes in the answers from one year to the next. Accordingly, this dissertation uses the data of 1999 and 2000, when the author also participated in designing the questionnaire and analysing the answers.

¹ A collaboration of the Canadian Urban Institute, the World Bank, the British Know-How Fund, and the Open Society Institute.

Modelling

With the help of factor and multivariable regression analysis my goal was to reveal the interdependence structure of the variables, and to reveal what kind of relationship exists between dependent and independent variables.

The regression equation provides an efficient tool in investment policy, as its determinants show which variable has a greater effect on the value of investments. As a consequence, investment-enhancing programs can be customised for specific regions, taking into account those areas for which the central subsidies would not produce results. In the latter areas, the state will have to develop special programs to enable those regions to use the grants effectively.

Municipal data has not been examined this way in Hungary before.

THE RESULTS OF THE RESEARCH

The descriptive analysis

Investments

The most common types of municipal investments are water, sewage and road improvements. Less money is spent on healthcare and gas investments. The planners of water and sewage treatment plants are mostly municipal associations.

Municipalities were asked why they form associations and why they remain outside associations.

While 52% of municipalities agreed that assets are easier to operate through associations because the continuous financial burden is lower, more than 70 % of them agreed that associations are more successful at grant applications than single municipalities and that the starting costs of the investments are lower.

The sources of investments

The most common sources are regional grants, targeted grants and other centrally allocated grants. Other sources, such as privatisation revenues, international grants, involvement of the private sector or loans do not play an important role in municipal financing. This can be explained by the following facts. Municipal co-operation with the private sector is not widespread, although it is getting more frequent. Municipalities are not able to raise funds on the credit market and, furthermore, they do not have experience in developing successful applications for international grants – and they are not able to provide the necessary matching part of these grants either.

Conditions of loans

Municipalities were asked about the amount, term and interest of their loans in 2000. They said that the amount of loans increased, the interest rate became lower and the term got longer.

The guarantees of municipal loans in most cases are immobile assets. This is a highly criticised practice of the Hungarian municipal credit market. On the one hand, the value of the asset often surpasses many times the amount of the

loan, and on the other hand, involving an asset into the financing of a project, to which it is not otherwise related, is not economically efficient.

Other options for backing municipal loans include the tax or service fee income of the municipality. Using taxes for guaranteeing loans is more frequent than the use of fees, although the latter would be ideal for that purpose. First, they are directly related to the project and second, their flow can be synchronised with the repayment structure of the loan. Moreover, in case a municipality would need to increase the financial resources for loan repayment, raising fees is normally easier than raising the level of municipal taxes.

Multi-variable data analysis

I used the data from 2000 for the analysis.

First, I grouped the municipalities in order to create the appropriate sized units for the analysis. Choices for the grouping variable were the region (or other smaller territorial unit) or the size of the municipality.

“One specific characteristic of regional development policy – as opposed to the macro-level policy - is that it emphasises the advantages of the different levels of intervention. Different needs can be articulated at macro- and mezo-regional levels, at county and micro-regional levels. This means that for the implementation of regional development programs or policies we have to find the adequate regional level from the above possibilities.” (Csatári, [1996] (translated by the author))

As a basis for research, the level of settlements is not adequate due to the fragmentation of the settlement system. At the other end of the scale, research at the national level would not allow an examination of regional differences.

After examining the possibilities, I decided to create models for (i) the regions, (ii) the groups created based on the size of the municipalities, and (iii) the development groups of micro regions.

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I wanted to analyse the effects on the investment rate of the following variables:

In 2000

- The sum of current revenues;
- The amount of normatives;
- The amount of the business turnover tax and the tax on tourism;
- The amount of the communal tax and property tax;
- The investment revenues;
- The privatisation revenues;
- The revenue from financial investments;
- The amount of state investment subsidies;
- The amount of current expenditures;
- The amount of investment expenditures;
- The long term loans;
- The sum of loans.

These are numeric variables, the basic requirement of regression analysis. The other requirement of the analysis is that the variables should not correlate (or the correlation should be as small as possible, as zero correlation is very rare in reality). After examining whether the variables correlated, I decided to leave out several of the variables from the analysis because of the level of correlation.

The variables remaining after the correlation test are as follows:

In 2000

- The revenue from the tax on tourism and from the business turnover tax (the local tax revenues);
- Central investment subsidies (state subsidies);
- The amount of long term loans (loans).

When evaluating the results, we take into account the values of the F-test that serves for checking the correspondence the model, and the values of the T-test, that is for checking the parameters of the equations. Another important element of the examination of the model is checking the R^2 , which is the explained deviation.

The regression equations

In the five micro regions' groups and in the seven regions the significance level of the F- and T-tests are above 0,05 in several cases, and the value of the R^2 is too low.

In the groups based on the population of the municipalities the significance levels are below 0,05 (even 0,01) in most cases, so the zero hypothesis of the regression analysis, according to which there is no relationship between the independent variables and the dependent variable, does not apply.

The regression equations in the groups based on the number of population of municipalities are as follows:

X_1 = business turnover tax and tax on tourism

X_2 = central investment subsidy

X_3 = loans

I. Municipalities with a population below 1000 (N= 513)

$$Y = 0,17 - 0,0021 * X_1 + 1.89837E-04 * X_2 + 0,007 * X_3$$

II. Municipalities with a population between 1000 and 2000 (N= 248)

$$Y = 0,156 - 9,16E-06 * X_1 - 4,995E-05 * X_2 + 0,003 * X_3$$

III. Municipalities with a population between 2000 and 5000 (N=173)

$$Y = 0,15 + 8,3E-04 * X_1 + 0,001 * X_2 - 0,002 * X_3$$

IV. Municipalities with a population between 5000 and 10000 (N=93)

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$$Y = 0,22 - 9,94E-04 * X_1 + 4,06E-04 * X_2 + 0,001 * X_3$$

V. Municipalities with a population between 10000 and 20000 (N=32)

$$Y = 0,13 - 8,71E-05 * X_1 + 7,12E-04 * X_2 - 1,77E-06 * X_3$$

VI. Municipalities with a population between 20000 and 50000 (N=19)

$$Y = 2,29 - 4,83 E-05 * X_1 - 3,17 E-04 * X_2 + 2,29 * X_3$$

VII. Municipalities with a population between 50000 and 100000 (N=11)

$$Y = 0,23 + 5,77 E-05 * X_1 - 0,001 * X_2 - 4,24E -04 * X_3$$

VIII. Municipalities with a population above 100000 (N=10)

$$Y = - 0,13 + 8,35 E-05 * X_1 + 6,18 E-05 * X_2 - 1,74 E-05 * X_3$$

The above results show that the three chosen parameters have a significant effect on the investment activity of the municipality. This means that if the government wanted to raise the investment level in the smaller municipalities, it can do so by changing one or more of the independent variables (the local tax policy, central subsidies, and loan activity).

The effects of the change of the variables are different in the different groups. In municipalities smaller than 10000 inhabitants, the independent variables explain 25-50% of the deviations of the dependent variable, while in the bigger municipalities, they explain as much as 80-90%.

As a consequence, when the extent and the direction of the effect of the independent variables are examined, we can see that municipalities below and above 10000 inhabitants should be distinguished. The rise in the amount of local taxes and central subsidies usually means a rise in the investment rate in both groups. The loan activity has different effects in the case of smaller municipalities and in the case of bigger municipalities. While in the smaller municipalities the rise in the amount of loans means a rise in the investment activity, in the bigger municipalities the result is just the opposite. If a

municipality has more loans, it is more likely that it will have a lower investment rate.

The reasons are (i) the difference among the financial resources available to the two groups, (ii) the preferences of the central subsidy policy and (iii) the expenditure structure of investments.

- Bigger municipalities usually have more income from the business turnover tax than smaller ones and they also have the opportunity to co-operate with private companies in infrastructure projects. These options are not available for small municipalities, meaning that smaller municipalities have to take out loans in order to substitute for these sources of financing.
- A minimum requirement for receiving state subsidies for investments is a population served by the asset of a minimum of 10000 people. The big municipalities easily meet this requirement, while the smaller ones have to form municipal associations, which takes time and energy. (As the population of 65% of municipalities is below 3000, many municipalities have to co-operate with at least two other partners.)
- Big investments have high fixed costs, which put a bigger burden on the budget of a smaller municipality. Thus, when smaller municipalities start investments, they are more likely to have cash-flow problems, and may have to take out loans later in the project for financing other municipal tasks.

The municipal loan guarantee institution

Based on the conclusions of the research, municipal investment behaviour depends mostly on the size of the municipality, and in 95% of municipalities there is a positive relationship between the long-term loans of the municipality and its investment rate. This means that the creation of an institution enhancing municipal credit market activity would also have a positive effect on municipal investments. The setting up of this institution is in the interest of municipalities, banks with municipal clients and the state itself.

The most important characteristic of the guarantee institution is mutuality. Co-operation between municipalities creates stronger actors in the market than they would comprise separately, if they acted individually in the marketplace. As a consequence they could negotiate better loan conditions.

A highly criticised element of lending activity is the fact that collateral for loans may consist of immobile assets not directly related to the purpose of the loans. One advantage of creating the municipal guarantee institution is that these municipal assets could be used for other purposes or could be sold. Although in the past one trend was to create entrepreneur municipalities, this has lately been criticised, because municipal enterprises are often too risky, and they take away the municipality's capacity from obligatory tasks, making its operation less efficient.

Based on international experience a two-level system would best serve the enhancement of municipal credit market participation. The first level would consist of the guarantee institutions of municipalities, while the second level would be a state counter-guarantee fund.

The task of the guarantee institutions would be to guarantee the loans of member municipalities.

The state guarantee fund would stand behind the guarantee institutions. This is in accordance with the international practice, and Hungary also provides a positive example, as the Small Entrepreneurs' Guarantee Fund functioned this way. This is also in accordance with EU rules, as it is possible to get financing

from the Structural Funds for the purpose of establishing and replenishing guarantee funds of the member states.

The assets of the fund would not be divided among the guarantee institutions, but its balance would be calculated based on the accumulated need of the member institutions.

The state counter-guarantee fund would be owned by the state.

The guarantee institutions would be owned by the municipalities and others, such as the state and representatives of the banking sector. The advantage to municipalities to participate in the institution is a high level guarantee on their loans. The banks' interest is to enforce safe lending and guarantee rules that harmonise with their business policy, and the state's interest is to manage risk and minimise the losses of the guarantee fund. In order to enhance municipal ownership, the guarantee service would be offered only to the member (owner) municipalities.

No matter what form this institution will take, it will only be a tool for mobilising the Hungarian municipal credit market. It will not be able solve the investment financing problems of small municipalities by itself.

In order to solve the infrastructure development problems of small municipalities, the state needs to make complex projects that involve the improvement of the revenue raising capacity of municipalities, that help in pre-financing of municipal infrastructure projects and that provide an incentive for enhanced municipal co-operation. The municipal guarantee institution could only be a step, an important tool in the realisation of this state program.

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