SUMMARY OF THESSES

Marianna Miklós-Molnár

to the Ph.D. thesis entitled

Providing Additionality in Municipalities

Supervisor:

János Lukács, Dr., CSc
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Budapest, 2012
Department of Financial Accounting

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1. Research background

1.1. Setting out research objectives

One of the possible ways to reduce development differences for member states who have joined the European Union in or after 2004 – such as Hungary – is to efficiently use the full scope of regional policy instruments. In the micro approach, this implies that beside a noble project objective and intention to provide assistance, potential beneficiaries shall also possess adequate resources.

The research focus is laid on the relationship between the use of EU funds and the principle of additionality. In my thesis, I apply a multi-aspect theoretical approach – as overview – as well as empirical methods to examine the relationships which can be drawn up between the use of funds, the self-contribution needed for implementation, borrowing and indebtedness.

However, to study additionality, I had to determine a micro level analytical unit which can be well interpreted from the perspective of both the theoretical and the practical part of the research. On one hand, I sought to select analytical units which have brought about much criticism in literature; on the other hand, reliable data – primarily related to accounting – is available. Since in respect of additionality, municipalities are regarded as some kind of bridge between local and government level, I decided to choose local municipalities in Hungary.

The thesis is of a multi-disciplinary nature as various ideas from the fields of regional policy, economic policy and accounting are discussed.

I hardly found examples similar to my research in the international literature – most probably due to the disparities in the use of EU funds, local governance, the regulations on borrowing and the mix of these. The time frame to be studied in the empirical research was set out as the period of the National Development Plan – i.e. the 2004-2006 programming period –, which is primarily due to my priority objective to support my hypotheses set up using multivariate data analysing techniques, based on reliable databases.
1.2. Basic principles and the interpretation of additionality

Basic principles and requirements regarding procedures and financing interact with each other; however, their relations vary in each member state – according to state of the country’s public administration system. The following figure presents a possible interpretation of the relations among the basic principles in Hungary.

According to the principle of *subsidiarity*, the European Union provides assistance through the tools of Community structural policy, i.e. beneficiaries have autonomy and responsibility. Funds shall be used for the achievement of objectives which cannot be met through own resources; in addition, assistance is of a complementary nature, i.e. it does not substitute national, regional or local developments. (Szegvári 2002)

The principle of subsidiarity is in close connection with the principle of *decentralisation*, according to which, the strengthening of instruments available for local and territorial decision makers shall be sought; nonetheless, in the case of areas where implementation is not sufficiently efficient at local or regional level, an integration function arises. The adequate
extent of the decentralisation of competences is the level (local, regional, national) at which autonomy – either directly or through elected representatives – is yet efficiently achieved.

In accordance with the requirement of concentration and decentralisation of the use of funds, in line with the principle of subsidiarity, objectives shall primarily be determined and related resources be distributed at the local level; at the same time, it is reasonable to concentrate resources along jointly developed priorities and on the regions that are the most in need in order to achieve efficiency. The requirement of multichannel financing sets out that Community funds shall be provided in a concerted way; however, payments may be made through several channels simultaneously.

The requirement of additionality is to be interpreted in line with subsidiarity: through the involvement of local resources – in Hungary through meeting the requirement of self contribution– it can be ensured that the contribution principle is met, i.e. assistance serves as complement to the realisation of a project or development programme. In this way, support is provided by the government, whereas local and regional territorial development programmes are not exclusively financed from the central budget. On the other hand, additionality may be regarded as the role of a catalyst: in this sense, Community assistance complements the share of the member state and thereby reduces the time needed for development. (Kende, Szűcs 2002)

1.3. Hungarian municipalities and additionality

To support the study of the principle of additionality, I included a detailed description of the characteristics of the municipal subsystem in my thesis, from the end of the socialist regime to the present time.

In the transition period, the evolution of local governance formed an integral part of transition; every settlement regardless of its size and location was granted the right of local self-governance. Equality also appeared in the allocation of responsibilities and tasks – regardless of the size and administrative capacities of settlements. (Pálné Kovács 1997) Since the right of self-governance has been granted to the level of settlements and is thus fragmented, a disintegrated system has evolved instead of municipal integration, and the one settlement one municipality model has been realised. (Vigvári 2009) ( Báger and Vigvári, 2007) However, the unlimited freedom of decision has already implied the threat of financial
imbalance from the beginning, including a possible increase in development differences between settlements. (Jókay et al, 2004), (Homolya-Szigel, 2008)

As compared to the extended tasks of municipalities after transition, they were typically underfinanced; moreover, aspects of economies of scale could not be fully applied, especially in the case of large capital investments. (Pickvance 2002) (László, Szabényi 2010) (Bennett 1997) Studies analysing the period after transition (Straussman, Fábián 1994) do not even mention borrowing as a possible way of raising funds; nonetheless, they draw the attention to the potential threats of overly flexible rules regulating municipal borrowing, even if indebtedness was not typical yet. (Bird, Wallich and Péteri 1995)

At the beginning of the 2000s, municipalities performed more and more public service tasks – also in international comparison –, as a result of which, they were not able any more to provide for the coverage of investments from current budgetary revenues. (Jenei, Szalai 2002), (László, Szabényi 2010) Budgetary balance can only be achieved through raising additional funds, which typically leads to borrowing for the purpose of covering the deficit in the current or capital budget. (Vigvári 2009)

According to the golden rule, budgetary deficit should only be brought about by investment expenses. In this respect, one shall not obtain long-term loans exclusively for the purpose of covering current expenses, which in fact is consumption brought forward from the coming years; borrowing is only acceptable if it is used for covering investment expenses the concentrated fund needs of which would be excessively burdensome for the implementing generation, or would prevent the investment from being realised. (Vigvári, 2011)

With Hungary’s accession to the European Union, access to funds have been opened; and it was considered an advantage in respect of the municipalities’ potential to receive funding that regulations had been set up for the cases of both borrowing and insolvency, and that indebtedness of the municipal sector in the mid-2000s was not typical yet.

Nevertheless, significant investment needs had accrued in the Hungarian municipal system – creating severe overburden for municipalities (László, Szabényi 2010) –, which brought about an increase in operating costs on one hand; and on the other hand, the capital needs of investments could not be / could only partially be covered from current revenues. (Bende-Szabó, Gábor 2004), (Vigvári 2005) In order to cover arising investment needs from EU funds, however, the proportion of investment expenses had to be raised to provide for
additionality. Increasing the amount of own-source revenues and borrowing served as the main tools for improving the absorption capacity. (Kopányi, Vigvári 2003) (Pitti 2003)

Indebtedness of municipalities is atypical (Vigvári 2009) since loans received after 2006 are partly used as reserves (Homolya-Szigel, 2008) or for arbitrage operations. Part of the issued bonds have covered the operating deficit, another part has been accrued as reserves – to be used for financing later investments –, and only a smaller part has actually been used for investment reasons. (Vigvári, 2009), (Dankó and Lóránt, 2010) Domestic studies do not share a uniform opinion on indebtedness: According to Vigvári, the process of resorting to debt has not yet shown any relationship to the absorption of EU funds and there is no direct relationship between approved projects and the issuance of bonds either; thus, in his views, the golden rule is not / only partially valid.

In contrast, studying the macro-economic relationship between resorting to debt and the use of EU funds, Banai concludes that a high determination coefficient (of 0.8) can be shown between the level of state budgetary deficit and development expenses; which means that the deficit level is substantially influenced by the level of additionality expenses. (Banai 2008)

Accordingly, the following questions arise: What has brought about the surge of borrowing if it can be connected nor with investments, neither with operating costs? How does that fit with the golden rule? How can additionality be provided in the case of municipalities?

2. Description of applied methods

2.1. Steps of the research

In my research, I applied an inductive → deductive → inductive approach. As a first step, I studied the databases which are available in this domain, thoroughly reviewed their data content and attempted – based on a more restricted data set¹ – to assess the relationships in them. Secondly, I started my own theoretical research with a thorough study of international and domestic literature; then, as a complement, I conducted deep interviews with economic experts employed in municipalities, auditors, and staff members of the Hungarian State Treasury and the National Development Agency. These interviews were primarily aimed at

¹ In the framework of the course entitled Mathematical-statistical methods of multivariate data analysis of the Doctoral School, I studied the budgetary reports of municipalities of 2004.
revealing relationships and cannot be considered as structured deep interviews; however, they provided useful hints for the drawing-up of hypotheses.

In the course of the entire research, my priority objective was to set up hypotheses which can be adequately supported using mathematical-statistical methods. Multivariate data analysis and statistical procedures applied for testing the hypotheses were planned and conducted using the SPSS18 software. Applied methods are presented in more details one by one for each hypothesis.

2.1. Databases used

In connection with my research, I studied three Hungarian databases, the data contained in which separately are not, but together are sufficient for the empirical testing of my hypotheses. Before combining the three databases, I studied each part separately in order to set aside variables irrelevant for my research – already before the databases are combined. In this way I avoided the further unjustified enlargement of the database – which contained thousands of variables anyway.

Database of the Central Statistical Office

The greatest advantage of the settlement statistical database of the Central Statistical Office is that units of observation for the purposes of the research are fully identifiable, the number of units of observation equals to the number of settlements with local government; furthermore, data related to each year concerned (2004-2008) are available in a uniform structure. The database operates with more than thousand variables on the whole, a significant part of which does not directly relate to the property, financial and income conditions of municipalities, neither to their indebtedness and to the extent of EU funds received. Bearing in mind the research objective, a significant restriction of the range of variables seemed necessary. The database is considered complete since it includes data related to each locality in Hungary. Access to the data was provided via the Central Statistical Office website. (http://statinfo.ksh.hu/Statinfo, accessed: 13 October 2011.)
**Unified Monitoring Information System (UMIS) of the National Development Agency**

Data related to each project co-financed from structural funds are available in UMIS. Since the system monitors the entire lifecycle of projects from the submission of the application to the end of the maintenance period, sufficient information related to both the project content and financial processes is available.

Following a discussion with the National Development Agency, the entire database was made available for my research, with data content fitting the research objectives. The database contains all projects in relation to which payments were carried out in the 2004-2006 programming period between 2004 and 2008; thus, it is considered complete. The database contains numerous variables from which, the payments carried out in the period between 2004 and 2008 in relation to each municipal project are the ones primarily relevant for my research.

**Database of the Hungarian State Treasury**

In line with the Hungarian legislation in force in the research period (2004-2008), municipalities are obliged to submit their reports to the competent body of the Hungarian State Treasury in whose territory they are located every year. The report consists of 80 forms altogether, which describe the property, financial and income conditions of the municipality. In the period covered by the research, the Hungarian State Treasury collected the information yearly; the database is complete and contains information related to all municipalities in a uniform structure.

On the other hand, the scope of the research is limited by the fact that no information is available on the quasi-fiscal sector of municipalities (Vigvári 2010), meaning that reports of municipalities do not cover – either in a consolidated way or separately – the property of companies owned by municipalities and related requirements for owners of these.

Bearing in mind the intention to reduce the above risk, as a first step, from among the 80 forms, I selected the Accounting balance (form No. 01) and the Budgetary report (form No. 80). The variables included in these forms provide consolidated information regarding municipal property and (having a look at multiannual data) its development on one hand, and on the other hand on the revenues and expenses structure of municipalities. Research was made more difficult by the fact that the structure and information content of both forms was – though slightly –modified and extended in the research period.
The overly high number of variables would have made the empirical research significantly more difficult; therefore – prior to combining the three databases –, the number of variables was reduced partly based on professional arguments and partly using mathematical methods.

In the course of my research, I did not consider it justified to draw up my own survey, taking into account that the range of information needed for empirically supporting my hypotheses are included the databases of uniform structure on their own, described above.

3. Hypotheses, examination method and results achieved

The link between the use of EU funds and municipal financial management is provided by the additionality requirement meaning that municipalities as potential beneficiaries shall possess adequate own resources. What kind of resources serve as basis for own contribution to be raised? What kind of relationships can be drawn up among borrowing, indebtedness, own-source revenues and European Union funds?

**H1: The golden rule is not applied in Hungary: municipal borrowing is not exclusively used for covering investment expenses but partly for financing current (operating) costs.**

Accordingly, my first hypothesis exclusively focuses on the application of the golden rule; it does not affect EU funding or its relationship to borrowing. It is already stated in domestic literature (by Vigvári) – based on multidirectional theoretical analysis and descriptive statistical methods – that the golden rule is not applied in Hungary. Thus, in this respect, I do not consider Hypothesis H1 of my thesis as an entirely novel theoretical result.

However, in the course of the empirical testing – using a descriptive equation – I verified that the development of municipal borrowing can be linked to changes in the stock of financial instruments, in the investment balance and in the operating balance. This means firstly that through empirical testing I confirmed the theoretical analysis according to which borrowing is aimed at three main objectives: promoting investments through investment expenses, financing the operating balance deficit and – partly – savings. As a second step of empirical testing I verified that the estimation equation is not valid if we disregard operating balance; accordingly, municipalities do use part of the loans obtained for operating objectives. In the course of the empirical testing, I operationalised the term *borrowing* in two different ways. In the narrower sense, short-term and liquid loans were not included in the interpretation, while
in the broader sense they were. Based on empirical results, both the narrower and the broader approach proved to be valid; thus, I consider Hypothesis H1 confirmed.

Taking into account the results of testing the hypothesis – inter alia – I agree with domestic researchers (Vigvári) that resorting to debt of Hungarian municipalities is atypical and that a comprehensive state budgetary reform is needed in order to ensure that processes and financial management methods are transparent and accordingly, results are adequately measurable. Unfortunately, the empirical part of the research made me face the lack of consistence in the data set available – talking about reports prepared by municipalities in particular – and the fact that available data is not complete, the reports do not provide us with a full picture of property, financial and income conditions as well as future liabilities and items not included in the balance sheet of municipalities.

In the second group of hypotheses, my main objective was testing investment expenses, EU funds and additionality.

**H2: European Union funds are a determinant factor for municipal investments: a positive correlation exists between renovation and investment expenses and EU funds received.**

With Hypothesis H2, I verified in several steps that European Union funds play a determinant role in municipal investments. Pearson correlation between the two variables is high; however, this alone does not yet substantiate the existence of causality between them. In order to substantiate the hypothesis, I examined the variable of average per capita investment in relation to settlements that received and settlements that did not receive EU funds. When testing the hypothesis, I selected population as the criterion to define strata; through defining strata I mitigated the effect of the determination of population as underlying variable. Based on the results obtained, it can be clearly stated that per capita investment and development expenses are higher in the case of settlements with than in the case of municipalities without EU funding in each stratum. I tested the significance of the difference using the t-test and the Welch test, as a result of which I concluded that – disregarding settlements with less than 200 inhabitants – difference is significant; thus, I can consider Hypothesis H2 approved.
On the whole, this hypothesis could serve as basis for assumptions such as EU funds affect municipal development. Staying within the framework of my present research, I refrain from stating this taking into account that per capita investment and development expenses – presumably due to economies of scale – show a downward trend in the case of large cities. Nevertheless, the hypothesis verified as part of the present thesis – completed with macroeconomic analysis tools – may serve as basis for examining whether developments and investments are carried out in an economical way.

Having confirmed Hypothesis H2, I had to find an answer to the question how municipalities meet the requirement of additionality. The relationship between development, financing and the own-source revenues of municipalities is to be studied.

**H3: The additionality rule applies for municipalities: a positive correlation exists between the sum of own-source revenues and the financial balance and the EU funds received.**

The hypothesis is aimed at testing the applicability of additionality in the case of municipalities. Using the Pearson correlation test I verified that a strong positive correlation exists between the EU funds granted to municipalities and the municipalities’ own-source revenues and financial balance no matter if we break it down according to NUTS1 statistical large regions, NUTS2 regions or NUTS3 counties; thus, **Hypothesis H3 is considered approved.** Accordingly, the hypothesis verifies that the principle of additionality applies at the level of municipalities in Hungary; however, I did not get an answer for the question whether there are relationships existing between EU funds and the increase in the liabilities of municipalities and if yes, what kind of relationships these are. Based on the results of the theoretical research, Hungarian municipalities are clearly characterised by the trend of resorting to debt; therefore, I narrowed this hypothesis to the increase in liabilities.
H3.1: The use of EU funds leads to indebtedness: a positive correlation exists between the increase in the liabilities of municipalities and EU funds granted.

As the indicator of indebtedness of municipalities, I selected the increase in liabilities defined as the difference of the 2008 closing value and the 2004 opening value of stock-type data in the balance of municipalities. As part of the empirical research, I applied a threefold approach: firstly, using the Pearson correlation test I examined the relationship between indicators related to liability and the EU funds granted; then, I used principal component analysis to find out which indicator belongs to the same factor as EU funds granted. As a third step, I conducted a cluster analysis to review which indicator gets onto the same branch as EU funds. The analyses were carried out in a breakdown by counties because the exploratory analysis\(^2\) led me to the conclusion that the relationship differs by county. In the case of 16 counties, the hypothesis can be clearly approved, in the case of further 2, it cannot be clearly rejected; however in the case of Pest county, it does not apply; thus, I **consider the hypothesis approved if narrowed to the convergence regions, while rejecting it for the region of Central Hungary.**

The third – narrow but very complex – group of my hypotheses is constituted by concepts aimed at finding the causes underlying the receipt of funds and relationships between them.

H4: The size, location and revenue structure of municipalities are factors which together determine the use of EU funds.

As a first step of testing Hypothesis H4, I used linear regression to create a country-level estimation function. Then I created further estimation functions with different territorial breakdowns, which made a more precise estimation of the extent of funds granted to municipalities possible. The range of variables involved in the estimation function as a result of the linear regression is not the same, which – in accordance with Hypothesis H3.1 – leads to the conclusion that geographical location and revenue structure are determinant. As part of the empirical research, I could establish that the size, geographical location and revenue structure of municipalities are determinant for the use of EU funds; accordingly, I **consider hypothesis H4 approved.**

\(^2\) This can actually be considered as the 0\(^{th}\) step of the empirical research.
Although it is not affected by the scope of my present research, it would be useful to study the reasons why spatial location is so much determinant in respect of the variables involved; what underlying causes are there behind the different estimation functions. Beyond the original hypothesis, the estimation could also be applicable with the involvement of other variables; however, empirical testing must be preceded by further theoretical research.

Hypothesis H4 – consequently – leads us to Hypothesis H5, according to which:

**H5: There is a group of municipalities defined according to size, geographical location and revenue structure in which the use of EU funds is not typical.**

I performed the testing of Hypothesis H5 in logistic regression, using multiple methods, involving the same variables as in the case of Hypothesis H4. I consider it as a surprising result that multivariate data analysis methods could not provide results beyond the trivial descriptive statistical outcome – according to which, EU funding for municipalities is not typical in the case of settlements with less than 200 inhabitants –; therefore, **I rejected the hypothesis in its original form.**

On the other hand, it cannot be stated either that there is no group of municipalities defined according to size, geographical location and revenue structure in which the use of EU funds is not typical. In the course of the analyses, it was found that the fact of the receipt of funds had occurred relatively rarely in the case of the municipalities of the smallest settlements in the 2004-2008 period; while in the case of large cities – not surprisingly – the municipality of almost all settlements had received EU funds. Based on this, trivial substatements can be proved; however, apart from the two cases – which can be considered as relatively extreme – I was not able to draw conclusions which would be applicable for most settlements.

Since the original hypothesis was related to a variable which took on two values (either *receives funds or does not*), it seemed that other multivariate data analysis techniques – such as cluster analysis – could only be applied restrictedly. Accordingly, as a first step, another hypothesis should be drawn up which is different but similar in content and can be tested with multivariate data analysis methods other than logistic regression. One such way could be if – based on the descriptive statistical results and the unsuccessful results of logistic regression which were drawn up as part of the present research – we redefine the original hypothesis to
relate to settlements with a certain number of inhabitants (e.g. under 500 persons), and test it with other multivariate data analysis tools.

In respect of Hypothesis H5, it should be taken into consideration that the research period is crucial: in the present research, data of the 2004-2008 period were taken into account, while in the 2007-2013 programming period currently in progress, due to the increased amount of resources, the range of settlements the municipalities of which do not receive funds at all is expected to get narrower.

4. Conclusions and further research directions

Possibilities for research directions if interpreted in a narrower sense, for Hungary

When testing the hypotheses empirically, the present research focused on the years 2004-2008 both in respect of EU funds and the reports of municipalities. In the case of most hypotheses – in order to mitigate cyclicity between years – I either interpreted the data in a consolidated, cumulative sense or as the difference of the closing and opening value of the research period. On the whole, I got to the conclusion that time can be a crucial determinant in respect of the variables under examination.³

When the 2007-2013 programming period is closed, the empirical results of two funding periods will be available. Knowing the data of the 2004-2013 period, one could well depart from the methods applied in the framework of the present thesis: trend detection and time series will become possible ways of conducting research in the domain of EU funds. After the current programming period is closed, it will be possible not only to study the 2004-2013 period as a whole but also to compare the two programming periods, i.e. to examine processes in respect of the 2004-2006 and the 2007-2013 period in a separated way. Beyond classic time series analysis, one can create estimation functions that are reliable in the statistical sense; however, this needs rather large resources. As a simpler option, the present research can also be repeated for another period of time, as some kind of panel review.

During my research I found that geographical location as well as the stratification of settlements according to different aspects can also prove to be a crucial determinant. Taking this into account, other criteria to define strata could be developed – both in respect of

³ An example is the surge in the number of bonds issued by municipalities at the end of the research period.
geographical location and size; moreover, the rank of settlements could also be taken into consideration.

A broader interpretation of research directions

For the purposes of the present research, I used a narrowly defined interpretation of additionality; and disregarded the examination of not only the central level but the entire private sector; however, I had good reasons to do that.

In the first phase of my research, I reviewed the diverse set of theoretical approaches in details through studying relevant international literature, and unfortunately, I was unable to find any comprehensive studies starting from the micro level and heading bottom-up that would have been aimed either at the efficiency of the measuring of funding, or at the provision of additionality.

I think my research could lead to numerous further directions even if we stay within the narrowly defined domain of additionality: first of all, the study of additionality in Hungary can be extended to the governmental sector, and to non-municipality beneficiaries, by which term I primarily mean small and medium-sized enterprises and non-governmental organisations operating in the private sector.

The study may also be extended starting from Hungary and shifting the scope of the research towards other EU member states: the issue of additionality could be studied both at the level of beneficiaries and at governmental level in other member states, either in countries that have joined the EU together with Hungary or in the entire territory of the Union. Scope of the examination could comprise specific countries, while a comparative study could also be conducted. Obviously, the scope such a comprehensive research should not be reduced to the narrowly interpreted examination of additionality but would be extended to the application of the rest of the important principles. In addition, beside the comprehensive study of basic principles, the in-depth economic analysis of each member state is also a necessary component of such an extensive research considering that the social, economic and political conditions in Europe are rather diverse.
5. Main references


6. Relevant own publications

Journal articles, studies, book section


6. Uniós támogatások ellenőrzése. E-learning material, Nemzeti Tankönyvkiadó, Budapest

Presentations:

7. XVIII. Országos Könyvvizsgáló Konferencia, 15-17 September 2010. Költségvetési Szekció
Presentation title: Uniós projektek ellenőrzése és könyvvizsgálata
http://www.mkvk.hu/archivum/kamarai/esemenyek/okk/okk2010

Presentation title: Sampling methods in Hungary
http://www.interact-eu.net/events/challenges_aas/14/4566