Central European University

Department of Political Science

Some Political Economy Insights to Multi-Level Government Financing Mechanisms in Hungary

Analysis of political budget cycles and partisanship in municipal investment activities and central grant distribution

By

Judit Kálmán

A dissertation submitted in partial fulfillment of the requirements for the

Degree Doctor of Philosophy

PhD Defense Committee:
Viola Zentai, Central European University (supervisor)

Attila Fölsz, Central European University (second reader)

Linda Gonçalves Veiga, Universidade do Minho, Portugal

Gábor Péteri, Local Government Initiative Development, Hungary

Budapest, June 2007

To my father, first teacher - with loving memories

TABLE OF CONTENTS

List of Tables

List of Charts

Acknowledgements

It has been a lengthy process to complete this dissertation, thus I am indebted to a number of persons and institutions that facilitated my research in several different ways. Indeed I attended several great courses of excellent professors at Central European University, Budapest and at the Maxwell School of Citizenship and Public Affairs, Syracuse University, NY, USA; been to some enlightening conferences and summer schools, worked on many different papers along the road, which were sometimes further away, sometimes really close to my topic, but all have contributed to this journey in one way or another. For providing support and funding for all these studies and research I want to thank CEU for its PhD scholarship and Travel Grants, the United States Information Agency for the Ron Brown Fellowship to cover my year at the Maxwell School, as well as the Open Society Institute/Local Government & Public Service Reform Initiative where I was Research Fellow for one year and the late Civic Education Program which granted me with its CEE Junior Faculty Fellowship for another year.

But let me concentrate on the people. First of all, I am really deeply indebted to József Hegedüs, former boss, teacher, a kind of master in my first years of professional life, who also acted as my external (sometimes sole) supervisor on this dissertation for quite a while. He was the one who first opened my eyes on how intertwined economics and politics are, how one needs caution and doubt when dealing with such issues, how much more interesting things can come out of interdisciplinary approaches and last but not least I learnt a lot about the realities of Hungarian local government sphere and its financing through working with him – so in a way he inspired this research in a great deal and also provided very useful comments.

Later the political economy and public choice courses of especially Iván Csaba and Róbert Gál, Béla Greskovits, Lóránd Ambrus-Lakatos of the Political Science Department at CEU have given even more inspiration and pushed me further for the political economy field of inquiry. Special thanks need to go for Douglas Holtz-Eakin, whose courses on Public Economics and Taxation I was lucky to attend and get more guidance from him while at the Maxwell School.

I want to thank Balázs Váradi (then of CEU, now Prime Ministers' Office, Hungary) for taking up the supervisory position at an intermediate stage and putting faith in me and my capacity to finish the first draft of this dissertation against many odds. His encouragement as well as urge and thorough reading were an invaluable asset.

I cannot overstate my gratitude to my research colleague and co-author Anita Halász (then from Corvinus University Budapest, now EU Council, Brussels) for her diligent and great work in putting together this dataset for our common study and also providing invaluable help for me with some econometric issues. Here I need to mention the Hungarian Academy of Sciences Economic Research Institute and especially research team leaders Zoltán Hermann and Jenő Koltai and thank for the opportunity to take part in their research project sponsored by OTKA, the Hungarian Scientific Research Fund – where the *survey of Hungarian city mayors* was conducted. They kindly let me use these survey data as well as the *panel dataset* built from the Regional Public Administration Authority database for my academic purposes.

I am indebted to several colleagues who took the hard - but to me very important - job of reading and commenting on earlier versions of this dissertation and provided very useful suggestions and remarks: Zoltán Hermann, Gábor Péteri, Viola Zentai, Gábor Kézdi, Vera Messing and Levente Littvay. Zoltán, Gábor and Levente also provided invaluable help for me in sorting out methodological and statistical/econometric problems. All the remaining errors are mine.

To Viola Zentai (Center for Policy Studies, CEU) I want to express my very special thanks and gratitude for accepting to be my final supervisor at a very late stage and guide me through the hard, painful, but also promising work that was needed to finalize this dissertation. She was indeed a very efficient and thorough reader with useful comments and ideas, while also provided me with encouragement and enthusiasm that I truly needed in the end.

Last but definitely not least I am immensely indebted to my family for providing me with the patience, loving environment and encouragement and would like to thank for all of them for living through the hard times! My special thanks go to my partner, László Detrekői, my mum and mother-in-law for often replacing me in my motherly role, but I also want to thank my kids Sára and Mira (born in the meantime) for their patience and tolerance.

My very last thanks go to Marie-Josee Sheeks, great friend, for being so efficient with proof-reading my text.

Chapter I. Introduction

It is costly to build a fence or to purchase a chain. It is possible to prove that the no-fence, no-chain solution is more efficient than either, provided that we model the behavior of our dog in such a way that he respects the boundaries of our property. As we put this example from personal experience, the exercise seems, and is, absurd. But is it really very different from that procedure which argues, that tax structure X is more 'efficient' than tax structure Y provided that we model the behavior of government in such a way that it seeks only to further efficiency in revenue collection?
Geoffrey Brennan and James Buchanan (1980:193)

Puzzle

Parallel to globalizing tendencies in organization of economic activities there is a growing number of countries re-examining the roles of government and their partnerships with the private sector and civil society. This rethinking has led to a renewed recent interest in the principles and practices of fiscal federalism, since „federal systems are seen to provide safeguards both against the threat of centralized exploitation as well as decentralized opportunistic behavior while bringing decision making closer to the people" (Shah, 2005:1).

In the European Union, with the return of economic growth after enlargement, institutional reforms and further decentralization are continuing, especially in the new Member States. According to recent data, *local governments have become important players in the economy*: total sub-national (i.e. local and regional) public expenditure has been increasing for many years, along with growing responsibilities transferred from central governments: 1,374 billion Euros total in Europe in year 2005, taking 12,7% of GDP (including federal states the respective numbers are 1,726 billion and 15,9%). Furthermore, *capital investment is an area where sub-national governments take the lead within the public sector*; as they were responsible for two-thirds of all public capital expenditure in 2005 in EU, with 176 billion Euros invested (DEXIA-CCRE, 2006 p. 1.)

However, observation of the first and second generation of literature on fiscal decentralization together with further branches of political economy, e.g. specifically on the political economy of intergovernmental grants and the widening literature on political business cycles makes it obvious that indeed we have a puzzle: ***decentralization is a continuing policy trend –*** however in reality there are downsides, ***institutional, political and other factors that do interfere with decision-making and can increase the chances for inefficient policy outcomes.*** Infrastructure investment finances –at all levels of government – are especially prone to election cycles and corruption; as well, they strongly affect productivity and long-run growth prospects of a country, and indeed are widely used in economic policy.

The major economic argument for decentralization - based on the very first insights provided by Oates - is that it offers the chance to match public services more closely with local demands and preferences, thus there are possible *efficiency gains,* whereas the political argument is to build *more responsible and accountable government* from bottom-up. *However, institutional setup, the lack of some conditions or presence of political considerations might diminish these advantages*. Thus, decentralization is thought to bring a wider scope of functions and a larger room for maneuver in local economic policies as well as operation of services, there are much closer and deeper connections to the electorate hence local priorities should be actively taken into account. Together with economic transition for the transition countries, the increased reliance on market mechanisms in the public sector, changes in the organization, financing and production of public services (along the lines of the New Public Management paradigm and change from government to governance all over) - these all have effects on local budget policies too, as the local government level is not only an important service provider but also an excellent laboratory for innovative solutions.

However, several criticisms of heavy reliance on decentralization have evolved (Prud'Homme 1995, Tanzi 1996, Hommes 1996, Inman-Rubinfeld 1997 etc.), since there is a

basic tradeoff problem involved: decisions that provide greater efficiency being more appropriate to local decisions may not serve best the internalization of externalities, or equity problems – i.e. it brings *coordination problems* which can result in increased disparity across regions and localities, loss of macroeconomic stability and prudent fiscal management, efficiency can be undermined due to a great need for central government intervention ("trap" of decentralization), *insufficient information* can eventually lead to strategic behavior and thus to management problems, scope of corruption within government might be increased by decentralization etc. - as the political economy literature reveals. All in all, *a deeper understanding of the connection between federalism on one hand and economic and political performance on the other is clearly needed.*

Interaction of politics and economics – old and new topic

The idea that political concerns also (or by quite a few political economy scholars solely) play a role in setting economic policy choices is not new – one has only to consider Adam Smith‘s Wealth of Nations or John Stuart Mill’s Principles of Political Economy in the 18th and 19th centuries. The later division of economics and political science into separate disciplines did not help in taking institutional and political factors into account of economic outcomes, but it is true that in the past decades there really has been a boom of interest on these. This is called the “new political economy”, which is not only known from the renewed interest on the interaction of politics and economics, but rather from its way of approaching these issues, and its usage of formal and technical tools, which are typically used in modern economic analyses. Normative economics studies the optimal use of scarce resources, which for public policymaking includes the very crucial assumption of benevolent social welfare maximization, i.e. once we know what the technically optimal policy is, it shall be implemented that way by the policymaker. However *when interests are heterogeneou*s, or even conflicting, or when issues of power come to the picture, the choice of collective

decision making mechanisms can be decisive on outcomes – as Keohane (1984, p. 21) puts it: "wherever, in the economy, actors exert power over one another, the economy is political"[1]. It is the heterogeneity of interests that is the basis of the field of political economy, but this links it together with politics and public choice. As early as in 1977, Lindblom already discussed the conceptual differences between markets and political institutions as allocation devices. Such heterogeneity of interests can appear ex-ante (preferences, tastes, ideological differences over importance of policies) or ex-post (when policies have distributional consequences – who should bear the costs; credibility of policy). Time inconsistency refers to the credibility problem, it is said to arise when the optimal policy announced for t1 at t0 is altered by the policymaker and at t1 eventually a different policy is chosen to better suit his interests; however, time inconsistency is even possible with a benevolent welfare maximizer government. (see e.g. Drazen, 2002 Chapter 4. for more details)

Positive political economy hence states that actual economic policy results might be quite different from those predicted by conventional normative economic theories, precisely for the above reasons. It departs from the benevolent welfare maximization assumptions and explicitly considers policy to be driven by political considerations or subject to political constraints too. These include conflicts of interests and the need to make collective choices in light of conflicts of interests. As Drazen (2002) puts it:

> "Positive political economy thus asks the question how political constraints may explain the choice of policies (and thus economic outcomes) that differ from optimal policies and the outcomes those policies would imply. To put the same point another way, the mechanisms that societies use in choosing policies in the face of conflicts of interest will imply that the result will often be quite different than what a benign social planner would choose." (Drazen 2002:7)

[1] Already public finance scholars Atkinson and Stiglitz (1980, p.298) emphasized the importance of conflicts of interests: „if everyone had identical tastes and endowments, then many public finance questions would lose their significance, and this is particularly true of the behavior of the state. If the interests of the members of society could be treated as those of a 'representative' individual, then the role of the state would be reduced to that of efficiently carrying out agreed decisions".

But it goes beyond mere description and a kind of "theory of second best" emerges that deals with issues on overcoming these political constraints in the existing institutional framework and/or on designing new, better matching political institutions. Hence, a wide variety of topics have been tackled in the new political economy literature, e.g. on determinants of inflation, deficits, taxation, labor market policies, education and social finance, trade liberalization, capital taxation or the transition topic of privatization etc.

To make things clear and understandable to the less experienced reader and also to situate this thesis in the discipline, it is worthwhile to state the differences in related fields of study. For the sake of simplicity, I follow Drazen's description (Drazen 2002:8 – highlights in the text are mine):

> "*Public economics* is concerned generally with the economics of the public sector, meaning how economic decisions of the government affect economic actors. Positive public economics concerns the *effects of tax and expenditure policies* on *individual and firm behavior*. Although positive public economics broadly defined includes political theories of the state, the main focus is on the effect of tax and expenditure policies. To the extent that public economics addresses the question of how tax and expenditure policies are chosen, it is primarily from the perspective of neoclassical welfare economics, that is, taking the government's objective of welfare maximization as given and asking how tax and expenditure policies, rather than direct "command" may be used to achieve the objective of welfare maximization. ... One area of normative public finance is the formulation of simple criteria for government decision-making, but this is not in terms of choosing the objective to be maximized, but of choosing the criteria and methods to achieve the maximum. The question of *how the objectives are chosen, that is how collective choices are made, is the subject matter of public choice*. That is, public choice is concerned largely with studying decision-making mechanisms per se, considering not only the positive and normative aspects of different ways of making collective choices, but also the question of how a society can choose over the set of possible choice mechanisms. Public choice differs from political science, in that it stresses the use of tools of economic analyses to study collective choices. .... Public choice and political economy as defined here are clearly closely related." (Drazen, 2002:8-9)

This thesis rather falls into the political economy field, if such a distinction from public choice can be made (as indeed for many authors by now the two are the same), in that here, a mix of qualitative and quantitative, or 'soft' and 'hard' data analysis tools are used, though the stress is on economic ones. But most importantly, the interest and focus is not on politics or decision-making mechanisms per se, but rather on the effects of politics on economic outcomes.

On of the topics more closely investigated in this thesis, that of political budget cycles, is a clear example of the effect of politics on economic policy outcomes, referring to the idea

that the timing and form of elections, political competition in general might have an effect on economic outcomes, incumbents may try to manipulate economic policy before (and after) elections in order to signal their competence and thus improve re-election chances. Another good example is the different paths, speed and success of reform of transition in CEE former socialist economies, where it is by now understood and agreed on by scholars, that not only different initial economic conditions, but certainly political characteristics, institutional structure, culture etc. played a huge role in different relative performances. (See more on this in e.g. Drazen, Ch. 13.).

Political economy of inter-governmental grants

Decentralization outcomes depend to a great extent on the design of fiscal transfers from the central government – especially in countries where the majority of municipalities do not have access to substantial local own resources. As for the justification for and operations of intergovernmental grants, the two schools of thought again offer competing, but also complementary statements. Traditional public finance views grants justified on efficiency or equity grounds, as all actions of government are viewed as a balancing between these two competing goals in a quest for maximizing some undefined social welfare. In any federal/decentralized system, government fiscal actions are partly carried out by lower levels and units – hence transfer of revenues becomes necessary (the theory of intergovernmental grants has a really established literature, starting from Oates, 1972, Gramlich 1977 etc.). So the question is rather normative: *why **should** we have grants*? Intergovernmental grants thus serve the internalization of spillover effects, vertical (between different government levels) or horizontal (among sub-national governments) fiscal equalization, provision of certain universal/minimum level public services to all or even stabilization and employment purposes in local economies (see more detail on these in Chapter II in the section on fiscal decentralization). Moreover, in this vein of economic literature, not only justification, but

indeed mechanisms and patterns of grant-distribution are assumed to follow these "benevolent and optimal" lines, hence the different forms and formulas of intergovernmental grants are worked out in great detail to best match the above goals (matching-, block-, open-ended, closed-ended etc.). The most important critical consideration is that the grant design must be consistent with grant objectives and ad hoc pork-barrel type transfers should be avoided. Besides really deep theoretical literature, one of the main focuses of empirical literature was and is the impact of grants on recipient governments' expenditures including e.g. the 'flypaper effect'[2].

In contrast, the political economy approach rather seeks to answer a positive question: *why **would** we have grants?* It emphasizes the relative importance of political factors compared to traditional "equity/efficiency tradeoff" considerations: e.g. assuming a self-interested government, private incentives of politicians who will use intergovernmental grants to stay in power (opportunistic political budget cycles) and results of collective decision making mechanisms, such as vote trading, legislative bargaining etc become driving forces. However this literature is still much thinner than the traditional public finance one. Here g*rants are acknowledged to provide more direct political benefits to the recipient government politicians, as they allow them to expand on vote-generating visible expenditure items without the pain of additional taxation, however in exchange they deliver political capital/votes of supporters and of interest group for the higher level government and its ruling party too.*

Infrastructure investment finances – at all levels – are especially prone to the effects of political considerations, election cycles, corruption due to high expenditures, involvement of

[2] This happens when grants contribute to higher levels of expenditure than would have been the case from locally raised sources („money stays where it hits" – if it is with cititzens, they spend it on private goods, if it is with the local government, it is spent on public expenditures, instead of lowering local taxes as would be expected based on the median voter theorem).

public procurement – lobbying by special interests, higher visibility of projects, offering more transferable political capital for incumbents at next elections etc. (Romp and de Haan 2005, p.24) – however they strongly affect productivity and long-run growth prospects of a country[3]. Again, the standard fiscal federalism literature mostly discusses optimal rules for the provision of infrastructure at different government levels, but in reality these choices might not be led (purely or at all) by such efficiency/optimality conditions as shown by a growing political economy literature on the issue. Since public infrastructure provision has truly lots of spill-over effects involved, it is a shared responsibility between levels of governments and also one major area for intergovernmental grants. Rules for allocation are usually based on more or less complex formulas for taking different needs and fiscal capacity into account. Even this traditional public finance literature suggests different kinds of grants for different economic purposes (see short summary in chapter II); moreover in practice these goals and purposes often co-exist.

However, the potential for increased efficiency may not be fulfilled if local and/or central governments pursue policies which diverge from the normative prescriptions and decisions are determined by political factors and electoral considerations. Clearly, fixed formulas of unconditional grants tie the hands of the decision-maker hands more, as there is no yearly negotiation; while more flexible formulas or conditional grants allow a more discretionary distribution and even a strategic use of resources by political parties, e.g. for the purposes of reelection or other political interests (Johansson,2003). Rules themselves can also be subject to changes in subsequent governments' budgets as part of political maneuvering. By now, there is quite a considerable literature on the political economy of intergovernmental grants with a lot of empirical papers on different countries, time periods

[3] Though the magnitude of estimated elasticity of capital spent on infrastructure or the direction of causality (i.e. from infrastructure to output or from output to infrastructure) and appropriate empirical methodology is constantly debated in the so called 'infrastructure-debate' since the influential paper series by Aschauer (1988,1989) - see e.g. Gramlich,1994 for an overview.

using different research designs and estimation techniques (Worthington-Dollery, 1998, Porto-Sanguinetti 2001, Feld-Schaltegger 2005, Pinho-Veiga, 2004) – all coming to a conclusion that *grants are indeed determined/influenced to some extent by the political game*. This dissertation is also an attempt to investigate these issues and make new empirical analyses with the data of Hungarian municipalities.

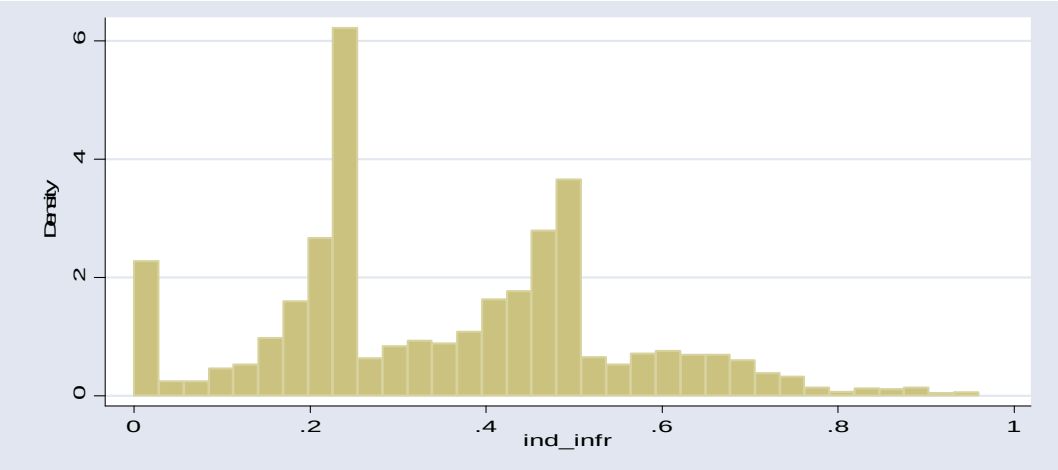
Research goal

Driven from the above theoretical and empirical context the basic ***research question*** guiding my work is: *whether local infrastructure policies in Hungary are really designed according to efficiency considerations? What politico-economic factors might affect central and local governments' allocations on infrastructure investment?*

To complete this goal, a closer look at municipal capital investment financing in Hungary will take place in this dissertation. I deliberately choose to concentrate on infrastructure investments of municipalities, since they are more visible, more prone to political influences at both central and local levels than the operational side of the budgets – my empirical literature survey on the topic reinforced this choice.

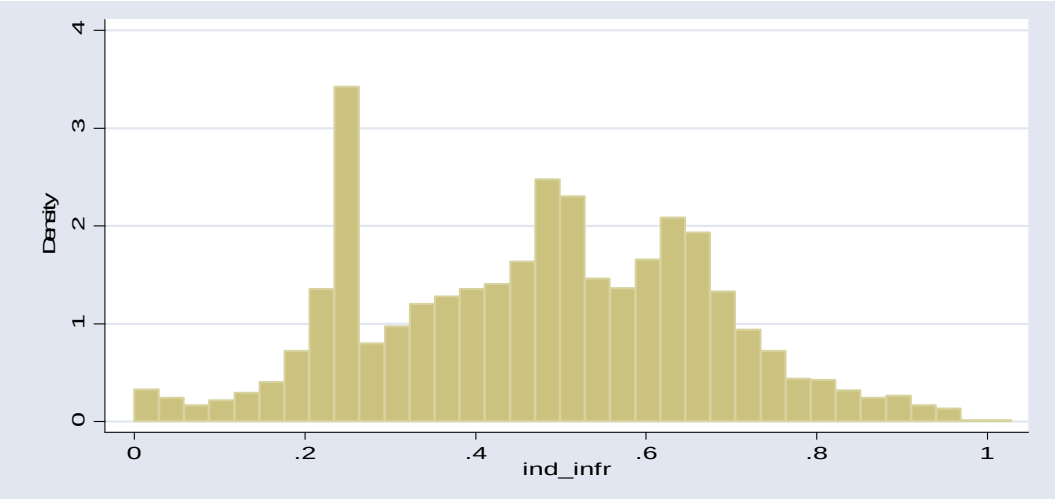
In order to illustrate why the topic of municipal infrastructure investment is interesting and relevant at all in the Hungarian context, let me show three graphs showing how the composite local infrastructure indicator later used in my analyses changed from 1993 to 2003. This indicator shows supply of basic infrastructure, it is a composite of the percentage of flats connected to gas, electricity and water networks in municipalities. It is quite visible how the distribution histograms show a considerable shift towards the right side, i.e. more municipalities with higher connection percentages by 2003 and also how densities got thicker, higher throughout this period – i.e. a much wider coverage with basic infrastructure services throughout Hungary was achieved in this ten year period.

1. Chart:Municipal infrastructure connectedness 1993



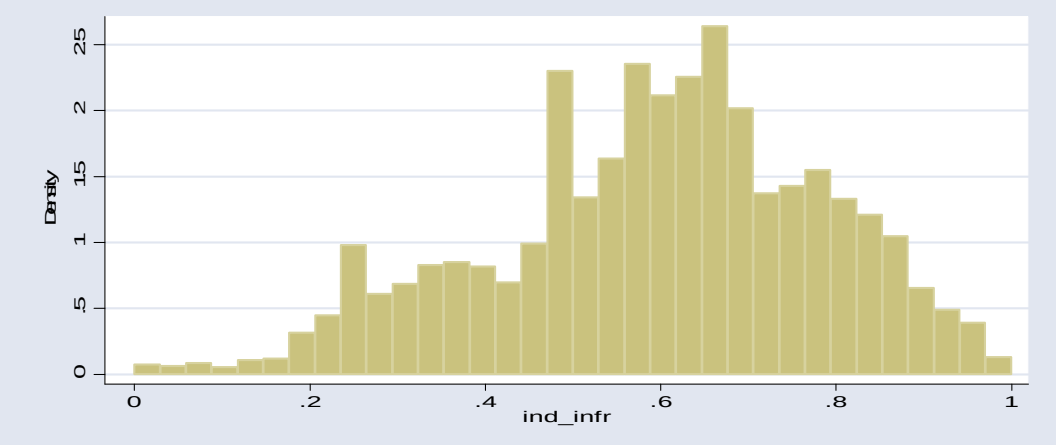
Density of municipalities in composite infrastructure index of % of flats connected to gas, electricity and water networks in Hungary (1 means 100%)
Source: own calculations based on Hungarian CSO Territorial Database

2. Chart:Municipal infrastructure connectedness 1998



Density of municipalities in composite infrastructure index of % of flats connected to gas, electricity and water networks in Hungary (1 means 100%)
Source: own calculations based on Hungarian CSO Territorial Database

3. Chart:Municipal infrastructure connectedness 2003



Density of municipalities in composite infrastructure index of % of flats connected to gas, electricity and water networks in Hungary (1 means 100%)
Source: own calculations based on Hungarian CSO Territorial Database

1**. Table: Central and local government expenditures in % of GDP, current prices**

	1991	1993	1995	1997	1999	2001
GDP (bn HUF)	2498	3548	5614	8542	11750	15825
Central expenditures/GDP (%)	33,2	35,0	35,4	25,9	31,3	28,9
Local expenditures/GDP (%)	**15,2**	**17,2**	**14,6**	**13,3**	**13,0**	**12,3**

Source: National Accounts

The context of transition did and does not make things easier. Parallel reforms took place along with a newly introduced LG system and LG financing. Local investment needs are still influenced by problems and characteristics of inherited infrastructure endowment, amortization and reconstruction needs, characteristics of the local economy and society, local public service needs as well as standards imposed by EU accession. Infrastructure endowment is hard to measure, thus needs based on that are hard to operationalize. Due to the lack of reliable data, it is especially hard to estimate amortization and reconstruction needs of existing infrastructure: calculating with a 3% amortization, the total local investments in 1998 have not exceeded the reconstruction needs due to amortization. (Balas-Hegedus, 2004)

Although several basic investment necessities have been covered by local and central investments since 1990, Hungarian settlement infrastructure is still characterized by transition and requires further investment along with economic development. For example, while the

ratio of flats connected to gas-network has increased from 50% to 75% between 1990 and 2000, 27% of local roads are still unpaved dirt roads in 2000. (Kerekes at al, 1998) Environmental and infrastructural investments necessitated by EU accession are an important task: these goals were determining local investments even in the 1990s. Water and sewage network construction and the modernization of treatment as well as solid waste/hazardous waste are the utmost priority areas for local investments. (Barati-Stec, 2004)

In order to achieve these results, huge quantities of intergovernmental grants were necessary, as we will see, which remain the primary financing sources of municipal investments. However, as emphasized before, grants are not only beneficial: they can distort local priorities and usage of local funds in many ways - as expressed e.g. in the huge fly-paper theory literature that is still part of the traditional public finance one and of course in the public choice – and cause bad project selection, overinvestment/underinvestment in different sectors, rendering local governments to survival tactics instead of careful long term planning etc. (empirical policy papers for the Hungarian case analyzing these issues are Hegedüs et.al 1996, Jókay et al.1998). Though of course one should keep in mind that one of the underlying classic economic arguments behind grant-financing is indeed the goal of altering local choices, in order to correct for spillover-effects, to allow fiscal equalization or foster economic development – and nothing is wrong with these cases. The *focus* here is rather on the issue of *political and institutional factors altering the economic and especially the financing choices.*

Therefore I shall try to assess what drives the local and central government choices on investment and on investment grants in the Hungarian case, if and how political factors affect these. Related to the main research question several themes emerge, based on which I have formulated hypotheses. I check how much actual decision-making in local investments depends on the revenue basis. Are there true local investment strategies, based on local

priorities, local needs and socioeconomic indicators – or what possible unintended distortions do subsidies cause? Are need and socioeconomic indicators an important factor explaining the differences in the financing constructions of local investments and in grant allocations? Do more local own revenues mean more investment activity in general? Does grant financing mean a less careful financial planning? What strategies Hungarian municipalities use to get those much wanted grants, what is the importance of lobbying through different channels?

These issues to be researched call for a mix of quantitative and qualitative methods. For more qualitative insights I reviewed results of earlier empirical work on the Hungarian municipal sector in general and on investment activities in particular, as well as survey results; I also did several preliminary interviews with central and local government officials and prepared carefully designed systematic case studies[4]. For some of my hypothesis that cannot be checked on large-n statistical data, a survey was most desirable, however due to the limited budget of a doctoral research and capacities of a sole researcher, it was obvious that my chances for a reasonably sized survey are rather limited. Finally, I managed to include several questions on investment behavior and attitudes on grant seeking into a survey of Hungarian city mayors, conducted in 2004 as part of a research project in the Economic Institute of the Hungarian Academy of Sciences, funded by the Hungarian Research Fund. In the analysis, I check answers along several background indicators, e.g. size, regional position, income tax base, investment activity, per capita municipal revenues and per capita investment grants received by municipality and political affiliation of mayors.

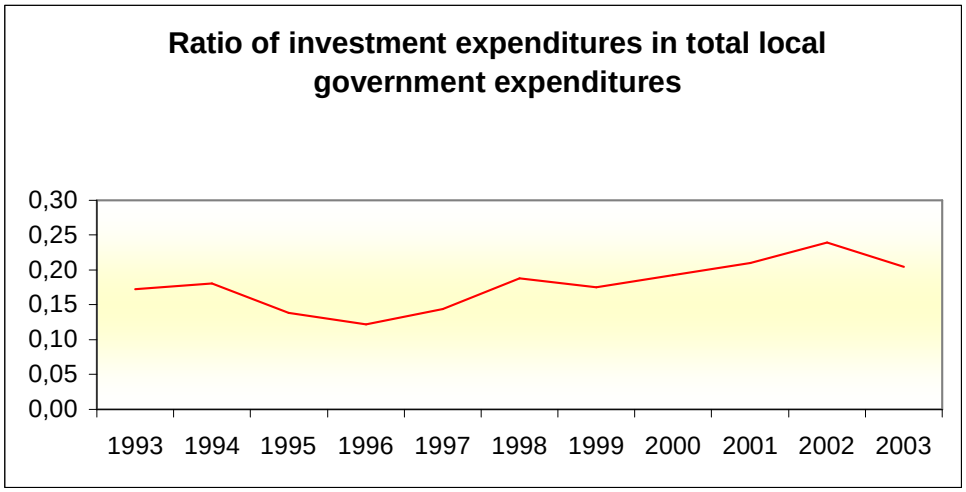
As a major political influencing factor affecting financial decisions can come through the incentive mechanism of elections and election cycles, in the empirical part I also search for - and in fact do find – evidence of possible electoral cycle effects and partisan

[4] Results of these are published in Jókay-Kálmán-Kopányi, 2004

considerations (effect of similarities in political color of central and local governments) in intergovernmental grant distribution and in municipal investment activities.

Political budget cycles are much more visible in the investment side (and not so much in the operation one) of the budget (Romp de Haan, 2005) - reinforcing my decision to focus on investment finances of sub-national governments and the political factors affecting them.

4. Chart: % of investment expenditures in total local government expenditures



As visible from the above chart of investment expenditures within all local government expenditures, election years (1994, 1998 and 2002) do in fact stand out, investments always start to increase even two years prior, then get really to their peaks in election years.

Central government capital grants given to municipalities are more discretionary than operational ones (not all localities receive them), hence strategies for application/non-application and possibly lobbying can become important and also precisely due to the discretionary nature there is supposedly more room for political considerations. As for the quantitative side, hypotheses on determinants of investment outlays of local governments and grant recipiency are tested with linear and Probit panel regressions respectively, constructed from independent variables kept after theoretical considerations and careful statistical analysis. For this a panel dataset was built from the Regional Public Administration Authority

database, which is comprehensive for all Hungarian local government budgets from 1993-2003, a period bridging three election cycles, linked with some demographic and socioeconomic data from the "T-Star" territorial database of the Hungarian Statistical Office and local election data from the Ministry of Interior.

When one reviews the political economy literature models and empirical evidence, a deep normative question arises, already touched in the puzzle that inspired this research – though it is far from the scope of this thesis to answer it: is decentralization of some part of public infrastructure investment a sensible idea (does it raise social welfare?) when political factors do affect decisions of central governments on grants and those of local governments on investment? My thesis will stay on a more positive empirical research level, it can only try to provide certain aspects and arguments that can feed into answering such deep normative questions, as well as perhaps serve as basis for some policy consequences. For example, if political cycles turn out to be present in investment activities of local governments, or political colors become important in intergovernmental grant allocations - as they indeed do according to my evidence for the Hungarian case - that means serious efficiency losses. To sum up, despite fiscal federalism theory's emphasis on efficiency and effectiveness as guiding principles on revenue transfer policies, the *distribution of intergovernmental transfers is by all means a political issue*, since the amount of resources given to sub-national levels will greatly determine their success in service provision and overall viability and hence improve the re-election chances of their mayors. What this means for the concrete topic of my dissertation is that there are leakages in the local government infrastructure investment financing system, that - to put it bluntly - the illustrated improvement of local basic infrastructure supply in Hungary could have been much greater, had such considerations not been present.

As for policy consequences or recommendations, my evidence can add to the discussion on reforming local government finance system overall, which is on the agenda in Hungary for quite a while, but not surprisingly – especially in light of also my evidence – no government has dared to really go into it[5]. Eventually it might be the deteriorating economic conditions especially of the central budget that will force politicians to act. I do not go very deeply into the new and widening literature on the political economy of failures, delays in socially beneficial reforms (see e.g. Drazen 2002:Ch.10 for a brief review) – but my evidence could feed into that too. What this dissertation certainly does contribute to is the fairly small pool of international empirical evidences available on political budget cycles, especially at the sub-national level and the emerging literature on the political economy of intergovernmental grants – providing the case of one transition country that irrespective of the fact of by now being an EU member sometimes shows certain similarities to the developing ones[6]. To my knowledge, my dissertation is the first of this kind regarding Hungary.

The thesis will unfold in the following structure. In the following Chapter II, a review the first and second generation of fiscal federalism literature is given, i.e. the standard public finance view and the more recent political economy views on decentralization. Chapter III gives a summary of the literature on political business cycles and partisan effects in grant distribution and also surveys empirical findings on political factors in public finances partly to collect existing evidences and also to guide my research design. Then in Chapter IV I discuss the research design, hypotheses, methods and data in more detail. Chapter V gives the Hungarian context - I provide a brief review of the evolution and present system of local government finance and infrastructure investment in Hungary. The next Chapter VI is the first

[5] Another factor hindering the enactment of a local government finance reform is that it needs a two-third majority to accept it in Parliament, which none of the coalition governments of Hungary had so far.

[6] Why this remark is important will turn out after the review of the political budget cycle literature, where until recently researchers thought these are more a developing country phenomena, however now there are strong evidences of the existence of PBCs in western developed democracies as well.

empirical one, summarizing my findings from the survey of city mayors on local investment priorities, grants strategies– this gives a more qualitative insight. The real quantitative part - the true substance - comes in Chapter VII where I summarize my findings from the panel regressions on the political budget cycle and partisan effects in investment and grant decisions of local and central governments in Hungary. Finally the thesis ends with conclusions given in Chapter VIII.

Chapter II.

Theoretical background - Traditional and New Theories on Fiscal Federalism

"The federal system was created with the intention of combining the different advantages which result from the magnitude and littleness of nations."
Alexis de Tocqueville

Introduction

Along with globalizing tendencies in the organization of economic activities, there are a growing number of countries re-examining the roles of government and their partnerships with the private sector and civil society. This rethinking has led to a renewed recent interest in the principles and practices of fiscal federalism/fiscal decentralization. In the developed western world it goes along with raising the efficiency of the public sector, lowering its overall share in the economy, as well as along integration (e.g. the principle of subsidiarity in the EU) and globalization tendencies ("think global act local" – i.e. in a globalizing environment, policies are tailored more to the real local circumstances, etc). At the same time, at least in Europe, centralization processes also go on, with the EU evolving to a new, top level government, or the ECB as the major monetary policymaker. Whereas in less developed countries, serious macroeconomic crises that require major fiscal adjustment programs and a failure of the former central planning push them to the direction of the decentralization trend. However, their need for adjustment was often constrained by their constitutional and legal setup, highlighting that country-specific institutional characteristics are key in the potential impact of deregulation and decentralization. As far as the transition countries are concerned, the move from a command economy to a market-oriented, liberalized

one is a decentralization of the economy - much of the ways, steps, speed etc. of this transition is discussed, and countries follow different patterns. However, another aspect of reform, crucial to the achievement of major reform objectives is the decentralization of the government, or more widely the public sector itself.

Parallel to these recent world-wide economic and political trends, decentralization became a hot topic; a renewed lively *theoretical debate* takes place in the literature among economists and political scientists on the advantages and possible threats of it. This chapter provides a *general overview of the theoretical background*, with respect to the traditional public finance view of 'Fiscal federalism' and the newer lines, Public Choice and political economy views on the topic. It is indeed a debate mixing economic and political aspects, which is due to the facts that the underlying arguments for and against decentralization are also revealing these two aspects.

The major economic argument for decentralization - based on the very first insights provided by Oates (1977) - is *allocative efficiency, i.e.* that it offers the chance to match public services more closely with local demands and preferences, and thus there are possible efficiency gains, a position which is supported by a large theoretical and empirical literature- see details later in this chapter. Whereas the political argument is to build more *responsible and accountable* government from below, i.e. it is believed to constrain rent-seeking activities by office holders, interest groups, or insufficient efforts and innovation. Recently a number of empirical papers (Mello and Barenstein, (2001), Huther and Shah (1998), Fissmann and Gati (2002) used cross-section and panel methods to show across countries the negative correlation between measures of fiscal decentralization and low accountability measures such as corruption, poor governance, i.e. they have proved decentralization in fact can help to improve these. However others are more cautious (Treisman 2002), or prove that expenditure decentralization is only effective in reducing corruption if it is accompanied by revenue

raising powers given to local governments, "unfunded mandates" lead to finding "creative ways" of financing. (Henderson and Kuncoro, 2004) Indeed, the lack of some conditions or institutional setup might diminish the advantages and knowledge on the former, both of which are crucial for successful reform.

There are certain pitfalls of decentralization too, including the possibility of increased disparity across regions, loss of macroeconomic stability, and institutional capture by local factions. There is a basic tradeoff problem in decentralization: decisions that provide greater efficiency by being more appropriate to local decisions may not best serve the internalization of externalities and equity problems. Once the central government has decided to devolve at least some decision-making power to local levels, it can choose among a variety of possible mix of revenue and expenditure policies. All these can vary in terms of the degree of autonomy, or the freedom to determine levels at the local level. Thus, in the case of revenue assignment policy, the degree to which local government can determine its own revenues, and of expenditure assignment, the degree to which local government can freely allocate revenues to goals decided on its own. The debate has gone on for decades as to which policies and to what degree are best left to which level of government, what degree of decentralization is preferable, to what extent does the degree and methods of decentralization differ in developed and developing world, and what country-specific characteristics influence these choices.

In the meantime, a *second generation of economic theory of federalism* has evolved, building on the view and insights developed by Public Choice, Political Economy scholars - and many of the findings of Game Theory, Theory of the Firm, Contract Theory and incentives literature applied by them.[7] These theories offer us a positive picture as to how the normatively prescribed behaviors are distorted by certain conditions, why those institutions offered by the traditional fiscal federalism literature might not work, what kind of incentives

[7] To mention only a few, see e.g. Inman-Rubinfeld,1997, Besley-Coate,2003, Oates 2004, Wildasin 2004, Levaggi 2002,Seabright 1996, Tommasi 2003, Weingast 1995,Goodspeed 2002, Rodden et al.2003.

and commitment problems arise - that can undermine the praised decentralization process, or at least its building blocks. Furthermore, conclusions from the practices of several countries can be drawn that the lack or bad design of certain institutions, macroeconomic needs of structural adjustment, corruption etc. can and do hinder effective fiscal decentralization.

Indeed many political elements, different incentives and information problems distort the way decisions are made and policies are formulated - as revealed by political economy and public choice scholars. Therefore more analysis of these issues, both theoretical and empirical is crucial to contribute to the design of more effective systems of intergovernmental finance; systems in which functional and financial assignments and in which policy instruments are better matched. The following chapter tries to give a short summary of the theoretic and pragmatic insights into fiscal decentralization.

Fiscal Federalism - the Standard Public Finance view

Decentralization theorem: the welfare gains from more fiscal agents

First of all, it should be clarified that economists use the term federalism in a much broader sense than the constitutional one political scientists use. Basically what is understood under the term fiscal federalism is a system of multilevel government, certain functions and resources assigned to the respective strata, central, sub-national - regardless of whether the given country is a federal or unitary system.

The market analogy - Tiebout model

The first to mention the benefits of decentralization was Hayek in 1945[8], suggesting that due to the information advantage of local governments and consumers over central governments about local preferences and conditions, better decisions will be made by them.

In 1954, Samuelson argued that the provision of public goods by large groups is problematic due to the lack of preference revelation mechanisms. As a response, in his seminal paper (Tiebout, 1956) **Tiebout** speculated that as consumers in a market formulate their preferences and choose among goods on the basis of the goods' price and characteristics, so they choose among jurisdictions by ***'voting with their feet'*** and joining the community which offers their preferred mix of taxes and public services. In an optimal world with certain conditions fulfilled, they will be able not only to divide themselves optimally among various localities, but to force those cities to compete for their "membership"; this way assuring that the local public goods demanded will be efficiently provided, i.e. at minimal cost. The conditions which define a Tiebout economy[9] are: (1) public goods and services are congestible, (2) there is a perfectly elastic supply of jurisdictions, each capable of replicating all attractive economic features of its competitors, (3) mobility of households among cities is costless, (4) individuals are fully informed about the local fiscal attributes (5) there are no interjurisdictional externalities - i.e. added/less congestion due to migration. The Tiebout equilibrium is realized when each household - and according to later improved versions each business unit - resides in the chosen locality and none of them can improve its economic welfare by moving elsewhere.

A whole branch of literature on sub-national government economics have grown out following this article, many challenged it, proving that some of the conditions were too

[8] Referred to by Qian-Weingast (1997), p. 83. para1
[9] See several classic textbooks on this for reference, or the original Tiebout(1956) article itself.

unrealistic, or not even consistent within themselves. Others designed and executed empirical tests for the hypothesis, and found positive and negative results; some then tried to save the original model. A careful coverage of these contributions is not the scope of this paper, thus I only summarize some of the main *points of critique*.

As regarding the model of Tiebout the major counterpoint that many critiques have emphasized is that it *only works as long as fiscal considerations are the decisive factor in location* decisions, as distinct from job opportunities, housing, cultural affinities, ties to family and friends etc. Such preferences of individuals are not static, may change over lifetime, which is a further problem of the model, i.e. the *lack of dynamic aspects*. It might work in certain areas of the US, e.g. when people working in an inner city of a metropolitan area choose among suburbs for residence, however when their job or other characteristics mentioned above drive location choices it is less applicable.

Furthermore, a model of public service provision by multiple jurisdictions *is not equivalent to a perfectly competitive economy*; just as many private sector markets are not necessarily perfect in the textbook sense due to important external effects and incomplete information, difficulty of entry or exit. Similarly the Tiebout economy will not be efficient, when *inter-community spillovers* of benefits or costs arise or are created - either from the nature of certain services (such as education), or when an optimizing municipality creates distortions on the choices of others; when the provision of pure public goods is full of interdependencies, economies of scale e.g. common water bases, - and *may result in economically inefficient public policies*. This is most severe in the area regulation, and taxation, which - e.g. through tax exporting - does effect welfare of other settlements, and of the nation as a whole. Difficulty of entry or exit here relates to the competing jurisdictions, since more or less the settlement structure is quite stable in a developed country, very rarely

are absolutely new jurisdictions coming into the picture.[10] Incomplete information of taxpayer voters about local policies and politicians is also a major constraint emphasized by the fiscal illusions literature, public choice and contract theory arguments - dealt with in later chapters.

The decentralization theorem

It was W.E. Oates, who provided the fundamental *decentralization principle* with the economic tools of consumer surplus - the welfare losses of centralized, uniform provision of certain services. Since not all public goods have similar spatial characteristics, and different areas might have different preferences for local public goods

> "*the loss in welfare from imposing a uniform level of consumption* of a public service over all jurisdictions will, therefore, depend on the extent of the variation in the most desired quantity among the localities and on the price elasticity of individual demands."(Oates, 1977, p. 11.)

When "the jurisdiction that determines the level of provision in each public good includes precisely the set of individuals who consume the good ... there is perfect correspondence" (Oates, 1972, p.34).

All this means that the *mere tailoring of outputs to local needs offers welfare gains, competition and mobility of consumers* (citizens) - as needed in the Tiebout model described above - *is not even necessary* for the realization of these gains.

Division of functions - assignments in multilevel government

As argued by standard public economics depending on the nature (excludability, rivalness) of the good governments can decide about public provision; or public finance and regulation yet private provision; or some combination of these etc. Also based on its

[10] This point has a special relevance for transition countries of CEE, and Hungary - where at the point of systemic change many new local governments were "born", due to separation tendencies as a reaction to earlier forced unification. Although the number of possibly competing localities have increased, the competition for inhabitants is not present , partly due to very low mobility in Hungary, which reflects the rigid housing structure, partly due to the fact that local government own revenues, and taxes from citizens within those are still quite insignificant. Some competition can be observed in the attraction of potential capital investments.

characteristics, it can be decided which government level (central, local) is the optimal 'club' size.

Musgrave proposed a sketch of assignment of functions in 1959, which is more or less still regarded - at least in the standard *welfare economics* tradition - as the guiding principles. "The heart of fiscal federalism thus lies in the proposition that policies of the *Allocation* Branch should be permitted to differ between states, depending on the preferences of their citizens. The objectives of the *Distribution and Stabilization* Branches however require primary responsibility at the central level." (Musgrave, 1959, pp. 181-182)

Stabilization and decentralization

As for the latter two branches specified by Musgrave, the argument was roughly that macroeconomic issues, i.e. monetary and demand management policies are best left to the central level. Not because local governments would not have any effect on overall demand or distribution of income, but rather because their capacities to influence these are quite limited: there is little scope for an effective decentralized management of these due to openness of small local economies, and due to worsening effectiveness by a growing number of agents. [11]

Some authors, in particular Gramlich, argued that there might be scope for decentralized counter-cyclical policy e.g. through the usage of stabilization funds from reserves accumulated in 'good times'. However, as Vito Tanzi –working for the IMF - added (Tanzi, 1996, p. 305): "in developing countries and in an increasing number of industrial countries, the basic macroeconomic need is not to counter cycles, but to bring about a fiscal adjustment that reduces chronic fiscal imbalances. The issue then is the relationship between

[11] This argument has a special connotation nowadays, namely the macroeconomic policy debates around the European Monetary Union. For a special 'fiscal federalism view' on this issue see Inman-Rubinfeld (1992) ,who argue that "in open, integrated economies, deficit-financed demand creation may be of only limited usefulness to small member states for several reasons". Basically they consider it an advantage for the US in economic development that individual states are not allowed to practice own protectionist macro policies, nor can they use exchange rates to cure economic shocks - contrary to nation-states in Europe. However this latter argument collapsed with the creation of the Euro.

decentralization and structural, rather than cyclical, fiscal deficits." *Does decentralization contribute to structural macroeconomic problems?* Tanzi suggests based on the experience of some developing countries, that sub-national governments are often *likely* to contribute to such problems, by *overspending and increasing their debt, by lowering their taxes due to political pressures* and by poor budgeting systems which make monitoring difficult, furthermore unfunded mandates and intergovernmental grants can introduce severe distortions, thereby softening budgets, creating needs for future grants. Another macroeconomic aspect tested in many recent publications is the effect of decentralization on promoting economic growth; findings are controversial however up to now.

Distribution - equity issues in fiscal federalism

The possible *conflicts of economic efficiency and equity* have already been raised in the discussion of the Tiebout model of local service provision. This dilemma was always at the top of the literature, for the obvious reason that decentralization reduces the possibilities for redistribution policies, thus it is a strategic topic in the centralization versus decentralization debate. Moreover these are issues heavily dependent upon ideologies and politics, thus the normative or positive views of social scientists are at best only suggestions.

The solution originally suggested by Musgrave was to leave this function with the central level, others however argued for some decentralization, and tried to search for scope of re-distribution at the local level. Many pro and con arguments have been developed supporting the decentralized or centralized provision of *social assistance programs*. Indeed one can think about trying to extend the basic decentralization advantage (i.e. welfare gains from policies better fit to local preferences) to these policy areas, however this is much debated. At first glance, the very complexity and sophisticated nature of equity issues are the key point. A very

brief summary of the most important guidelines is provided in this section - based primarily on the works of Musgrave, Oates, and Buchanan.[12]

> "The national or central government in a federation must be concerned with equity not only across individuals but also across member jurisdictions. The various states in the US ... differ greatly in per capita income and hence in fiscal capacity. The federal government may consider this unfortunate because of resulting differences in the terms at which public services can be provided. Whereas differences in preferences are respected ... federal philosophy may call for their being able to do so on the same terms. " (Musgrave-Musgrave, 1989 p. 459.)

This is the idea in a nutshell, as the Musgraves phrased it for the US, and the issue is perhaps even more important in Europe with an even greater tradition of solidarity.

Vertical equity

This is the most classical tenet of distribution, i.e. *the re-distribution from the rich to the poor* - the issue that primarily has to be solved via the taxation system, therefore as emphasized by Musgrave it is generally a central government task. However in terms of intergovernmental finances concerns about grants from higher per capita income municipalities to lower income ones, i.e. central correcting mechanisms, about direct transfers to individuals or indirect ones to sub-national governments complicate the picture, due to perverse effects of both. One example is the well researched 'flypaper effect' (termed by Okun, 1972) - which happens when grants contribute to higher levels of expenditure than would have been the case from locally raised sources („money stays where it hits" – if it is with citizens, they spend it on private goods, if it is with the local government, it is spent on public expenditures, instead of lowering local taxes as would be expected based on the median voter theorem). There is a growing economic literature focusing on these issues and trying to provide empirical support for both pro and contra arguments.

Horizontal equity

[12] More basic questions of justice, fairness and others justifying the necessity of redistribution are intentionally left out, not being the focus of this chapter.

This is the traditional principle that those in equal positions should be treated equally, translated to decentralized service provision: *the same tax price should allow for the same service level* no matter where one lives. Obviously since the tax base per capita varies to a great extent, different tax rates are required in different municipalities to raise the same level of revenue - thus a resident of a locality with a relatively large tax base will face a lower tax rate. The literature on intergovernmental grants seems to agree on the usage of unconditional *grants* or *geographically discriminating income tax* introduced by central level *to correct for* these.

Minimum service level

Another major equity objective is to ensure the provision of some sort of minimally acceptable service level in all localities. However, this objective often conflicts with economic rationality, since many of the public services have substantial spillover effects or economies of scale in their provision. The solution offered is *lump-sum grants* that serve to equalize the fiscal capacities of municipalities, however these serve only as a partial solution, requiring also *national standards* to reach the minimum or uniform level of output. Thus as Oates emphasized:

> "efficiency points in the direction of a wide scope for decentralized choice in the public sector, while the desire to guarantee service levels in all jurisdictions motivates centrally imposed constraints on local fiscal behavior." (Oates, 1979, p. 14) [13]

The major tools to compensate perceived inequalities are *equalizing intergovernmental grants*, incorporating a combination of variables of need and fiscal capacity, however besides grants with per se equalization purposes, equity considerations are reflected in the whole system of mandates, revenue assignments etc.

[13] A nice summary of other such " traps" of decentralization are provided by Prud'homme(1996) - see more in the section on development economics of this chapter.

Expenditure and revenue assignments

From the discussion of the issues dealt with until this section, one can see that a system of sub-national government mandates and finances is a very demanding design problem, considerations of (horizontal and vertical) equity, efficiency, macroeconomic demand and stabilization policies, as well as administrative issues have to be reflected in it. It is as important as it is difficult, because what are *most influential* on the realization of the potential gains of decentralization are the *overall institutional environment* and the actual setup of specific fiscal institutions. The latter include the system of public expenditure and revenue assignments, intergovernmental grants, sub-national borrowing capacities etc.

In the ideal model, - and not surprisingly the US case is quite similar to it, as the bulk of the literature was developed there - decentralization is basically a well-written contract between central and sub-national governments, which clearly assigns obligatory tasks, gives sufficient resources to fulfill those, and also makes it clear that no further assistance will be provided by the central government under any circumstances. In such a case, the above mentioned differences in local public good provision will be reached via differences in local taxing.

As far as *expenditure assignments* i.e. the assignments of functions to lower level governments are concerned, normative theory and also practice implies that such issues can be decentralized and can provide potential efficiency gains, but have their potential disadvantages. Apart from considerations on efficiency such as economies of scale, administrative capabilities, etc., historical and traditional factors are at least as important in a given country's setup of functional assignments. The issues of *size, function and financial pow*er are highly interrelated. In several countries, there are few larger size local governments with many functions, whereas in several other ones we find a great number of small governments, but than with restricted mandates - main functions fulfilled rather at the regional

or central level. Many changes have taken place even in the western, more settled countries in this respect, and the EU tendencies shed new light on these issues, the basic lesson from the international variety of practices is that functional *and financial assignments have to be properly coordinated* in order to have a well functioning system with less need for continuous discretion.

This leads us to the vertical revenue structure. The issues at stake here are what kind of mechanisms will ensure the *match between expenditure needs and revenue capacities* at all levels of government, what happens to un-funded mandates, what problems provide grounds for central interference through the usage of intergovernmental grants, how these setups can be designed to comply with macroeconomic policy targets etc.

The tax assignment problem

In the field of setting revenue base, i.e. primarily taxation, central government has many advantages. It has much less constraints than sub-national levels mostly due to an access for more progressive revenue base, can avoid certain deadweight losses while benefiting from economies of scale in tax administration. Local taxation on the other hand has many potential distortions inherent; thus the design of an efficient yet equitable system of local taxation is a very difficult task. In light of these, the following considerations have to be taken into account in overall intergovernmental revenue structure context: whether there are any tax instruments better suited for local/central governments, what taxes can be shared by different government levels, and whether these issues are administrative ones instead.

If badly designed, tax systems can entail severe costs in terms of inefficiency and also inequality (i.e. the incidence problem). Again, one of the classics of the field, *Musgrave*, provided *general guidelines* for the assignment of revenue instruments to different levels of government, which were the following:

Progressive taxes for redistributive purposes, i.e. PIT with strong progressive rates should *be left for central government. S*ince taxes on mobile tax bases can distort the location, spatial pattern of economic activity - *subnational governments should use taxes on relatively immobile bases*, i.e. land and property, while the taxation of tax bases that are unequally distributed across regions, e.g. natural resources, should be centralized, for equity reasons. Benefit taxes, i.e. user fees for public services are the ideal revenues of decentralized governments, since they do not create any distortions.[14]

Although there is a great variety in the vertical structure of revenue systems worldwide, there seems to be a general pattern, somewhat reflecting this normative perspective. In fact, quite a few countries rely on progressive income taxation as central level sources of revenue, whereas for local governments' property taxes and user charges are the most frequently used revenues. However, the differences are also remarkable among countries' practices, and careful in-depth research on the similarities, their relation to the normative framework has not yet fully been done.

The structure of decentralized parts of tax systems has important implications for fiscal decision-making, since *many local taxes generate externalities*, positive and negative ones (e.g. the issue of tax exporting) and thus can give perverse signals for the community who is making the optimizing decision only with respect to the welfare of its citizens. Being aware of these effects and taking them into considerations in *the design of tax structures is crucial*.

Revenue sharing and Intergovernmental grants

One way to realize the fiscal advantages of central taxation, yet to exploit the efficiency gains of local choice of service provision is the practice of *revenue-sharing*, which,

[14] These are assumed in the Tiebout model.

as its name shows, means that central government is the revenue collector body. However central government provides part of the funds raised to sub-national (state or local) level - either directly according to place of origin, or redistributing a portion, for the purpose of fiscal capacity equalization. This practice has arisen from the 1970-s, when the consolidation of the already large number of specific, categorical grants into more broadly defined *'block grants'* was preferred, for the sake of enforcing less centralized decision and more efficient administration.

In principle, *unconditional grants* and revenue sharing are not intended to stimulate extra spending on certain services, rather to equalize revenue bases. Sub-national governments typically receive substantial revenues in the form of intergovernmental grants, for several reasons of equity, spillovers etc. mentioned already. There is quite a *large literature on proper grant design* by now (summarized in the next Chapter III) , however it should be noted, that its clear guidelines are rarely fully followed and practices that fit and are used by different countries are truly different. According to the different objectives, matching (offering certain % of total costs of service) or non-matching, conditional or un-conditional, lump sum grants can be the most desirable.

Apart from normative prescriptions, several empirical observations are available. Among these, the most interesting for this research are those that attempted to measure the impact of intergovernmental grants, the major finding being that these grants often have stimulating effects on spending of recipients - e.g. the so called *'fly-paper effect'*. However, it is not yet clearly understood and explained whether that works in both directions (reduction and increase of grants) and under what conditions, thus the ' *fiscal illusion'* explanation is still regarded only as a potential one.

Development economics - some concern about the dark side of decentralization

The debate on the advantages and disadvantages of decentralization reaches a high intensity whenever policy advice to developing or transition countries are concerned – e.g. from international donor or lending agencies. Some critique of the blind favorers of decentralization, Remy Prud'homme and Vito Tanzi warn us that there might be *decentralization failures* as well. These are the negative effects on macroeconomic stability and management, and on equity - since decentralization of (some) taxing power ultimately favors richer jurisdictions, which can by this way attract larger tax revenues. These failures *call for government intervention*, e.g. transfers and controls on borrowing of localities, therefore, like a *vicious circle*; this government intervention erodes the very foundations of decentralization. Concerning the criteria of successful decentralization put forth by Hommes (i.e. good, wise and strong central government that is not corrupt, and great reliance on well positioned local taxes) - his view is that such conditions are generally missing in developing countries.[15] As he puts his conclusion:

> "*the less freedom of choice and tax autonomy, the smaller the gains* to be expected from decentralization". (Prud'homme, 1996, p. 357)

Transition economics: soft budget constraints of sub-national level

Although Kornai introduced the term of soft budget constraints with respect to socialist economic relations, it has reached 'popularity' in development economics and also in the transition literature. Apart from private sector applications, the concept of soft budgets can easily travel to the analysis of government finances. The budget constraints of governments can be conceived as soft if they abuse their taxing monopolies, or are able to finance current

[15] I can add - as the empirical example will be Hungary - that in most CEE-SEE countries the above conditions are not entirely missing at all, but there is certainly room for improvement.

expenditures by borrowing - placing the burden on the future. And due to the short time horizons of politicians, these tools are often used to please today's voters.

Interestingly enough, some political economists even use the term for the US Federal Government, like Ronald McKinnon whose argument with respect to fiscal federalism in the US is the following: "the more expenditure obligations devolve form the central government to the lower level ones, the greater the separation between fiscal decisions and the government's use of the monetary system as a potential source of finance ... a common currency controlled by the central government (or some outside agent) hardens the budget constraints of lower level governments and thus enhances the economic benefits from horizontal competition among them" (McKinnon, 1997, p. 74) . This is the good side of the coin, however the Federal Government of the United States can borrow 'too easily' in the national as well as international capital markets - much more easily than the state governments - i.e. its budget constraints are soft. Which, according to McKinnon can undermine fiscal federalism, since

> " the encroachment by the soft-budget federal government into the domains of the hard-budget state governments threatens the separation of economic powers, threatens to limit market-preserving character of interstate competition.... with federal funding comes more egalitarian federal standards which limit the ability of local governments to decide for themselves what services they provide at what costs to their local taxpayers." (McKinnon, 1997, p. 90) [16]

However, this view is opposed by Wildasin (1997) who states that the mere existence of fiscal transfers from the center to the local level

> "does not imply that lower-level governments face 'soft' budget constraints. The budget constraints facing lower level government may be altered by central government policies, such as fiscal transfers,

[16] It should be noted however, that this strong argument against virtuallly any intergovernmental grants or equalization comes from the U.S. the country where there are no transfers from well-off states to poorer ones, and a very small proportion (about 13 % - based on McKinnon,1997) of lower level government revenues comes from Federal level - as compared to e.g. European traditions.

but so long as the transfer recipients perceive these constraints to be binding it is natural to characterize them as 'hard'." (Wildasin, 1997, p. 5)[17]

Incentives and behavior - Public choice/ political economy view on decentralization

A short description of these schools of thought is necessary because these reveal much about the other side of the 'normative' coin, i.e. how incentives, interests of decision-makers, bureaucrats, lobby groups etc. distort the ideal model described in traditional public finance. Of course, today's economic literature has absorbed these ideas; many of them are not alternative any more, but rather mainstream with significant empirical background behind them.

Decentralization and Public Choice theory

Public choice deals with the public sector in terms of voting mechanisms that can provide the best appropriations about the social welfare function, the ultimate goal to be maximized. It also provides positive models of behavior of politicians, bureaucrats, and other agents - thus showing various phenomena which are evidence against the assumptions of standard public finance, or adds further aspects to the picture.

Based on the seminal paper of Downs (1957) *the median voter - model* emerged as one of the first which says that political competition among vote-maximizing politicians will generate an outcome that converges on the preference of the median voter. Any party which deviates from the median of the preferred outcomes will loose votes. However, as Mueller (1979) proved, the concept and the model is a fragile one, as it works only under strict conditions: single-dimensional policy space and single-peaked voter preferences. To ensure that the median voter outcome is a Pareto equilibrium, certain further conditions have to be

[17] This is what is problematic e.g. in the Hungarian case, i.e. LGs do not perceive grant agreements as stable, but rather as re-negotiable. Hence the strategic plays with e.g. the ' Deficit Grant', a kind of equalizing grant, bail-out for LGs in financial troubles through no fault of their own, contra certain investment grant applications.

met. Nonetheless, as a primarily descriptive model of behavior, the median voter view has been widely used in public finance literature, in theories on intergovernmental grants mechanisms (see e.g. several studies by Oates), estimation of demand functions for local public goods (e.g. Bergstorm and Goodman, 1973) etc.

The Leviathan argument - government size vs. decentralization

The growth of government and public sector budgets was remarkable in this century. Several approaches have been formulated trying to provide a useful reasoning, one of which is that provided by Geoffrey Brennan and James Buchanan. They draw an analogy with the monopoly in private sector, looking at government as behaving similarly, i.e. seeking to exploit the highest "profit", that is tax revenues from citizens. While this view of an ever growing modern Leviathan has been a much debated model, what is important for our purposes now is that they claimed that decentralization offers an effective means to control it - via introducing competition among jurisdictions, and this competition breaks the monopoly just as in the private sector case. Later versions developed how the monopolistic maximizing behavior might differ between individual politicians and bureaucrats (Niskanen).

Several researchers have tried to design empirical tests to challenge the claim (e.g. Oates, Nelson etc.); several others have criticized the constructed tests. Their results show opposite directions, thus *whether the size of public sector in a country is in an inverse relationship with the degree of fiscal decentralization* or not is not fully proved yet. Meanwhile however, 'Reaganomics', 'Thatcherism' and ‘devolution of government’ came forth in the developed world, and following this trend many countries started to explore the possible advantages of privatization and decentralization. [18]

[18] It is often argued that these practices have led to some reduction in size, however numbers regarding the overall size of the public sector are not fully comparable in time, and across countries.

Contract theory insights on decentralization

The principal-agent model, which was first developed for the analysis of the private sector, is a potentially powerful tool for the understanding of inter- and intra-governmental relationships, and the public sector in general. In many cases, what we have in this area is precisely a principal - a higher level of government, or an electorate, or a president (often prescribed by the Constitution or some law) - that mandates an agent - a lower level of government, a city council, an executing agency - to do something. The *principal has the power (and often the funds), but the agent has the information.* Indeed, there are many different levels and agencies of government with different information, which brings conflict of interest - many moral hazard and adverse selection problems, i.e. those emerging from asymmetric information situations, are present in the relations of legislature, committees, bureaus, lower level agencies etc.

From a contractual point of view, what is important is that "*governance structures become important only insofar as* the evolution of the contract varies with the organizational setting." (Holmstorm-Tirole, 1989, p. 68) i.e. *when contracts are incomplete*[19]. Following the logic of Williamson, Holmstorm and Tirole[20] provide the argument as follows:

> "to the extent that one cannot specify ex ante how the surplus should be divided between the two, i.e. *if one cannot write a comprehensive contract, the division will depend on ex post bargaining positions*. Bargaining positions in turn will depend on the organizational context." (Holmstorm-Tirole, 1989, p. 69)

Here, such things are considered: ex post contracting hazards can distort ex ante investment, or since bargaining in the context of asymmetric information is definitely costly, ownership structure obviously matters, as organizational changes influence the cost of information flows and alter transaction costs.

[19] By incompleteness of contracts, it is generally understood in the literature that contracts cannot be perfectly written to cover all future contingencies, either due to the costly nature of contract design, or the impossibility of perfect information collection, unforeseeable events or due to unverifiable outputs and actions that cannot be subjected to explicit contracts.

[20] Holmstorm and Tirole use the term 'not comprehensive contracts'.

Thus the contract theory view on centralization vs. decentralization dilemmas in government is slightly different from the standard neoclassic public finance view; let me quote Cremer-Estache-Seabright on this:

> "questions about decentralization in government are questions about the *allocation of rights of control*. If contractual relations were complete, it would not matter whether power were decentralized or not, since contracts would specify everything to be done at each level of government and there would be no need for discretion. The *appropriate degree of decentralization depends upon which level of government will have the most incentive to act to bring about desired outcomes*. In particular, centralized governments can reap benefits of coordination, but tend to be less accountable than decentralized ones, though there are important exceptions to this general rule. The organizational design of government affects not only incentives to take decisions, but also incentives to gather the information on which those decisions will be based." (Cremer-Estache-Seabright, 1994, p. 41-42.)

The political economy view –federalism as a commitment

As mentioned above, fiscal federalism is more of a topic of economists, who carefully investigate the relevant fiscal institutions, i.e. assignment of taxes, revenue sharing schemes, intergovernmental grant designs etc. Political scientists and political economy scholars are more concerned about the distribution of decision-making power among levels of government, taking a broader approach, which involves several non-economic features. One of the main critiques from this standpoint is the following:

> "the primary weakness of the principle of economic federalism has been to advocate the central government as the only institution best able to provide pure public goods and correct inter-jurisdictional externalities. *With our growing understanding of how central government policies are decided, the deference of economic federalism to a strong central government may be excessive*. For example, there often appears to be little connection between actual jurisdictional spillovers and the size and structure of federal grants received. .... Alternative principles of federalism, ones that explicitly recognize the potential failings of central government should be considered too." (Inman-Rubinfeld 1997, p. 47-48)

Related to this is another branch of the political economy literature which addresses: *How do governments **commit** themselves to providing efficient public goods, keep fiscal institutions* that help 'preserving market interests' - a term first referred to by Weingast. This second generation economic theory of federalism build on findings of the Theory of the Firm, contract theory - more and more using the tools provided by game theory - looks at how information and authority allocation effects the degree of commitment, and "to what extent is

competition a disciplinary device in the presence of managerial incentive problems."(Qian - Weingast, 1997, p. 85).

Another strand within political economy is research on *what determines the **pace and extent** of decentralization in the political system as a whole*. One example is written by Garman - Haggard - Willis (1996) on Latin America. The focus of their investigations was *political decentralization*, which refers to "the establishment of autonomous, elected subnational governments capable of taking binding decisions in at least some policy areas", as well as what they called *functional decentralization*,[21] that is "the transfer of responsibilities and expenditure and revenue-raising powers". (Garman - Haggard - Willis,1996, p.1.) In looking for the variance of extent and form, they formulated several hypothesis e.g. differences in the mode of enactment (constitutional changes or ordinary law) have implications for the composition of the enacting coalition, and thus for the nature and durability of the reform itself. Meanwhile, as they also emphasize, in the Latin American context, the *de facto* is more important than the *de jure*, hence the importance of fiscal solutions supporting it*: share of different level governments in total expenditures and revenues*, the divergence of which calls for intergovernmental transfers. They admit that politically the most interesting questions related to transfers are the *extent of central discretion* over the amount, the patterns of distribution across subnational jurisdictions and the purposes they can be used for, yet since these mechanisms are quite complex and different in every country, and they state the comparability to be extremely hard[22].

Following Barbara Geddes' theoretical assumption that institutions are actually 'bargains among self-interested politicians"[23] they argue that

[21] In the majority of the literature, this process is referred to as *fiscal decentralization*, and this is also the phrase used in this paper.
[22] Experts of The World Bank and other international institutions very often do these kind of comparisons though, based on their insights to the countries' economic systems.
[23] Quoted by Garman - Haggard - Willis, 1996, p. 6.

> *"decentralization is also embedded in a complex intergovernmental political game*, that involves presidents, legislators and central government ministries as well as subnational officials" (Garman - Haggard - Willis, 1996, p.48.)

The core argument of this approach is that "the higher the dependence of central government ... on support from lower-level politicians and the greater their sensitivity to subnational politics, the greater the degree of decentralization." (Garman - Haggard - Willis, 1996, p.6.). Another article focusing on the conflicts and dilemmas of decentralization is that of Hommes (1996), who describes the *major paradox of decentralization* as "*it demands more central government* and more sophisticated political skills at the national level to guide the process, at the same time it requires breaking the habit of dependence on the center." (Hommes, 1996, p.331)

The approach and logic is similar to that followed by above authors, and the one emphasized in the introduction of this paper. Hommes concludes that decentralization is truly a political problem, during his study he deals with the *process of political change*, in which the political and institutional setting, centralist tendencies and power-seeking of political parties, *the* role of local elite are important factors; *institutional conflicts* involving cultural obstacles, constitutional and bureaucratic constraints, autonomy and credibility issues, sequencing of reforms; and *fiscal dilemmas* which consist macroeconomic control versus local autonomy, central versus local taxation, revenue sharing issues.

A good political economy analysis on centralized versus decentralized provision is given by Besley, T- Coate, 1999 - they take a fresh look at the trade-off between centralized and decentralized provision of local public goods. Their analysis assumes that under decentralization public goods are selected by locally elected representatives, while under a centralized system policy choices are determined by a legislature consisting of elected representatives from each district. The study looks at the role of taste heterogeneity, spillovers and legislative behavior in eventually determining the case for centralization.

Summary notes: Pros and cons of fiscal decentralization

In short, the fiscal federalism argument goes that decentralization provides greater allocative efficiency of the government, and possibly a smaller public sector, thus a welfare gain for the whole society.

- Regional variety in the mix and level of Local Public Goods is achievable;
- Regionally based governments are in a better position to know about local preferences, which is good as supply will better match demand;
- Competition among local governments, since citizens "vote with their feet", can enhance social optimum;
- Transparency and the easier monitoring of the smaller size make local governments more responsive to the needs of the public and decision-makers more accountable; and
- Smaller bureaucracies are easier to administer efficiently.

However, opponents warn about **controversies**:

- pursuing redistribution policies might be more difficult;
- macroeconomic stability can be jeopardized;
- potential efficiency gains can be lower in geographically small countries (where there is probably less regional diversification of needs);
- efficiency can be undermined due to a great need for central government intervention (i.e. regulation and grants) – the "trap" of decentralization;
- insufficient information leads to strategic behavior, thus management problems;
- scope of corruption within government might be increased by decentralization;
- large, centralized bureaucracies might be easier to monitor than many decentralized offices;

- natural tendency of politicians to overspend - which decentralization, and possible patronage can exaggerate;
- conflict between formal decentralized institutions and informal political structures;
- the silent, but ever existing desire of the center to dominate the local.

The necessary **conditions for success** of decentralization as it can be derived and summed up from the current discourse:

- constitutional and legal aspects must be clear and enforced - clear assignment of functions between different levels of government;
- a fairly strong central government, which can decide when to intervene for the sake of stability, or the above mentioned reasons, however retains from it in other cases;
- local governments must have access to necessary resources (reliance on some form of local taxation);
- there must be adequate public expenditure management systems at local governments exist; and
- the quality of staff in local bureaucracies must be qualified for the tasks delegated.

.

Conclusion

The provision of a full-fledged review of all the literature related to the topic of fiscal federalism is almost impossible and definitely beyond the scope of this chapter. The previous sections tried to brief the main ideas of the fiscal federalism literature, as well as the ideas and counterarguments concerning decentralization of more positive approaches such as public choice and political economy.

The evolution of the fiscal federalism literature seems to follow a line which develops increasingly specialized sets of fiscal institutions that ensure a more effective and responsive government in the normative sense. But as many analysts (Bird, Rubinfeld) pointed out: the solutions to these problems *will always depend to a great extent on the history and constitutional character of individual countries.* Sound and careful ***analyses*** of intergovernmental fiscal structures ***frequently reveal cases where the existing institutions set up and the policies followed are not achieving their allocative, distributive etc. objectives*** underlined by the economic profession. Indeed, many ***political elements***, ***different incentives***, ***information problems distort*** the way decisions are made and policies are formulated - as revealed by political economy and public choice scholars.[24]

The potential for increased efficiency may not be fulfilled if local and/or central governments pursue policies which diverge from the normative prescriptions ***and decisions are determined by political factors or electoral considerations***. Clearly, fixed formulas of unconditional grants tie the hands of the decision-maker more, there is no yearly negotiation, while more flexible formulas or conditional grants allow a more discretionary distribution and even a strategic use of resources by political parties, e.g. for the purposes of reelection or other political interests (Johansson,2003). Rules themselves can also be subject to changes in subsequent governments' budgets as part of political maneuvering. By now there is quite a considerable literature on the *political economy of intergovernmental grants* with a lot of empirical papers on different countries, time periods using different research designs and estimation techniques (Worthington-Dollery, 1998, Porto-Sanguinetti 2001, Feld-Schaltegger

[24] To highlight the importance of these, let me quote a quite pessimistic, yet potentially valid view on decentralization: "countries decentralize as part of structural adjustment programs in order to i) demonstrate success in reducing central government expenditure in employment, in part by shifting expenditure functions and employees to other levels of government and ii) to shift the blame for service reductions to other levels of government." (Ferris - Winkler, 1990, p. 165)

2005, Pinho-Veiga, 2004) – all coming to a conclusion that *grants are indeed determined/influenced to some extent by the political game*.

For this line of literature, an ***understanding of the behavior of different actors involved is crucial***, a *focus of research more on the choices* made by them rather than on the policy effects only is considered necessary. Moreover, the *fiscal* (and not the revenue) decisions of governments do not seem to be so well researched, especially how institutional and political factors affect those. Complementing these political economy ideas is the more recent research activity on vertical fiscal externalities, concurrent tax bases between federal and state levels - which look at both levels of government as 'game players' with strategies and responses to the other. This emerged due to the recognition that a ***more coherent theory of fiscal federalism should provide insights and understanding of the interaction between these levels of government.*** Information asymmetries between them are one line of literature and concurrent tax bases, while fiscal powers are the major concern of the other. (Keen, 1998) Political economy can add more to this line of thinking and provide models and empirics on the incentives, behavior of actors or institutions, explain their interactions and decision-making mechanisms.

I inserted all these different views not just to show the breadth and liveliness of the debate, and to give a "chess-table" of all different ideas out there, but also because it is important to draw attention to some *differences in views of American (USA and Canada) and European authors.* This is not simply because of the differences in federal and unitary state structures - but rather due to history and traditions of state development.

As highlighted by Ilona Pálné Kovács (1997), all along the history *of the USA, the bottom-up approach* is there in every field, therefore for American social scientists the very existence and independence of sub-national (state and local) governance is out of the question, what they are interested in are the processes, *structural relations of power*, like the

title of the famous book of Robert A. Dahl (1961) "'Who Governs?': Democracy and Power in the American City" and the consequences of who governs. On the other hand, the European tradition is not so clear-cut, there are a few experiences with centralism (e.g. France) and another few with high degree of self-governance (e.g. Great Britain, Switzerland) therefore *European social scientists are more interested in how central and local relations are formulated*, how much *real autonomy* the sub-national sphere has or lacks etc. As an example, Pálné mentions the book of Pierre Gremion, 'The power of the periphery' which is a work showing all the characteristics of the interaction of central and local power through the role of the prefect, a key actor of French public administration.

Though somewhat similar in their traditions, there are notable differences between the U.S. and many countries in Europe in the degree of fiscal decentralization. Local governments in the U.S. have significant autonomy in setting their own taxes and determining how to spend their revenues. This is not true of their European counterparts in Spain, France, the United Kingdom, Germany, Norway and other countries. It seems that much of Europe stays away from adopting effective decentralization in which sub-national units would have true local taxing authority. As I described the arguments (developed mostly by American authors, starting with Oates) for the efficiency gains of decentralization with financially autonomous local government it seems difficult to explain within the traditional framework these differences in the degree of fiscal decentralization between the U.S. and many European countries. However, it does not necessarily mean that Americans are right, Europeans are wrong. The differences lie in the much greater emphasis on solidarity by Europeans, at least in policy level. Sole-Olle et al (2006) prove in a model for health, education and social services that when people care about distribution, i.e. get disutility from inequalities across regions, then a more centralized system can in fact be Pareto optimal. According to their

model, the optimal system is one in which the central government assures universal minimum levels in all regions rather than imposing complete equalization.

> „Where preferences for solidarity are strong, as apparently they are in many European countries and with respect to education in many U.S. states, centralizing the provision of publicly provided goods and services can increase social welfare. We thus provide a possible explanation for the endurance of very different systems of fiscal federalism in countries with seemingly similar economic, political and historical traditions." (Sole-Olle, 2006:)

The EU itself is considered often in the literature on federalism (strangely especially by American, but more and more European authors join in) as a special kind of federation with not fully built institutional system. It poses an interesting challenge, since federalism (in its economic, political or philosophical meaning) nowadays appears as supporting decentralization (in especially Anglo-Saxon countries), whereas federalism EU style is rather about a strengthened and strengthening central power (even the theoretical literature reaches this conclusion), though the subsidiarity principle is there to remain.

Chapter III.

Political economy considerations in grants – two selected topics: partisan effects and cycles

„Long before the appointed day [of presidential election] arrives, the election becomes the greatest, and one might say the only, affair occupying men's minds… The President … no longer rules in the interest of the state, but in that of his own reelection; he prostrates himself before the majority, and often, instead of resisting their passions as duty requires, he hastens to anticipate their caprices."
Alexis de Tocqueville, Democracy in America, 1848

In this chapter, I search for some more positive and practical insights, empirical evidences, actual factors considered in the political economy literature in order to guide my empirical research design. My major interest is what results are available on political determinants of local government spending and revenue policies and of intergovernmental grants (apart from the fiscal and socioeconomic ones already known from the standard public finance literature detailed in the previous chapter). After a general review of these I survey more specifically the *literature on political business cycles and on partisan/ pork-barrel effects* in grant distribution to guide my empirical work.

Empirical findings on how different financial sources, socioeconomic and political factors affect efficiency of local public spending

Fiscal institutions that regulate the relationship between national and sub-national levels of government greatly influence the performance of any given government, especially

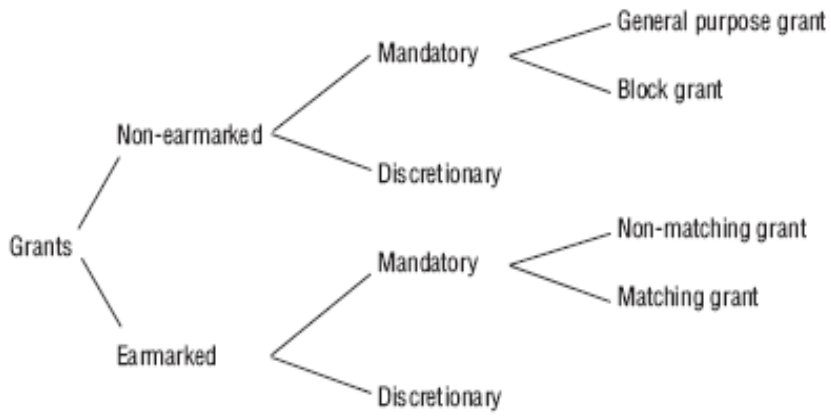
in the field of public goods and services provision. The way the pillars of decentralization are solved among the various levels – that is the allocation of functional responsibilities, tax or revenue capacities and the system of intergovernmental grants - are in practice the *institutional context for the relationship of government levels.* There are different traditions with respect to local finance laws in different countries of even the developed world, in theory all designed to promote a good mix of efficiency and equity. Since there are always distributional consequences it is generally true everywhere that these rules can be subject to strategic maneuverings and especially intergovernmental grants can be used tactically.

Once decentralization is chosen to further the public good the need for a fragmented, flexible and *substantially autonomous* local government system is often emphasized. Boyne puts the argument this way: „*Local communities should have the discretion to innovate, experiment* and develop distinctive policies. On other words the *center should encourage localities to compete on service and quality*. This condition for competition has been ignored in the public choice literature; perhaps because most authors have written form an American perspective… [where] there is a much stronger tradition of local autonomy." (Boyne, 1998, p.22)

The proportion and design of grants to sub-national governments

Decentralization outcomes depend to a great extent on the design of fiscal transfers from the central government (see e.g. Shah 2005, Shah 2007) – especially in countries where majority of municipalities do not have access to substantial local own resources. Intergovernmental transfers can take many forms, including discretionary allocations; block, conditional, and matching grants, sharing certain tax revenues.

5. Chart:Types of Grants



Source: OECD, 2006 Intergovernmental Transfers and Decentralized Public Spending

Different grant forms have different incentive effects – as described in great detail by the classic fiscal federalism literature. To sum up in a few words, the most efficient instruments to finance sub-national services are non-earmarked general purpose and block grants. However, earmarked discretionary grants are considered to be a good instrument for the co-funding of temporary projects or programs, especially if the commitment of sub-national authorities to performance targets is sought. In the case of newly imposed programs or ensuring minimum standards for public services provided locally, earmarked non-matching grants can be a useful, though not ideal tool.

2. Table: Theoretical prescriptions for efficient use of different grant instruments

Purpose	Efficient type of grant or regulatory instrument	Central government initiative			Sub-national government initiative	
		Imposed programmes or standards	Compensation of spillovers	Temporary projects and programmes	Basic services	Fringe services
Financing	Extension of sub-national tax base	X			X	X
	Non-earmarked general purpose grants	X			X	
	Non-earmarked block grants	X				
	Earmarked discretionary grants			X (co-funding)		
	Earmarked matching and non-matching grants	(X)		X (risk sharing)		
Subsidisation	Earmarked matching grants		X (national spillovers)	X (experiments)		
	Imposition of co-operation		X (regional spillovers)			
Equalisation	Imposition of horizontal grants	X			X	
	Non-earmarked general purpose grants	X			X	

Source: OECD,2006 Intergovernmental Transfers and Decentralized Public Spending

In the following table I tried to summarize the major points of grant design, based on the review of Anwar Shah (1994), where the starting point is that every objective specified by a grantor should be reflected in the grant design.

3. Table: Principles of grant design

Problem		**Solution**
fiscal gap	↦	general non-matching transfers tax base revenue sharing mechanisms
differential bet fiscal benefits /horizontal fiscal imbalances/	↦	general non-matching equalization transfers
benefit spillover compensation	↦	open-ended matching grants (matching rate=spillover ratio)

to ensure minimum service standards	↦	conditional non-matching /*block/* transfers
to stimulate public expenditure on areas of high national importance but low local priority	↦	conditional open-ended matching transfers

Source: Own compilation – based on Shah, 1994

Traditional grant theory recommends earmarked, matching grants to internalize positive spillover effects. Though matching grants are usually not good for correcting the regional spillovers, where a better tool is e.g. to increase jurisdiction size or charge fees for concrete services used by other municipalities. A matching grant changes the relative price of a service at sub-national level. Although both matching and non-matching grants stimulate spending by increasing the income of local governments, the matching grant provides an extra stimulus through the lower tax price, while a non-matching grant does not (in economic terms: the matching grant has an income effect and a price effect, a non-matching grant only has an income effect).

Depending on their design, matching grants and tax revenue assignments can increase the fiscal effort of local governments, however the variance of these inevitably leads to inequalities – which can pose political concerns. With *grants* given, *policy priorities* are to some extent *centrally-determined*, which on one hand helps policy coordination and are justified by e.g. fiscal externality or equity reasons, however at the cost of distorting the local and regional political and fiscal priorities. In the fiscal federalism literature it has been noted that decentralization often disturbs horizontal equity equal tax prices for equal services. Hence equalization grants aiming to correct these are justified – not only on the basis of solidarity/redistribution but also by increased allocative efficiency (Buchanan, 1950; Musgrave, 1961). Equalization of tax capacity is directed at compensating localities with a relatively small tax base; while equalization of service capacity is for compensating municipalities facing relatively high costs of basic service provision due to their environmental, geographical etc. circumstances. It can be done entirely via *revenue sharing systems* used in many European countries (a classic example being Germany) or via

earmarked or non-earmarked grants. It should be noted however, that full equalization might not be desirable, as it removes the incentive to increase the local tax base by attracting new economic activity – hence central governments usually opt for only partial equalization.

Dollery and Wallis (2001, p.49) add that ***vertical fiscal imbalance*** may still cause problems and stop the evolution of a Tiebout style competition : *high central grants to local governments can be serious efficiency or competition constraints*. Referring to Dye, 1990 and King 1984 they mention that *large subsidies „allow local governments to externalize their costs* by shifting them on to higher levels of government. Similarly, when most of the cost of local government services is born by national and state taxpayers, little incentive exists for households and businesses to migrate away from inefficient municipalities and this erodes the nature of competition itself." Especially the first argument on large proportion of grants has special relevance for Hungary, the case under scrutiny in this dissertation.

On the other hand, De Mello –Barenstein, 2001 find that governance is affected not only by the degree of fiscal decentralization per se, but also by *how* sub-national expenditures are *financed.* Notably, they have found *governance improved when sub-national spending is financed by mobilizing non-tax revenues* (and/or grants and transfers) *rather than increased decentralization of tax bases*. The turning point for them was 19 per cent: in countries where sub-national governments already account for more than 19 per cent of total government spending, governance deteriorates if further sub-national revenue mobilization is pursued. They provide several explanations for this – soft budget constraints of local governments as well as possible political capture of local governments by interest groups: local elites do not fully exploit local tax bases to reduce their own tax burden.

There has been a considerable amount of empirical research regarding the impact of matching and non-matching grants on decentralized spending. An interesting empirical paradox is the so called "fly-paper effect" (named originally by Okun, A.), which is often

referred to as one type of fiscal illusion in the literature.[25] This is about the strange behavior of local governments, that when they receive transfers from central level, they do not exactly behave the way theory would suggest, i.e. they do not cut local taxes as much as the transfer would allow, but rather raise their spending - hence the name for the phenomenon in the literature 'money stays where it hits'. Perhaps the most often cited are Gramlich and Galper (1973) and Gramlich (1977) though many studies followed[26]. Widely duplicated empirical research typically finds that an additional currency unit of average private income stimulates 0.10 currency unit of additional spending, while receiving an additional currency unit of non-matching grant generates about 0.40 currency unit of additional public spending of the local government. (OECD, 2006:23)

This behavior seems to work *against the suggestions of the median voter model*, which perceive local governments as true agents representing the voter's best interests and preferences. Instead, it looks as if budget maximizing officials and politicians, types which Buchanan and Niskanen drew in his models, would influence the behavior of local governments. There is quite a lively and ongoing debate, as well as several empirical studies in the public finance literature on this issue – there is no agreement on definition, measurement and neither on evidence. Gramlich in 1987 observed that state and local governments responded to grant cutbacks by picking up most of the slack: they increased their own taxes and largely replaced the lost grant funds so as to maintain levels of existing programs. Thus, according to Oates' conclusion, there seems to be an asymmetry in the fly-paper effect on the negative side, i.e. an asymmetry in the response to intergovernmental

[25] Fiscal illusions refer to instanes where actual costs and benefits of government are mispercieved by the citizenry. Five specific forms of fiscal illusions are usually mentioned in the literature: revenue complexity hypothesis, income elasticities of tax revenues, debt illusion, the'flypaper effect' and 'renter illusions'.
[26] More on flypaper effect and the vast literature of different findings, see e.g. Oates, 1991 or Courant, Gramlich and Rubinfeld or Bailey, 1999 Ch.11.for a review.

grants. "It suggests that while state and local government spending responds vigorously to the receipt of grants, it is relatively insensitive to the loss of grants." (Oates, 1991, p. 9)

The fly-paper phenomenon is interesting, because it supports the Leviathan view of government and highlights the need for new explanatory models for behavior and incentives, decision-making mechanisms in the public arena, as traditional framework seems insufficient to explain these results. This has serious policy relevance, because if traditional models fail, then grant designs based on them might provide incentives opposite to those desired – in fact the 'flypaper effect' can lead to questioning the efficiency gains from decentralization. Wyckoff, (1985) provided a bureaucratic explanation of flypaper effects. He used a Niskanen type model to explain capital expenditures in 115 local governments in Michigan and found that the bureaucratic model does explain capital expenditures well, however operating expenditures are interestingly better fitted by the median voter model.

By giving the theoretical underpinnings and some of the empirical practice I wanted to clarify the point that even though there exists a framework for grant design justified by economic theory, it should be handled with care – exactly for the institutional, political, collective decision-making context it is made in. Even international agencies - who often allow themselves to generalize and enforce "best practices" regardless of country-context and praise the "Washington Consensus" of neoliberal economic views - also admit, what is mostly emphasized in this thesis as well, that

> "grant reform has to take place in a context of institutional, historical and cultural circumstances that are unique to each country. Financing, subsidizing and equalizing grants have to take into account the nature of fiscal decentralization, the degree of local financial autonomy, the competences of the various levels of administration, the willingness of the political elite to proceed with reforms, the principles of regulation (more or less consensual), the degree of disparity between regions and the lock-in aspect of these disparities, the extent to which sub-national governments have succeeded in forming a coalition, and the specific challenges faced by the countries " (OECD, 2006 : 34)

Political and socioeconomic factors in local government efficiency

In economic analysis, the ***concept of efficiency*** has at least three meanings. Its first understanding is *productive,* or technical efficiency, which refers to the use of scarce resources in the most technologically productive, efficient manner. The second meaning is *allocative* efficiency, referring to the efficient allocation of resources among alternative uses in order to produce an optimal combination of output. While the third main definition of economic efficiency is *dynamic, or intertemporal efficiency,* which refers to the efficient use of scarce resources through time, and thus involves both allocative and productive efficiency. Of the ones referred to in this thesis, cost efficiency can be conceived as part of the first, productive efficiency, while obviously the efficiency of grant distribution is in the allocative efficiency sense.

Empirical studies of local government efficiency show that financial structure, notably ***fiscal revenue capacity*** *and* ***grants*** *are important determinants of local public sector* ***efficiency*** (DeBorger et al.1996 quoted in Dollery-Wallis 2001). Of the fiscal explanatory variables total per capita tax burdens, the size of intergovernmental grants are thought to increase local expenditures and thus are linked to *inefficiency*. (De Borger et al, 1996, Dollery-Worthington 1996) Worthington and Dollery, 2000 also investigate the *linkage* between *grant mechanism and LG efficiency,* while De Borger, Kerstens 1996a finds that local tax rates and education influence efficiency positively, per capita grants and income negatively. However these empirical findings need to be further tested and addressed on other data, just like whether the *level and composition* of local *own source revenues* has any systematic effect on local government *efficiency*. However one should note that efficiency is not equal to effectiveness. To the latter belong the spending capacity of the budget (planned/actual spending on largest projects) and the appropriateness of objectives .

Moreover a number of studies have emphasized and checked the direct *relationship of political* and *socioeconomic factors with local government efficiency*. First political

composition of the local assembly has effects on efficiency – e.g. Eeckaut, V. et. al (1993) checking data on French speaking communities in Belgium find evidence that municipalities with liberals and socialists in the majority also have the highest percent of efficient municipalities. Usually the mere existence of a majority is linked with better decision-making capacities in the locality. Empirical evidence exists (Vanden, Eeckaut,Tulkens,Jamar 1993) to support the claim that *multiparty local coalition led* municipalities are *less efficient than single party, national led* ones. Putnam was measuring the relationship between social capital (Putnam, 1993) and regional variations in economic performance, along with the effectiveness of public administration, used variables as density of associational life, norms of reciprocity etc.

Of the socioeconomic variables, *per capita income*, proportion of population with higher than primary education, total population etc. are quite often used in models of efficiency. Analyzing spending preferences and demand for local public goods of local government elected politicians, Sorensen (1995) finds that *party affiliation* of local politicians has an impact on *demand patterns*, while government occupation and committee appointment are major determinants of politicians spending preferences. His finds proofs of the very *weak impact* of the *numerical strength of local parties* on the actual budget allocations

Infrastructure finance: economic and political aspects

Since public infrastructure provision has truly lots of spill-over effects involved, it is a shared responsibility between levels of governments and also one major area for intergovernmental grants. Yet, surprisingly there is rather limited literature on public capital investment. A summary of the fiscal federalism perspective on infrastructure policy is given in the concise paper of Hulten-Schwab, 1997, who argue that "*theory and practice are hard to match*". In their view, American national infrastructure policy is inconsistent with the principles of fiscal federalism in quite a few aspects – and they suggest that for future

research “it may be useful to incorporate some of the insights from the political economy literature in the analyses of the public capital question”. (Hulten-Schwab, 1997, p. 157)

Surveying the new economic literature on the relationship of public capital and economic growth, Romp and de Haan (2005) find more consensus on positive impacts, but great heterogeneity across countries, regions and sectors. What is even more important for us here is their cautionary note: “unfortunately policymakers have a perverse incentive as *new public capital investment projects are politically more attractive* because of their visibility *than spending on maintenance*”. (Romp and de Haan 2005, p.24)

Investigating several models of the determination of local public capital expenditures, Holtz-Eakin and Rosen (1989) found that unconstrained, forward looking rational municipal planning as a determinant of construction spending cannot be rejected. However they stress that this finding does not imply that the level of infrastructure spending would be efficient from a social welfare point of view. What they also found is that municipalities react differently to expected and unexpected resource shocks – which bear important policy lessons for *grant* policies: they *need to be perceived as permanent and stable in order to really have the desired effects on local infrastructure spending*.

Political/partisan effects in grants allocation

Grants are of different kinds, along the lines of theory the guiding principles are those of correction for spillovers, revenue sharing and fiscal equalization. Grant design in many countries is based on more or less complex formulas using needs or fiscal capacity indicators and other variables. Several classifications are possible among intergovernmental grants – see the section above. However, a fixed formula better ties the hands of the decision-maker and allows less yearly discretion and thus negotiations while a more flexible formula allows more discretionary power for the incumbent which are often used for certain partisan or other political purposes too. (Johansson,2003)

Redistribution is a major area of political concern and debate in fiscal policy. That majority coalition governments try to increase their benefits relative to minority has been stressed by Mueller (1989), However, already in 1959, Tullock modeled that the provision of public good (highways) can enrich one group (commercial land owners nearby) over others. When regional or local transfers, grants are considered to be used as a political tool, then what ends do they serve? Previous research has stressed two distinct political roles for redistributive spending programs. In one perspective *'pork barrel' programs* serve the purpose of electoral competition among political parties through „vote-buying" – this is where basically the whole political budget cycle literature also fits in.

'Pork barrel' is commonly referred to "when a collectively finance program whose benefits are concentrated in a small group is thought to have social costs that exceed the social benefits". (Drazen, 2002:327) Thus such programs are usually characterized by lack of proper information about the costs. They usually provide political benefits; hence grater number and scale of projects will be chosen than would have been economically efficient. (Weingast, 1984, Weingast, Shepsle, Johnsen, 1981) Social scientists have studied pork barrel politics in great detail, starting with seminal work of Ferejohn (1974) on politics of spending on river and harbor projects. Persson and Tabellini (2000) offer a comprehensive review and treatment of previous literature.

There are two lines in the empirical predictions emerging from this perspective: one is that opportunistic politicians will be inclined to direct transfers towards their '*core supporters*', as they think this is the cheapest way to buy votes. (e.g. Cox and McCubbins, 1986) The alternative view holds that politicians take the core supporters for granted, and thus spending will be allocated disproportionately towards '*swing districts*' where voters do not have a strong attachment to either the government or opposition parties. (Lindbeck and

Weibull, 1987) Dixit and Londregan, 1996 present a general approach that incorporates both of these approaches.

The other role for distributive politics is emphasized to be the role of pork barrel programs in cementing bargains among individual legislators (the practice of logrolling – Buchanan and Tullock, 1962) and in building cohesion within governing legislative coalitions, where reciprocity is key.

The concept of *rent-seeking*, generally referring to expenditures to win some contestable prize (like e.g. procurement bids) was first introduced by Tullock (1967) but later got widespread usage. Rent-seeking can refer to lobbying to affect the decision-making process; direct engagement in the political process to ensure secure access to decision-making power; and shifting in or out of the affected activity (Drazen, 2002:336) – all of which is shown in the literature to have socially undesirable consequences, like wasting resources. Such social costs are easily shown by the Harberger triangle of lost consumer surplus.

The most widespread political model used for public finance explanations is the *median voter model* (it has been outlined in the previous section or see e.g. Bailey, 1999 Ch. 10). The general conclusion from different versions of it is that (except for matching grants) local government revenues are source-neutral, i.e. it does not effect the decisions of the local government whether it received state grants or raised revenues locally. This is typical for models based on rationality. However together with rationality, almost all the other assumptions of the median voter model can be taken under scrutiny and offense, giving rise to the more realistic *institutional models*. Trying to take institutional aspects of collective decision-making into account in explaining local politics, already back in 1978 Pommerehne showed on empirical evidence from Swiss municipalities that estimates using the median voter model were superior for democracies who use referenda regularly, than for representative democracies with no referendum.

With electoral competition there are chances for selection of popular policy platforms by both incumbent and opposition parties, hence eventually getting closer to the policy preferred by the 'median voter' and to each others platforms. Yet, in many countries, most local candidates do not have any party affiliation, or even if they do, it is not too strong. Accordingly voters do not have information on party platforms to be used at elections. Media is typically much less comprehensive and unquestioning, often local media is owned by government. These make accountability – one considered advantage of decentralization – extremely difficult to establish and it all becomes a vicious circle: apathetic voters do not elect adequate representatives, fail to hold their performance under close scrutiny, hence greater scope for opportunistic behavior for local politicians and thus local governments are more prone to 'legislative failure'. (Dollery-Wallis p.57)

Recent new empirical literature shows that variations in intergovernmental transfers (including infrastructure related ones) to sub-national entities within countries cannot be simply explained by traditional concerns of equity and efficiency alone, and *political variables* representing *electoral incentives* of public actors are additional and significant determinants (Inman, 1988, Grossman, 1994, Worthington-Dollery, 1998, Johansson, 2003). Wright (1974) was among the first who provided evidence that political factors were significant in determining New Deal spending per capita given to different states, later followed by Wildawsky (1984) writing about politically determined budget planning.

Inman (1988) argued that federal grants to states in the US did not seem to correct inefficiencies of the decentralized tax system, but rather reflect bargaining outcomes. A whole new strand of political economy research tries to develop the insights of welfare economics literature further and explores *implications of political representation*. Central government decisions – especially the ones over the allocation of intergovernmental *grants - are modeled as bargains* among self-interested, re-election seeking politicians caring rather for these

political and personal interests instead of public goods and externalities etc. (Inman-Rubinfeld,1997, Dixit-Londregan 1998). Following these models, more recently Johansson (2003) provides evidence from panel data on Swedish municipalities for the years 1981-1995, that *grants to municipalities are targeted* to those localities with the most *swing voters* in elections.

Extending this line of literature to developing countries, Garman - Haggard - Willis (1996) state the politically the most interesting questions related to transfers are *the extent of central discretion* over the amount, the *patterns of distribution* across sub-national jurisdictions, and the *purposes* they can be used for, yet since these mechanisms are quite complex and different in every country, the comparability is extremely hard. Measures of strong central control (from their empirical investigations they found Chile and Mexico standing out at this end) for them are: (i) high level of central discretion on size and distribution of transfers, (ii) earmarking or establishing conditions on the use of transfers. On the other hand, indicators of effective decentralization are (Argentina and Brazil turned out to be the most decentralized ones) :(i) tying central government's hands by fixed revenue sharing formula, (ii) weak conditions governing the use of funds. Their core argument is that

> "the higher the dependence of central government ... on support from lower-level politicians and the greater their sensitivity to sub-national politics, the greater the degree of decentralization." (Garman - Haggard - Willis,1996, p.6.).

They look at the incentives facing presidents, legislators and sub-national politicians, which are influenced by

- the presence and absence of *legislative majorities,*
- the degree of *internal cohesion of political parties* (which itself is a function of the electoral rules),
- the influence on party nominations,
- the *fitting of sub-national jurisdictions with national electoral districts,*

- *ways of sub-national* control or *pressure on national politicians* and the sensitivity of the latter to these.

About the necessary conditions for successful decentralization political scientist Hommes (1996) mentions two elements: (i) the capacity of local governments to raise their own revenues and (ii) the ability of national governments to direct reforms and to behave in a way that does not impede decentralization, lead to recentralization, i.e.

> "central governments must learn when to impinge on local autonomy for the sake of stability and when to refrain from intervention to avoid inhibiting good government at the local level" (Hommes, 1996, p. 348).

This leads back to the basic normative question of fiscal federalism theory, whether *decentralization* is superior to centralization in any way or is it just another type of governance, on which recent papers by Besley and Coate (2003) and Lockwood (2002) conclude that it *depends crucially on the nature of legislative bargaining over distribution*.

Turning to the more political economy type investigations, in an often cited paper Grossman, (1994) formulated a political theory of intergovernmental grants. He developed a model of vote maximizing national (federal) politicians, who give grants to buy the support of state voters and the model is tested for *similarities of party color of federal and state politicians* as well as the *size of majority* in a state. He found that a Democrat majority in a state, and also the size of state bureaucracy and union membership (more chances for vote-mobilization) had increased per capita dollar amount of grants made to the state.

Analyzing the political determination of unsystematic intergovernmental grants in Australia, Worthington and Dollery (1998) include both traditional public finance variables as well as public choice influenced ones. They too presume that *grants are used by federal politicians to purchase political capital/chances for reelection*. Their results reinforce such considerations – similar to the story of Grossman 1994, states with greater "political capital" seem to receive greater transfers - and also highlight the importance of including institutional factors into explanatory models. Khemani (2003) argues similarly that transfers in India are

significantly greater to those states whose governments are of the same political party as the national government, moreover even amongst the partisan states, where party controls a smaller proportion of seats (i.e. there is more to gain) receive higher amounts of discretionary transfers.

Theory of Political Business Cycles

Elections are meant to make officeholders accountable to the community. Voters are allowed to choose the candidate they prefer, either in the sense of most competent or as being ideologically closest to a voter's position. Moreover, elections can serve as a disciplining device, help controlling officeholder's performance - in more formal terms of a principal-agent setup, the voter principals try to control the moral hazard (asymmetric information) problem by threatening the agent with replacement. Though the mechanism most studied for choosing policymakers is *elections*, it need not be the sole one, superiors/emperors can also select them – it does not matter who chooses the policymaker, his ability to remain in office will depend on his ability to carry out policies which maximize the utility of those who choose him. Hence, ultimately we have a *principal-agent problem*, that is a situation where decisions and actions affecting the welfare of the (individual or group) principal are made by his agent - and in such a situation the key issue or the solution to the problem lies with incentives and monitoring, i.e. if and how the agent can be made to operate in a way which is beneficial to the principal under imperfect information.[27] In election terms: when is the threat of electoral defeat effective in inducing the agent to act in the best interests of the principals? (Drazen,2002:221)

[27] There exists a well-developed theory and quite huge literature on principal-agent problems, e.g. Fudenberg-Tirole, 1991 Ch.7 is a useful reference, among many others.

However, when there are multiple principals with unknown preferences and when principals select among different possible agents – as in the case of elections essentially – the application of standard principal-agent models becomes difficult. As Besley and Smart (2003) stressed, elections provide accountability in two senses – first they allow voters to de-select bad incumbents (*selection effect*) and second they have a disciplining or *incentive effect*, in that they give incentives for incumbents to change their behavior to increase the probability of their re-election. Elections thus serve the role of selecting the most competent agent and/or whose objectives best match those of the electorate and also of making officeholders accountable by disciplining those who fail to perform along these criteria.

Barro and Ferejohn Models of Electoral Control

Barro (1973) is one of the early papers in modern economics formally dealing with the issue of how re-election chances can induce an incumbent to change his actions. He presents perfect information, finite horizon model where the problem is the optimal level provision of public good *g* financed from taxation, chosen by the policymaker. Electoral control induces the policymaker to choose a lower level of g than he would do without, where the critical value will depend on the length of term in office, the number of terms the incumbent would like to stay in office, his discount rate and the difference between his office salary and what he could earn out of office. Barro's model is considered seminal in modeling effects of elections on economic outcomes, though his assumption of a „representative voter" limits its applicability.

Ferejohn(1986) tried to overcome some of Barro's shortcomings, hence the later reference to the model as Barro-Ferejohn one. Ferejohn introduced infinite horizon of politicians (so no problem of no controlling device in the last desired period of office term, as there is no such), only the performance and not the actual actions of the officeholder is observable – i.e. imperfect monitoring. All candidates are identical in competence and

ideology, i.e. not re-electing one means replacement by a same ”type” – hence the problem is ensuring good behavior. Voters are *retrospective in voting*, i.e. their vote depends on the past observed performance of the incumbent. There are significant empirical evidences (Fair, 1978, Lewis-Beck, 1988) supporting this assumption, i.e. that voters indeed vote retrospectively based on aggregate macroeconomic conditions The critical value of the incumbents efforts depend not only on his value of holding office, but also on the probability of regaining office once voted out – if it is easier to regain it in a subsequent period, the lower is his fear, hence lower is the electorate's control of policymakers. Ferejohn shows that results are quite different with homogeneous and heterogeneous voters, in the latter case incumbents can play voters off against each another, if they do not collude, hence the officeholder is entirely uncontrolled.

In the literature on voting there is an ongoing debate as to whether voters vote retrospectively (i.e. based on past performance) or prospectively (based on promises). Keech, 1995 Ch.6. provides a careful summary on the issues and economic consequences. Interestingly, already in 1957, Downs argued that voting is mainly prospective, since the whole purpose is to select a future government, however he adds that when there is imperfect information any rational prospective voting is necessarily retrospective. Lewis-Beck, 1988 points out that there is empirical evidence for both type of behavior.

Economic Conditions and Election Outcomes

What is the link between the actions of the policymaker and his electoral success? Myriads of politicians would give gold for the answer to this question, if there was one. Scientific interest in the *political* ***business*** *cycle*, i.e. deliberate manipulation of instruments or outcomes of economic policy surrounding elections, is quite old and flourishing as the quote from Tocqueville also suggests. While theoretical and empirical scientific work started on this

topic not so long ago, the phenomenon has been known by voters and politicians alike most probably since there have been elections.

Opportunistic Political Business Cycle

Models that deal with economic cycles induced by the political cycle are called political business cycle (PBC) models. ***Three generations of theoretical PBC models*** can be differentiated. First the literature concentrated on ***outcome***, i.e. models emphasized ***re-election*** *objectives of politicians* who in order to maximize expected vote-share find it optimal to expand the economy before and tighten it after elections – irrespective of their ideological orientation. (Nordhaus, 1975). It is assumed that voters are backward looking('retrospective' or 'adaptive') and evaluate the government on the basis of its past economic performance. Voters do reward such manipulations despite the fact that output and employment usually returns to pre-election rates, while inflation is higher.

As emphasized before, the standard model of optimal policy choice assumes a single planner who chooses policies for the economy. However, policymakers are indeed affected by the finiteness of their terms, as well as chances for their eventual replacement. Depending on their different assumptions, there are some commonly used models in the literature. When a policymaker can influence his chances of remaining in power, a key question is what his true objective is, simply to stay in office or to implement his specific program. Hence ***opportunistic*** (*office motivated*) policymakers can be contrasted with ***partisan*** ones (*ideologically different* program goals on issues they care for). Of course, in real life, such polar characterizations are somewhat inaccurate, as most policymakers are opportunistic at some points in order to win game, to be in a position to implement their ideologically

preferred programs later on, nevertheless for modeling, this differentiation is made, and hence opportunistic and partisan *political business cycle models* are set up.[28] Thus

> "models which focus on the desire to win elections as determinants of policy and the expected effect of such policies are termed models of the opportunistic PBC." (Drazen, 2002:228)

Opportunistic PBC models, like that of Nordhaus (1975)[29], which was one of the first ones, generally assume all voters to be identical, with no conflict of interests, hence electoral manipulation is aimed at the (less than fully informed) representative voter. As emphasized, opportunism means that the policymaker himself has no preferences over e.g. inflation or unemployment, his objective is to maximize probability of re-election, i.e. choose the policy which attracts more voters, where voting is retrospective.

> "The key question is in terms of outcomes: ***how does electoral competition between incumbents and challengers influence aggregate measures of economic policy***? ... Following Tufte, one can summarize the basis of the opportunistic PBC model by two premises:
> -economic conditions before an election significantly affect voters' choices; and
> -politicians , being well aware of this fact, attempt to take advantage of it".
> The latter will be evidenced by cyclical movements in policy instruments and in measures of economic activity that correlate with the political cycle and peak around election time."(Drazen, 2002:228-229)

Partisan Political Cycles

The original Nordhaus model has been criticized for its assumption of naively irrational behavior of voters – it is argued that any voter who has lived through more than one electoral cycle should be forward looking, rather than retrospective, as he will know that pre-election low levels of e.g. inflation and unemployment will be corrected later in the middle of the next cycle, thus voters should rather punish policymakers who engage in pre-election opportunistic manipulation than reward them. The other, even more extremely unrealistic assumption was that all voters are identical - hence *voter heterogeneity*, ideological differences and thus partisan nature of elections was introduced in the next round of explanations of the political business cycle. The median voter theorem, originating from the

[28] Nordhaus (1989) gives a well written, thorough summary of basic opportunistic and partisan PBC models.
[29] For a detailed, but informed description of the model see e.g. Drazen,2002:232-238.

writings of Downs (1957) predicts that if all parties are opportunistic in wanting to attract more voters then platforms and policy are expected to converge. Yet, policy convergence has not happened to that extent in real life, which served as evidence for the importance of partisan preferences, thus to the development of partisan PBC models.

The basic partisan model was first described by Hibbs (1977, 1987), who observed that Democrats and Republicans in the US have different positions on economic issues, such as inflation and unemployment. In his opinion these reflect the two parties' different constituencies and their views/dislikes:

> "the core constituency of the Democratic party consists of down-scale classes, who primarily hold human capital and bear a disproportionate share of the economic and broader social costs of extra unemployment. Up-scale groups from the core constituency of the Republican Party, they hold financial capital and absorb the greatest losses from extra inflation. For this reason Democratic voters generally express greater aversion to unemployment and less aversion to inflation than Republican voters." (Hibbs,1987:66)

In the basic Hibbs model economic fluctuations induced by these partisan differences are represented by movements along a Philips curve, where there is a trade-off between unemployment and anticipated inflation. The left-wing party will always pursue an expansionary monetary policy, even if this policy is known – hence in this approach cycles in economic outcomes will always reflect which party is in power with his own specific policy goals.

Critics have stressed that likewise the Nordhaus model, this also rests on mistaken premises, i.e. irrational expectations of what real policy will be (the Philips curve generally relies on surprise inflations). However Hibbs responded to this with the idea of using fiscal variables (e.g. transfers) instead of monetary policy to influence economic activity and then explanatory power of the partisan business cycle model will cease to be unsatisfactory. In an alternative approach, Alesina (1987) combined keeping monetary policy as the main tool, but assuming rational formation of expectations and uncertainty about election outcomes. With

these assumptions, Alesina's model gets to quite different aggregate fluctuations than the original partisan model.[30]

Obviously there may be tensions and possible interactions between partisanship (adherence to ideology and preferences) and opportunism (re-election chances as the only driving force), independent of empirical results common-sense also suggests that these are often not easily separated – which are hard to capture in models. Yet, some of the early partisan models tried to combine the two, like that of Frey and Schneider (1978), which argues that any party in power will pursue his own ideological goals as long as it 'feels safe', i.e. as long as its approval ratings do not start to fall as an election comes closer, while if the latter happens, the party will change gears and further policy choices will be driven by opportunistic motives.

Moreover, parties can adjust their policy objectives not only to political but also to economic realities. Popular, but unrealistic economic goals can be as dangerous for re-election success as unpopular goals themselves[31]. Okun (1973:175) has an oft-cited point on this:

> "for a generation, every major mistake in economic policy under a Democratic president has taken the form of over-stimulating the economy, and every major mistake under a Republican of over-restraining it."

Also, pushing ideology too far, can be dangerous as well – Drazen summarizes Hibbs(1987) and others the following way:

> "electoral defeats of the incumbent party may be due to economic mismanagement due to their overzealousness in trying to achieve their goals, with the opposition elected with a mandate to correct those mistakes.... If parties learn from their mistakes of overzealous pursuit of their partisan targets, we should see an incumbent party that desires to be re-elected change its policies in response to realized outcomes, yielding and interaction between partisanship and opportunism subtler than that suggested by Frey and Schneider." (Drazen 2002:257)

[30] For a detailed description and theoretical assessment on this model see e.g. Drazen,2002:250-258.
[31] A strong case in point is the failure of populistic governments in many Latin-American countries as a consequence of economic failures in the 1980s.

Keech (1995) has termed these models *contingent partisanship* and according to Drazen (2002:250) these can be viewed as analogous to later models of credibility, since for making credible promises, one obvious mechanism is "reputation".

Political Budget Cycle

Although sometimes used interchangeably with political business cycle, originally the term *political* ***budget*** *cycle* referred specifically to a periodic, regular fluctuation in a government's ***fiscal*** *policies* induced by the cycle of elections. "Fiscal policies" include the magnitude, composition and balance of public expenditures and revenues, as well as fiscal (im)balance and public debt. "Induced by the cycle of elections" can mean different things observationally, but a common theme is that some choice about fiscal policy would have been different if something about the electoral context had been different. (Alt-Rose, 2005:1)

As we have seen in previous sections, cycles can and do exist in different policy instruments and evidence regarding political *monetary* cycles is somewhat weak, or at least mixed. There is clear evidence for partisan patterns in real GDP growth rates for both US and other western countries, but for inflation and unemployment, results are mixed. However, as far as evidence on electoral cycles in fiscal policy is concerned, in fact the strongest econometric findings supporting opportunistic political cycles are precisely in the area of fiscal policy, both for US and several OECD economies. Tufte (1978) presented several cases of election-related manipulation of *transfers* in the US Social Security and veteran benefits payments. Keech and Pak (1989) also proved electoral cycle in veteran benefits in the US for the period of 1961-1978, yet no evidence afterwards. Alesina, Cohen and Roubini (1992) and also Alesina-Roubini (1992) present evidence for opportunistic cycles in transfers, however not in any other fiscal policy instrument. Similar to their findings on monetary policy, they do not find any significant differences in the behavior of Republicans or Democrats regarding their pre-election fiscal policy (Drazen, 2002:244).

Transfers are a fairly easy suspect for electoral-oriented manipulation, as it is inherent in their nature that they need targeting to subgroups, which makes it easier to achieve maximum electoral impact, however targeting based on political goals can be significantly different from what would be beneficial on economic/development policy grounds. It is also emphasized however, that incumbents can act in order to improve their re-election chances *only if they have the **incentive** and the **ability** to manipulate policy*. Based on a dynamic panel analysis of US states spending Alt-Rose (2005) show that political budget cycles are *more common* in contexts *where uncertain election outcomes* make manipulation more valuable, and less common in contexts where formal rules (e.g. balanced budget laws which restrict politicians' ability to issue debt to cover spending shortfalls) make the cycle less desirable, if not actually unfeasible. (Alt-Rose, 2005). This more serious introduction of incentives and ability leads to the whole issue of signaling discussed in the next section.

Second Generation PBC Models-Signaling

In the second generation of PBC models signaling is considered to be the driving force or analytical frame – Shi and Svensson (2004) call them ***adverse selection type models***. Originating from Rogoff and Silbert (1988) and Rogoff (1990) these models stress the role of *temporary information asymmetries about the politicians' competence level*[32] in explaining electoral cycles in fiscal policy: before elections competence level (high or low), is only known to the politician and not to the electorate. Voters naturally want to elect the more competent politician; however they can only base their rational expectations on observable fiscal policy outcomes.

[32] As Drazen marks, comtepence is not to be understood as purely a characteristic of the policymaker himself, but rather is representing his relationship with his environment, e.g. how well an executive can reach his goals in a representative democracy depends crucially on his relations with the legislature. (Drazen, 2002:270)

As in all models of asymmetric information, the sequencing is crucial, in short who knows what and when? Before the election, the high-type incumbent tries to signal his type (in order to get re-elected) by making an expansionary fiscal policy, which is less "costly" for him than it is for the low type. The basic idea behind this is that only someone who is very competent would put himself into the situation of worsening the budget, thereby greatly constrain a perhaps incompetent successor. Thus *deficit increases* before election-time when a competent politician is in office.

Rogoff (1990) argues that the incumbent can also signal his competence before an election by *shifting government expenditure towards* easily observed *consumption* spending and *away from investmen*t. Yet, Shi and Svensson (2004) remark that empirical and anecdotal evidence do not always support the signaling model predictions. For example, since only competent types signal by creating a boom before an election, the testable implications are unclear without additional information on the (unobservable) type of the incumbent. (De Haan-Mink, 2005)

Third Generation PBC Models - Moral Hazard

The third generation PBC models are based on ***moral hazard*** and lack such problems – examples are Persson and Tabellini (2000) and Shi and Svensson (2002), DeHaan-Mink(2005). As in the adverse selection models, each politician has some competence level, which is unknown to the electorate. But an additional assumption is also added, namely that *the politician does not know his competence level* ***ex ante*** *either*. In other words, politicians themselves are uncertain about their capacities to handle future problems. Voters are rational and hence want to elect the most competent politician. As in the previous generation of models, voters can make inference based on the observable macroeconomic performance of the current government. The main intuition in these third generation moral hazard kind models is that the incumbent government can exert *a hidden effort*, i.e. use *a policy*

instrument the public cannot observe, which is a substitute for competence. For example, if competence measures how well the politician can convert revenues into public goods, then the hidden effort is the government's short-term excess borrowing. In the phrasing of Mink-DeHaan(2005:5):

> "The incumbent government would like to increase its performance index by exerting more effort (borrow more), hoping that voters would attribute the boost in public goods provision to its competence. In the equilibrium of this moral hazard game, there will be an excessive effort on the part of the incumbent politician, and, as a result, there is an increase in the budget deficit prior to an election."

Note, that contrary to the previous – adverse selection-type models, in these models *all* types of incumbent governments will *incur excessive pre-election budget deficits independent of their competence level*. As Shi and Svensson (2004) point out, one can test these empirical predictions no matter whether the type of the incumbent government is observable or not. Moreover, the predictions and implications of this model can be tested for all democratic countries, irrespective of their political structure (e.g. the existence of partisan differences) – see e.g. Brender-Drazen, 2004 and 2005.

More actors than a single policymaker

All the above models have considered a single policymaker, however one must not ignore the institutional fact that all decisions are a result of an interaction between numerous political actors. The literature concentrated on two types of interactions in determining policy outcomes: (i) the interaction among legislators and (ii) the one between the legislature and the executive.

The main interaction *among* legislators described mostly by the public choice literature can be *coalition formations*/bargaining and its effect on policy - when knowing how coalitions are formed voters are expected to vote strategically (to name but a few references: Riker,1962 The Theory of Coalition Formations, Baron-Ferejohn,1989, Laver-Schofield,1991). There is very little modeling in the literature however on how the economic

outcomes are affected when a coalition government is in place – *research on coalitions focused mostly on their formation, rather on what effects coalitions will have on outcomes.*

There are two main results of the largely empirical literature – referred to as 'European Politics Tradition': (1) First is that *coalition governments* are much more moderate than single party ones, hence *no drastic policy changes* are likely, which implies less of a partisan cycle.. (2) Second, coalition governments, by their nature, are less likely to be able to carry out difficult policy changes, such as serious fiscal adjustment programs, hence *deficit and debts are usually higher* in countries where the electoral system generally leads to *coalition governments.* (Drazen,2002:294)

The relationship between the nature of party system/government and deficit or debt accumulation has been empirically dealt with for example by Roubini and Sachs,1989 and Gilli, Masciandaro, Tabellini,1991 – who check these relations on a sample of 18 OECD countries. They report a strong association of representational democracies and lack of fiscal discipline, and deficit ratios rising significantly (in three out of four decades observed) with the frequency of government changes. An often quoted more theoretical paper on the relation between coalition governments and political instability on one hand and fiscal indiscipline on the other is Alesina and Drazen (1991) "war of attrition" model of how conflicts of interests delay the handling of persistent fiscal deficits.

Empirical findings on PBCs

In empirical work (much less in quantity than theoretical.) evidence is mixed, and conclusions differ from each other, sometimes to a great extent – but there are some common lines. As far as early empirical work, Kramer (1971) on economic determinants of US

congressional voting, where he indeed found that economic fluctuations[33] do have a significant influence on electoral results, Tufte's (1975) reconfirming study and his very influential book *Political Control of the Economy* (Tufte,1978) should be mentioned. Fair (1978, 1982) found similar results looking at presidential elections in US from 1916-1976. His most influential results in sum are that economic performance (he checked real per capita GNP and unemployment rate change) before an election does matter for presidential election, however voters do seem to have a short memory (in formal terms a high discount rate on past economic performance), and do not look back more than one or two years prior to election. This result was reinforced by several other articles on US and other western countries' voting patterns. (See Alesina-Rosenthal, 1995 for a summary on these studies.) While Stigler (1973) concluded that economic fluctuations had no effect on congressional votes.

To better understand the empirical evidence, it is useful to divide them between studies concerning ***outcomes*** (e.g. inflation, unemployment, disposable income) and those dealing with ***policy instruments*** (transfers, money growth, other fiscal instruments). According to Drazen (2002:238) a number of studies tested the opportunistic business cycle model for the US and other countries (e.g.Alesina-Roubini,1992, Alesina, Cohen, Roubini 1992, Haynes and Stone 1989), however most of them found little or no support for the basic Nordhaus model of political cycle in economic activity outcomes, i.e. for unemployment, inflation or growth.[34] The most common form of econometric test of these opportunistic political business cycle models is to run an autoregression of an economic performance measure on itself, a small set of economic variables and political dummies to test a specific theory – the main differences among the tests coming from different specifications of the political dummies or from different periods checked. (Drazen 2002:240)

[33] Specifically Kramer regressed votes that the incumbent party received on the real per capita income growth rate and the rate of inflation in the election year, and found both to be significant determinants of election results.
[34] See e.g. Alesina, Roubini and Cohen (1997) for a detailed summary of empirical research on opportunistic models.

However, there is *no scholarly consensus on evidence for opportunistic cycles in the usage of policy instruments, especially fiscal transfers*, but also for monetary policy - some authors find significant political effect evidence over specific time periods (Alesina, Cohen, Roubini 1992, Grier 1989, Williams 1990), while others (Alesina, Roubini, Cohen 1997) argue about the weakness of such evidence. Alesina et al. (1997) found post election cycles in many countries, conditional on *partisan* preferences in both outcomes and instruments, but found no evidence of "opportunistic" pre-election monetary or budget cycles. Writing about US pre-election cycles, Beck (1987) argued that the Federal Reserve did not cause political monetary cycles, but passively accommodated such cycles when they were fiscally induced. In a very deep review of the literature, Drazen (2001) provides a formal model of such "active fiscal, passive monetary" cycles. Another reviewer (Franzese 2002) found some positive evidence for *conditional* electoral cycles in both outcomes and policy instruments (Clark et al. 1998; Clark and Hallerberg 2000; Shi and Svensson 2002a, 2002b; Rose 2004). Drazen argues (2002:244), that "in fact *the strongest econometric evidence, by far supporting an opportunistic political business cycle is in the behavior of* ***fiscal*** *policy*, both in the post-war United States as well as in a number of OECD economies. Several papers find evidence of a political *budget* cycle."

Looking at the lack of scholarly consensus and contradicting evidence one may wonder why we cannot see effects of opportunistic cycles in real economic activity (outcomes) that much as we clearly can in some policy instruments. Again, there are several answers in the literature – some, like Lewis Beck (1988) argue there is no cycle in either monetary or fiscal policy, and the reason he gives is that it is extremely hard to time economic manipulation well, only with massive imprecision, so politicians cannot expect the effects to manifest right before elections. Another line of explanation is that "policy manipulation that has real effects on the economic well-being of subsets of voters can effect election outcomes,

even if it has no significant effects on aggregate economic activity " (Drazen,2002: 245) E.g. it comes from the very nature of transfers that they should be targeted to certain subgroups of voters for vote-maximizing impact – see details on this in the next section on partisan effects in grant distribution.

The partisan PBC model (Hibbs etc.) has been tested much less then the opportunistic model. Generally there is agreement in the literature on the existence of partisan effects per se, there is no consensus on which mechanisms really seem to be at work, i.e. are supported by the data. Alesina, Roubini and Cohen (1997) provide a nice summary of the empirical research to which they add their own. Using political dummies - that differentiate left-wing from right-wing governments, also center-left and center-right governments from more extreme ones - they test Hibbs partisan theory for economic activity on a US sample and also for an OECD sample for the period 1960-1993. Results are quite similar, namely *that partisan effects on measures of* ***economic activity*** *are strongest in the first half of the terms*, however they find no significant partisan differences/cycles in monetary policy (quarterly data on money growth) neither in fiscal policy (transfers to individuals/GNP) although this depends on the specific time periods considered. Yet, unmistakably there are *systematic* ***partisan patterns*** *in real GDP growth rates, inflation* and in some countries even for money growth. As mentioned before, no scholarly agreement on which partisan model data really support how important these effects are, clearly much empirical work remains to be done.

Some ***institutional arrangements*** or *political and economic conditions* may make creating such cycles easier or more difficult, or more or less worthwhile. The publication of Persson and Tabellini's careful examination and claim to have "uncovered strong constitutional effects on the presence and nature of electoral cycles in *fiscal policy*" (2003a: 267) provided a big stimulus to empirical research on such *cycles*. They argued that such cycles were prominent in but not confined to *presidential regimes*. They have also given a

more general empirical specification that included post-election (relative surplus) as well as pre-election (deficit) effects. This innovative re-specification seems to make up for the difference between theirs and earlier estimates.

> "presidential regimes tend to have more decisionmakers with proposal and veto rights than parliamentary regimes.... The possibility of fiscal deadlock might accordingly be more serious, particularly in the case of divided government... In parliamentary democracies, instead the same majority typically controls the executive and approves the budget, and is this better able to fine-tune fiscal policy to its electoral concerns." (Persson-Tabellini 2002:12)

Exploring the links between institutional arrangements and fiscal performance in Latin America Stein et al.(1998) find evidence that electoral systems characterized by a large degree of proportionality – i.e. large district magnitude - tend to give larger governments, larger deficits and a more procyclical response of fiscal policy to the business cycle (though this is generally characteristic to countries of Latin America contrary to other industrialized countries). They also find that more transparent and hierarchical budgetary procedures lead to lower deficits and debts.

Brender and Drazen (2005) argue that until recently, a PBC was generally thought to be a phenomenon of less developed economies. For example, Schuknecht (1996) found evidence for a PBC on a sample of 35 developing countries over the period 1970-92 and Block (2002) finds *evidence for government deficit increases* by 1.2 percentage points in election years for a cross-section of 44 Sub-Saharan African countries. Also, Schuknecht (2000) finds that incumbent governments tend to *increase public investment prior to elections* on a sample of 24 developing countries for the period of 1973–1992. Hallerberg et al. (2002) check if political business cycles exist in East European accession countries during the period 1990–99 and they find that these governments act very much like their OECD counterparts. They try to manipulate the economy before elections where possible, but the tools they use depend upon the exchange rate regime and upon the institutional framework. If the country has a flexible exchange rate, the government uses the tool of monetary expansions, while if

the country maintains a fixed exchange rate regime the government engages in fiscal expansions, i.e. *running larger budgets in election years*. Independent monetary authorities can eliminate such cycles in countries with flexible exchange rates. They do find strong evidence of *fiscal expansions* as well.[35]

These findings already lead to those more recent studies which present evidence for the existence of a PBC in *both developed and developing countries*. For example, Shi and Svensson (2002) - using the GMM method - show that *significant pre-electoral increases (1 percentage point of GDP) in the government budget deficit* exist for their panel of 91 developing and developed countries over the period 1975-95. But even the critical Alesina et al.(1997) find – using fixed effects estimates - a 0.6 percent of GDP higher budget deficit in election years for their panel of 13 OECD countries for the period of 1961-1993. Moreover, Persson and Tabellini (2002) report statistically significant *tax decreases before elections* in a sample of 60 democracies over the period 1960-98.

Brender and Drazen (2005) bring the argument however, that the results of these studies are driven by the experience of so-called "new democracies", where fiscal manipulation may be effective because of the lack of experience with electoral politics in these countries. They argue that once the "new democracies" are removed from the sample, the PBC disappears. On a sample of 74 countries over the period 1960-2003 they find no evidence that deficits help reelection in any group of countries - developed and less developed, new and old democracies, countries with different government or electoral systems, and countries with different levels of democracy. In developed countries, especially old democracies, election-year deficits actually reduce the probability that a leader is reelected, with similar negative electoral effects of deficits in the earlier years of an

[35] Their conditional coefficients indicate that budget deficit worsens by 1.5% in pre-electoral periods in countries with fixed exchange rates. In countries with flexible exchange rates, there is a smaller move downward, but in this case the variable is not significant.

incumbent's term in office. Higher growth rates of real GDP per-capita raise the probability of reelection only in the less developed countries and in new democracies, but voters are affected by performance in the whole term of the incumbent rather than in the election year itself. Low inflation is rewarded by voters only in the developed countries. Alt and Lassen (2005) focus specifically on advanced democracies and using a sample of nineteen OECD countries in the 1990's they argue that among these significant *opportunistic electoral cycles are conditional on the transparency of budget institutions*. In countries with less transparent institutions, the electoral cycle in fiscal policy appears, while no such election related fiscal policy movements show up in higher-transparency countries. Furthermore, in accordance with recent theory, they find that *electoral cycles are larger in more politically polarized countries.* This leads to the other empirical topic covered in this thesis, the partisan effects in grant distribution

As contradicting evidence though, Tujula and Wolswijk (2004) find support for a PBC independently of fiscal institutions in their sample of OECD countries for the period 1970-2002, Buti and Van den Noord (2003) and Von Hagen (2003) similarly claim *expansion in fiscal policy in EU member countries before elections* for the period of 1998-2002.[36] DeHaan-Mink (2006) check political budget cycles in countries in the Euro Area. Using a multivariate model for the period of 1999-2004 they find *strong evidence* that despite the introduction of the Stability and Growth Pact, incumbent *fiscal policymakers are not too much restricted in the Euro area to increase deficits for re-election purposes*, though strictly for the election year, and not for the prior one. These findings are in line with the third generation PBC models based on moral hazard.

[36] However DeHaan et al. (2003) could not replicate Von Hagen' findings, and claim those are not very convincing, since he takes both presidential and parliamentary elections into account, though presidents in many countries have quite a weak influence on policymaking.

PBCs and local governments finance

There was so far very little attention given in the literature to the PBC issue with different levels of government, e.g. how its size or probability varies with lower levels – by far, economists have mostly focused on central government behavior and macroeconomic data.

There were some attempts for theoretical analyses of the relationship of accountability and fiscal (de)-centralization. Seabright (1996) – whose model was refined and extended by Persson-Tabellini (2000) showed two incentive effects of centralization working in opposite directions: first, with centralization, if the policymaker wins the elections he can expect extracting maximum rent in all regions. The second, less obvious effect is that with centralization there is a reduction in the probability that voters in any one region become pivotal in determining the outcome of the election – hence there is a loss in accountability. However both these models say almost nothing on the selective effect of elections, i.e. voting out bad incumbents, which is an important limitation. Moreover, with respect to fiscal policies, what makes it easier to manage (e.g. centralization) might actually make it easier to manipulate as well – in which case centralized fiscal policy might be associated with more than less political budget cycles.

As for the probability of PBCs at the local level, again there is not much reference. Adopting the framework of Rogoff (1990), Gonzalez-Hindriks-Lockwood (2006) try to model the probability of political budget cycles in the case of fiscal decentralization, setting up a three region, two-period model of fiscal policy where a regional public good can be provided either by regional or national policy provider. One result is that voter welfare is definitely lower if the probability of a PBC is higher in one regime than the other (i.e. centralized vs. decentralized). Another finding of theirs is that whether taxes are uniform or differentiated makes a difference to the information available to voters, and can increase the

equilibrium probability of a PBC. Effects depend also on whether voters observe fiscal policy only in their region, in all regions or with a uniform tax across all regions. More voter information however does not necessarily raise voter welfare, under certain circumstances. (Hindriks-Lockwood, 2005)

On the empirical side, Petterson Lindblom (2001) checked spending of Swedish municipalities and found that spending is 1.5 percentage points higher, while taxes are 0.4 percentage point lower in election years. Another oft-cited paper on Swedish municipalities politically motivated spending is Shi and Swenson (2002a and b). Writing about Portuguese municipal expenditure decisions, Veiga (2004) tests and proves that local politicians increase capital expenditures before elections, particularly on roads and street construction. Her results indicate that when a mayor belongs to the party dominating the municipal assembly, capital expenditures are higher. Estimating on the same Portuguese municipal panel data, Veiga and Veiga (2004) search political business cycles at the municipal level and find clear evidence for opportunistic behavior of local governments, with expenditures increasing in pre-election periods to signal competence and improve chances for re-election.

Balerias – da Silva Costa (2002) build a model on *political business cycles at the local* level tier as an explanation for a fiscal policy cycle. They check its empirical plausibility on Portuguese municipal data for the period 1986-93 with an error components econometric framework and they find evidence that local government *investment expenditures* are indeed *determined by* several politico-economic variables, such as *electoral calendar, re-candidacy decisions, political cohesion and intergovernmental transfers*. However they argue that such expenditure fluctuations can be interpreted as the outcome of rational behavior by fully informed agents – but since they are bad for society overall, an incentive design to minimize their occurrence would be desired.

Sole Olle and Navarro, 2006 test effects of partisan alignment (that is local government of the same political color as the upper tier, central or regional, grantor governments) on the allocation of intergovernmental transfers on Spanish data for 1993-2003. They find results suggesting that such partisan alignment has a sizeable positive effect on the amount of grants received by municipalities.

From this literature summary it seems clear that there is a need for further research on the area of PBCs, both theoretical and empirical, as there is for example a lack of agreement on opportunistic models, or on a single guiding partisan theory and also much work remains to be done on the empirical side due to the sparse and somewhat controversial body of evidence. As far as PBC versus multilevel governance and local finances are concerned, the rather small pool of available results definitely points to the need for further empirical research.

Chapter IV.

Research Design and Hypotheses

My research began from the puzzle stated above: decentralization is a continuing policy trend. However, in reality there are downsides: institutional, political and other factors which do interfere with decision-making and can increase the chances for inefficient policy outcomes. Infrastructure investment finances – at all levels of government – are especially prone to election cycles and corruption – however, they strongly affect productivity and long-run growth prospects of a country, and indeed are widely used in economic policy. Driven from the theoretical and empirical context detailed in the previous chapters the basic research question guiding my work is as follows: ***are local infrastructure policies in Hungary really designed according to efficiency considerations? What politico-economic factors might affect central and local governments' allocations on infrastructure investment?***

To complete this goal, I take a closer look at **municipal capital investment financing in Hungary** in this dissertation. As shown in the introduction, the magnitude of basic infrastructure services (percentage of connectedness to gas, electricity and water) in Hungarian municipalities did indeed increase considerably between 1993 and 2003. To achieve these results, a great amount of intergovernmental grants were necessary, and, as we will see in Chapter V, they still are the primary financing sources of municipal investment in Hungary[37]. However, as emphasized before, grants are not only beneficial: they can distort

[37] Just an interesting note - as it will be shown in Chapter VI - when analyzing survey results in pairs, correlations among background variables have also been checked and indeed there is a quite strong (0.555) positive correlation between per capita local investment and per capita capital grants received.

local priorities and usage of local funds in many ways. Examples of such distortions are expressed in the huge literature on the fly-paper theory that is part of traditional public finance and of course a lot of further examples of distortions are given in the political economy literature. With respect to infrastructure investment grants such factors could lead to bad project selection, overinvestment/underinvestment in different sectors, rendering local governments to survival tactics instead of careful long term planning, etc.[38] Though of course, one should keep in mind that one of the underlying classic economic arguments behind grant-financing is indeed the goal of altering local choices, in order to correct for spillover-effects, to allow fiscal equalization, to ensure a minimum service standard or foster economic development – and nothing is wrong with these aims. The *focus* here is rather on the issue of *political and institutional factors altering the economic and especially the financing choices.*

Therefore, I shall try to assess what drives the local and central government choices on investment and on investment grants in the Hungarian case, **if and how political factors affect these.** In relation to the main research question, several themes emerge, based on which I have formulated hypotheses. I check how much actual decision-making in local investments depends on the revenue basis, and whether there are true local investment strategies, based on local priorities, local needs and socioeconomic indicators. What possible unintended distortions do subsidies cause? Are need and socioeconomic indicators an important factor explaining the differences in the financing constructions of local investments and in grant allocations? Do more local revenues mean more investment activity in general? Does grant financing mean less careful financial planning? What strategies do Hungarian municipalities use to get those much wanted grants, what is the importance of lobbying through different channels?

[38] Empirical policy papers for the Hungarian case analyzing these issues are Hegedüs et. al 1996, Jókay et al. (2004).

A major political influencing factor affecting financial decisions can come through the incentive mechanism of elections and election cycles (detailed in the previous chapter III, section on the theory of Political Business Cycles). In the empirical part, I also search for - and in fact do find – evidence of possible electoral cycle effects and partisan considerations (effect of similarities in political color of central and local governments) in intergovernmental grant distribution and in municipal investment activities. *Political budget cycles are much more visible in the investment side* (and not so much in the operation one) of the budget (Romp-DeHaan, 2005) - reinforcing my decision to focus on investment finances of sub-national governments and the political factors affecting them. Central government capital grants given to municipalities are more discretionary than operational ones, as not all localities receive them, hence strategies for application/non-application and possibly lobbying can become important and also precisely due to the discretionary nature there is presumably more room for political considerations.

As emphasized already, the **efficiency of decentralization is affected if political factors turn out be relevant** in the Hungarian case. Efficiency problems can happen since *grants can distort* local priorities and usage of local funds in many inefficient, unintended ways. Likewise, if *political cycles* turn out to be present in investment activities of local governments, or *political colors* become important in intergovernmental grant allocations, it can lead to a diversion from benevolent government and pure welfare maximization behavior. Though for methodological reasons I have developed separate sets of *hypotheses related to decentralization versus efficiency* and *political factors in fiscal solutions*, the underlying presumption is that ***I don't expect all the efficiency related ones to be verified***; i.e**.** I do not expect all the things to work as pure economic theory of fiscal federalism suggests they should **– *for which inefficiencies the accepted, verified political factor-related influences***

can then serve as a possible explanation. Or at least, the true presence of political factors alters the picture.

Hypotheses

After the detailed literature review, an overview of the Hungarian context and results of previous investigations into the subject of municipal investment (provided in Chapter V, below), I formulated the following hypotheses to be checked in this current research project.[39]

I. Decentralization versus Efficiency

A.) How much actual decision-making in local investments depends on revenue basis – and how "local" is that? To what extent can we see that decentralization indeed contributes to increased efficiency?

H1 Increased reliance on local resources leads to a more independent, forward looking, strategic planner local government

H2 Increased reliance on local resources leads to more efficient project financial planning

- **more care for true local priorities in investment choices**
- **less problems with project oversizing**
- **less problems with local matching shares**
- **less problems with later operation costs**

These hypotheses (H1, H2) are formulated based on expectations of fiscal decentralization theory and international practice. As decentralization theorem stresses, local priorities are better taken care of, financial management is sounder, hence less room for

[39] I do not go into very detailed justification for each of them, I believe my literature review in the previous chapters and also the background of the Hungarian context provided in Chapter V does that sufficiently.

unintended distortionary effects of grants: for e.g. project selection, oversizing in order to get more funds, not planning for later years for operation expenses causing bad implementation. By "distortions" here I mean *unintended* ones, i.e. not the absolutely fine, theoretically justified altering of local choices for correcting spillovers, ensuring minimum service standards or for equity considerations. I rather mean the above-mentioned events as efficiency losses in a broader sense, though also the politically motivated distribution of grants is inefficient, hence a distortion in the system.

I will try to explore and test H1 and H2 in the survey analysis, as there are several questions designed trying to control for these. To measure the reliance on local resources I shall use the *ratio of (current and investment) own revenues in the local government's budget* [decentr] – a kind of decentralization measure commonly used in the literature for such purposes. I will try to develop *latent variables* (constructed from several question items) for *strategic planning*, long term forward thinking, for *efficient financial planning and management*, for taking *local priorities* as important and perhaps also for the *view on their role lobbying* and then use these along with controls for own resources, PIT base of locality, per capita grants received, size and region, for testing the above hypotheses.

H3 Increased reliance on local resources leads to more overall investment activity

It is obvious that differences in budget constraints of local governments (irrespective of its sources) lead to differences in their investment activity (to what extent this is tolerated or tentatively counter-balanced by grants is a question of policy choice for equalizing). However what I am really curious about here is whether more financially independent localities (i.e. those relying more on their own revenues) actually invest more in their infrastructure overall or not. This hypothesis is going to be evaluated by the panel estimations, % of own revenues is a control variable used there – significance and positive sign means acceptance.

B.) Are need and *socioeconomic indicators an important factor* explaining the differences in the financing constructions of local investments and *in grant allocations? Are there regional or size-specific characteristics to capital financing techniques?*

H4 Socioeconomic and need-based indicators do affect the magnitude of local investment

H5 Socioeconomic and need indicators are considered for investment grant allocations

These are related to efficiency, but from another angle: whether local revenues, wealth of locality (measure by per capita PIT base), its size, regional position, local need for infrastructure, health, social and educational services, demographic factors such as share of young or old people etc. matter in the magnitude of local investments or the allocation of grants. By theory they should, to some extent (see details in Chapter II and III) – as grants are correcting for certain efficiency or equity problems. The above-mentioned will be used as control variables in the regressions on the panel database of all Hungarian LGs, both on those for per capita local investment expenditure and those for probability of getting investment grants. Significance and expected signs of coefficients – see details in the table below on variables used - will justify the acceptance of hypotheses. Answers to some questions from the survey of city mayors also add to the picture.

II. Political Factors and fiscal solutions

How do political factors e.g. *election cycle, party color/coalition government* etc. affect local/central government decisions in intergovernmental grant applications/awards? How 'talented' local governments are in *rent-seeking*, how do they try and succeed in receiving grants? What is the importance of lobbying through different channels?

H6 Political cycle considerations are present in local investment decisions

H7 Political cycle considerations affect central distribution of investment grants

H8 Similarities of political color matter for central distribution of investment grants

These hypotheses are the main topics of investigation of the panel estimations on the full RPAA database as shown below and detailed in Chapter VII. Political cycles are made operational with variables for election year, year before election and election distance included in models where the dependent variable is per capita local investment expenditure. Data covers three full cycles, hence the significance and positive sign for the first two, while the negative sign for election distance are taken as verification of the presence of political cycles. I will do separate probability models for central investment grant receiving chances, where I include variables of political color similarity for local assembly and mayor, but also some of the political cycle variables.

H9 Lobbying through political channels does affect success in receiving investment grants

There are some questions in the survey for city mayors around this issue, and their results will also be examined and interpreted.

Data and Methods

Since the topic in this dissertation is more closely tied to the choices on investment and on investment grants and if and how political factors affect these, the focus will be on policy issues related to these. These issues to be researched call for a mix of quantitative and qualitative methods. For more qualitative insights, I reviewed results of earlier empirical work on Hungarian municipal sector in general and investment activities in particular, as well as survey results. I also did several preliminary interviews with central and local government

officials and prepared carefully designed systematic case studies[40]. As there exists merely anecdotal evidence from interviews and case studies (as shown in chapter V) and relatively little systematic research on issues concerning the role of local priorities, the distortion effects of available subsidies in investment decisions, and the role of lobbying and other political factors in successful grant applications - I have tried to ask at least a few questions on these issues in a more systematic way, in a survey of city mayors. Some of these issues, especially attitudinal ones, can only be approached in this way and cannot be checked on large-n statistical data, while some will be tested in the large-n regressions too (results described in Chapter VII), however survey information helps for model specifications there. Survey results – built around my hypothesis as much as possible and detailed in Chapter VI - partly stand on their own, and partly serve as additional information as to what I consider the principal findings of this thesis, which are the large-n findings on political factors described below and detailed in Chapter VII

Survey of City Mayors, 2005

Due to the limited budget of a doctoral research and capacities of a sole researcher, it was obvious that my chances to conduct a reasonably sized survey are rather limited. Finally – being a member of the invited research team - I managed to include *several questions on investment behavior and attitudes on grant seeking* into *a survey of Hungarian city mayors*, conducted in 2004 by MEDIAN Public Opinion Polling Ltd. contracted by the Hungarian Academy of Sciences Economic Research Institute as part of a research project sponsored by OTKA, the Hungarian Scientific Research Fund.

Sampling, stratification

[40] The results are published in Jókay-Kálmán-Kopányi, 2004

The survey sample was stratified, over-representing cities above 10 000 and largely under-representing small villages compared to their true ratios in Hungarian municipality structure. Reasons for this stratification of the sample were the main interests of the survey on local taxation practices, attraction of large scale companies and investment activities/investment transfer receipts, all of which are more characteristic and reasonably expected in medium and larger cities. 143 city and capital district mayors took part in the survey (61% of all cities in Hungary), while only 94 additional data sheets on financial and other data were returned. In terms of population size, the sample differs considerably from the true population distribution of cities, hence answers had to be *weighted* in the analysis by a population-weight[41], while in terms of regional distribution, the sample is more representative, as more than half of cities are in the sample. Financial, demographic and unemployment data are well matched to national city averages. (More details on exact sampling data are given in the tables in Chapter VI.)

.

Analysis, Variables used

Answers to survey questions are analyzed against a number of carefully selected background variables trying to control for socioeconomic position, budgetary constraints of local government. The background factors are as follows:

- *Size* is a basic characteristic of municipalities, measured by *number of residents.* As emphasized already in the theory chapter on decentralization and fiscal federalism, it has been argued that size has an effect on responsibilities and thus on budget priorities, efficiency and responsiveness of local government, citizens' knowledge on local politics, political participation and culture etc.

[41] Decision on this was already made by constructors of the database, hence Ireceived the data coded as such and the weight to be used was given.

- *Regional position* often correlates with economic activities, population size, wealth, political culture, but it may have independent effects through the diffusion of political and administrative innovations (see the substantial literature on New Economic Geography and related disciplines). The East-West differences are a frequent topic in the Hungarian discourse.

- Socio-economic position is another non-negligible background factor. In our case, local wealth was measured by *the per capita income tax base* of the local governments, while the *percentage of paved roads* was used as a proxy for the settlement's urbanization level.

- Opportunities of local communities are determined not only by the wealth of local people, but also by the financial means available for the local government. Although the two factors often correlate, legal and administrative institutions also influence the amount of resources that the local government distributes. The financial situation of the municipality is measured by the *per capita income of the local government.*

- As the fiscal federalism literature emphasizes, local autonomy is jeopardized by a high dependence on external resources. In the case of local governments, the *dependence on state transfers* can especially limit local autonomy and encourages the diversion of local resources toward less important goals – especially important for our investigation of investment priorities. One of the background variables is thus a kind of decentralization ratio, the *proportion of a municipality's current and capital revenues in the total budget.*

.

Panel estimations on all Hungarian local governments, 1993-2003 – searching for political cycles in local investments and probabilities of political color affecting central investment grant distribution

As for the quantitative side (Chapter VII.), hypothesis on determinants of and *political cycles in investment outlays of local governments* and *partisan effects on chances for grant recipiency* are tested with linear and Probit, pooled and panel regressions respectively, constructed from independent variables kept after theoretical considerations and careful statistical analysis.

Database

The data I use for this analysis is a *panel dataset* built from the Regional Public Administration Authority database, which is *comprehensive for* ***all Hungarian local government annual budgets*** **and balance sheets for the** ***years 1993-2003***, linked with some demographic and socioeconomic data from the "TSTAR" territorial database of the Hungarian Statistical Office and raw local election data from the Hungarian Ministry of Interior. However, these datasets are obviously not put together from the academic research point of view, hence a lot of checking and cleaning was needed[42]. All the financial variables are shown *in thousand HUFs and have been recalculated at 2003 prices* for easier comparison. In case of current expenditures, this recalculation for same prices has been based on the GDP deflator, while that of the investment expenditures was based on the price-indices of investments. For analytical purposes the *city of Budapest, local governments of capital districts and counties are deliberately left out of the dataset, due to their very special status* in

[42] I cannot overstate my gratitude to my research collegue Anita Halász from Corvinus University Budapest for her diligent and great work in putting together this dataset and also providing invaluable help for me with some econometric issues.

the institutional and budgeting structure. This practice is commonly followed by researchers dealing with Hungarian municipal data. Thus, the final number of local governments included in the panel is N=3130. After several checkups and corrections, this database handles problems from different budget structures throughout different years, hence contains same data content for all years. The frequently changing data definitions of the TSTAR database of Hungarian CSO seriously constrain the number of variables that can be used for the whole term of 1993-2003. For reasons of easier comparison across municipalities, all variables are transformed to *per capita values* in the analysis. Along with these, the population of the municipality can be used as a size indicator as well as an indicator for congestion

Variables considered

Here I will concentrate on ***partisan benefits*** driven by hypotheses formulated based on the literature review in Chapter III and on interviews with Hungarian experts and government officials, but constrained by data availability of possible political variables. I also seek to check rumors expressed in the media to the effect that *the incumbent central government rewards municipalities of the same political color with higher investment grants* and thus tries to improve their and its own re-election chances for the next term – which is in fact the layman rephrasing of the partisan political cycle theory . This argument was and is indeed often raised in Hungarian political discourse with respect to different colored central cabinets, but so far no systematic empirical investigation has tried to check its validity and possible extent. *"**Political color** same as central government" **variables*** for the *mayor, absolute or relative majority of local assembly* are constructed from raw election data for the three election cycles involved. Election years were 1994, 1998 and 2002 – when national elections were always held in the spring and local elections followed a few months later in the same year. In order to pick up the position in the ***electoral cycle*** (after checking for simple year-dummies, which always came out significant), I constructed a variable on *election distance*

(el_dist) that takes values 3,2,1,0 and dummies for an *election year* (el-year) or *one year before election* (el_befor), which I use alternately with election distance. Election distance is expected to have a negative sign, while election year and year before elections I expect to have positive signs in both investment outlays and grant equations.

In order to include some variables accounting for the ***budget constraint*** of each local government, in local investment equations *per capita municipal own current income* (pcmcinc), *per capita municipal own investment revenues* (pcmiinc) and *per capita investment transfer revenues* (pcgr1) are included, which are three distinct categories, hence the problem of multi-collinearity is avoided. In grant recipiency equations, per capita municipal own current income (pcmcinc) and per capita own capital revenues (pcmiinc) are used. In the second round of model search I changed these per capita controls with a decentralization measure, that is the percentage of own revenues in the local government budget due to the significant but more or less zero coefficients of the previous.

Yet, it should be noted that some of these variables are possibly endogenous ones, especially the municipal investment and own revenues, as they can play key role in a local government's decisions on investment. It can also be argued that grants can to some extent be considered endogenous, as they can "alter" a local government's project selection, and this way the same underlying factors determine the choice to apply for a grant and also the magnitude of total investment expenditures. On the other hand however, grant allocation decisions made at the central government are after all out of the scope of local governments; hence I have decided to treat the per capita amount of grant variable as exogenous.[43] Nevertheless, I ran several model specifications and also checked reduced ones without the

[43] I suspect local governments (especially if they are on good terms with their MPs, as these decisions are eventually made in Parliament) try to do all sorts of lobbying to influence these decisions – as theories and empirical findings on so called "pork barrel" politics have already emphasized and proved for other countries (references are given in Chapter III) I tried to find answers for these delicate issues in the survey-analysis part in Chapter VI..

possibly endogenous controls and found basically the same results regarding the political variables of main interest.

Finally, from the ***socioeconomic control*** variables, I used several ones in different combinations in the models, trying to capture equity and some more efficiency considerations. For example, in the case of need-based investment, an *indicator on local infrastructure level* (ind_infr : a composite indicator created from ones on percentage of flats connected to gas, electricity and water networks in municipalities) was included, expected with a negative sign both in investment as well as grant equations. Further possible *need indicators on education* (ind_okt), *social* (ind_szoc) and *health services* (ind_eu) were used, with positive signs expected. The share of *young* population (fiatal) and *old population* (oreg) were included to control for demographic variances in need of services, both expected with a positive sign for investments, but the latter I rather expected to be negative for grant recipiency models, as I suspected that local health and recreational services were not among the highest ranked goals for central grants. While *per capita personal income tax base* of the municipality (pcinc1) tries to control for the ”wealth” of localities (or rather for their inhabitants, but since local governments still do receive a portion of the PIT collected at their territories, this variable is also a budget constraint one). I also checked some models using *regional dummies* for the seven statistical (NUTS2) regions of Hungary.

Estimation methods

As far as estimation methods are concerned, for investment equations (dependent variable pcinv1: per capita local investment expenditures) I used linear OLS[44] and fixed

[44] Wooldridge (2002:256) states that under certain assumptions , the pooled OLS estimator can be used to obtain a consistent estimator of βs, but for inferences, the usage of robust variance matrix estimator and robust test statistics are needed.

effects panel regressions which performed and fit quite well.[45] The advantage of panel (also known as cross sectional time series) models over simple cross section data is the unique possibility to include and disaggregate dynamic relationships to cross-sectional data, since one of the primary reasons for heterogeneity among individuals is the different history each has. The most common model for analysis of panel data is the linear model, in which explanatory variables are taken to be exogenous. They allow the unobserved heterogeneity to be modeled with fixed effects or random effects[46], or with no heterogeneity at all. In the case of fixed effects models, the intercepts are assumed to vary across individuals at the same point in time and possibly over time for all individuals together, while there are individual specific error terms across time. In the case of the random effects models, the variations are assumed to be random and uncorrelated with both explanatory variables and the latent disturbance term in the equation. (Matyas-Sevestre, 1992: 7-17) The general specification for fixed effects panel models is the following:

$$y\_it = a_i + x\_it * B + u\_i + e\_it$$

where

x_it are the time-varying explanatory variables

u_i is the time-constant fixed error-component (individual-specific - of a municipality in our case)

e_it is the overall error component

a_i (the constant) is also individual specific, and picks up information from unobserved heterogeneity or from omitted variables.

[45] According to Matyas-Sevestre (1992:27) "when the sample is closed and exhaustive (like in the case of geographical regions or industrial sectors), fixed effects are natural candidates." However, I also tried random effects, but the Hausman test always clearly indicated the usage of fixed effects regressions – thus the RE specifications results are not included in the summary tables.

[46] In modern econometric language, "random effects" refers to zero correlation between the observed explanatory variables and the unobserved effect, while "fixed effects" means that we are allowing for some correlation between the unobserved effects and the observed explanatory variables (x_it). (Wooldrigde, 2002:252)

Estimates were carried out on the whole sample containing all the local governments, but to gain more insight on the details, they were also conducted for sub-samples created along size categories (meret), along with categories of share of their own revenues in the local budget (s_ero) – a kind of decentralization indicator and in the case of investment outlays for those who did indeed receive investment grants (with a dummy called gotgrant). As shown in the Hungarian context in Chapter V, local government tasks and budgeting possibilities differ greatly among different settlement-types and sizes which justifies this step to seek details from the big picture.

For *grant equations* however, which basically represent a discrete choice between getting or not getting investment grants (and we are most interested here in probabilities for these in different settings), I decided to create a binary variable called gotgrant (1= if LG has received central investment grants in that year, 0= otherwise) and use probability models for limited (binary) dependent variables. Estimations were done using the *Linear Probability Model* (OLS estimations) as well as *Probit* (maximum likelihood estimations), both also repeated in their panel form (fixed effects for the linear model and random effects in the case of Probit).

In binary response models, the primary interest is to explain the effects of various values of x on the response probability:

$$P(x)=p(y=1|x)= P(y=1| x_1,x_2,\ldots,x_k)$$

In the linear probability model, (LPM) β_1 is understood as the change in the probability of success, given a one-unit increase in x_1.

$$P(y=1|x)= \beta_0 + \beta_1 x_1 +\beta_2 x_2 +\ldots + \beta_k x_k)$$

In the Probit model for binary response, the nonlinear functional form is the standard normal density and Probit estimates are calculated using Maximum Likelihood estimation.

When using binary response models with panel data, it is necessary to note that probits can give reliable estimates only with random effects specifications. (Wooldridge, 2002:461)

The form for Probit model is the following:

$$\text{Prob}(Y = 1 \mid \mathbf{x}) = \int_{-\infty}^{\mathbf{x}'\beta} \phi(t)\, dt = \Phi(\mathbf{x}'\beta).$$

where function Φ is a commonly used notation for the standard normal distribution.

For modeling such binary responses (where by tradition y=1 means a success and y=0 a failure usually), discreteness of *y* does not necessarily mean that a linear model is inappropriate. Linear models have some drawbacks – heteroscedasticity can be present (except if all the slopes of the βs are zero), however we cannot get all βs to fall between 0 and 1 - hence a usual way is to apply heteroscedasticity-robust standard errors to avoid the first. Yet, econometricians agree that even with such weaknesses, the LPM can often give good estimates for the partial effects on the response probabilities, comparable with those obtained from nonlinear Probit and Logit models – the case for LPM being even stronger if most of the x-s are also discrete and take on only a few values. (Wooldridge, 2002:455) When using binary response models with panel data, it is necessary to note that probits can only give reliable estimates with random effects specifications. (Ibid. 461)

Chapter V.

Context: Local government finance and infrastructure investment in Hungary

"The interplay between fiscal policies and institutional arrangements is increasingly important as transition economies embark on their second decade of reforms. In particular, incentives embedded in the institutional arrangements for fiscal management need to be strengthened so that policies, resources, and outcomes can be better aligned, and the fiscal adjustment is consistent with qualitative considerations."
Alam, A. and Sundberg, M. : A Decade of Fiscal Transition, World Bank Working Paper No.2835, April 26, 2002

This rather descriptive chapter summarizes the municipal finance framework in Hungary and the institutional setup of municipal investment finance and regional development of the country.[47] It was deliberately cut short, since it serves only as context for the present dissertation and there are several in-depth publications available which provide further details on the subject.[48]

Local government financial framework

The legal and financial framework established for fiscal decentralization in Hungary in 1990 set the basis for local autonomy and enables municipalities to establish local spending priorities, and to make the financing and tax decisions necessary to carry out these policies. In the following years, new laws and regulations posed more constraints on local financial

[47] Some parts of this section are excerpts taken from the work done by the author while enjoying an LGI Fellowship in 2001, published in the LGI Studies/Fellowship Series, Kalman 2002 – with the kind permission of LGI/OSI.
[48] Interested readers can consult e.g. OECD, Territorial Review, Hungary, 2000, several World Bank publications – most notably Intergovernmental Finance in Hungary, 2004 or papers in Hungarian by the Metropolitan Research Institute or the Regional Research Center of the Hungarian Academy.

autonomy. One positive impact of the overall tightening of public finances and the decreasing share of the public sector in GDP is that with less central support, local governments are somewhat forced to improve both their own revenue collections and local service efficiency. Nevertheless, the frequent changes of priorities, grant sharing, normatives and targets made it quite difficult for municipalities to forecast their budgets and use sound financial planning.

Major changes in the financing of municipalities in the 1990s have included: (i) reduction of the share of the personal income tax allotted to local governments; (ii) increase in the number and complexity of normative grants; (iii) changes in the focus and requirements of other earmarked transfers (fire protection, wage policy, personnel adjustment, special education tasks). These changes were mostly implemented through the budget process, with a focus more on the central budget needs and often without systematic prior evaluation of their overall impact on the local financing system. Hence a considerable instability in local financial framework was partly inevitable, given the budget and economic crisis experienced overall by the public sector. More recently, after 2000, new reform steps have been based on what is perceived as the imperatives of European Union membership or led by motives of EU grant seeking and not necessarily by the internal contradictions of the financing system. In general, public sector reform is constantly postponed by subsequent governments, and it is yet to be seen if local government finances will eventually change considerably as part of a thorough reform of the public administration.

The sources of revenue available to local governments are defined in the Local Governments Act. The three main categories of local government revenues defined in the Act are: own revenues; shared central taxes; and transfers and subsidies from the central government, including normative, targeted and other earmarked transfers. Own revenues include local taxes and fees, profits, dividends, rent and lease, duties, share of environmental protection fines and other revenues.

4. Table: Municipal sector revenues

Mn HUF, nominal	1994	1999	2000	2001	2002	2003
CURRENT REVENUES	**583 336**	**1 314 840**	**1 408 938**	**1 616 468**	**1 884 398**	**2 216 715**
Local taxes	33 992	198 363	221 766	266 685	296 772	322 588
Shared personal income tax	61 298	191 495	242 309	286 387	333 007	405 449
Vehicle tax	2 465	11 444	12 622	14 062	14 584	30 009
Other own revenues	83 918	246 828	267 930	295 728	333 078	338 785
Operation subsidies (normative grants)	401 663	666 709	664 310	753 607	906 957	1 119 883
CAPITAL REVENUES AND TRANSFERS	**103 003**	**183 703**	**247 126**	**287 268**	**296 557**	**284 968**
GFS REVENUES	**686 339**	**1 498 542**	**1 656 064**	**1 903 736**	**2 180 955**	**2 501 683**
BALANCE (GFS)	**-38 695**	**22 993**	**1 970**	**1 291**	**-104 968**	**-31 671**
CURRENT REVENUE BALANCE	**20 275**	**100 761**	**75 434**	**99 643**	**79 552**	**110 497**

Mn HuF, real terms	1994	1999	2000	2001	2002	2003
CURRENT REVENUES	**583 336**	**557 882**	**544 452**	**572 021**	**633 270**	**711 508**
Local taxes	33 992	84 165	85 697	94 372	99 733	103 542
Shared personal income tax	61 298	81 251	93 635	101 344	111 910	130 139
Vehicle tax	2 465	4 856	4 878	4 976	4 901	9 632
Other own revenues	83 918	104 728	103 535	104 650	111 934	108 741
Operation subsidies (normative grants)	401 663	282 883	256 707	266 680	304 792	359 453
CAPITAL REVENUES AND TRANSFERS	**103 003**	**77 945**	**95 496**	**101 656**	**99 661**	**91 467**
GFS REVENUES	**686 339**	**635 827**	**639 948**	**673 677**	**732 931**	**802 975**
BALANCE (GFS)	**-38 695**	**9 756**	**761**	**457**	**-35 275**	**-10 166**
CURRENT REVENUE BALANCE	**20 275**	**42 753**	**29 150**	**35 261**	**26 734**	**35 467**

Source: Ministry of Finance

The largest source of local government revenues is ***transfers*** from the central government, but their share has declined from an earlier 64 to the current *51-53 percent*. The share of ***own revenues*** has increased from 23 to 35 and then back to *30* percent in the second half of the 1990s, ***shared revenues*** (essentially the Personal Income Tax) have also risen, from 9 to 15 percent of the total. On the other hand, which is interesting for financial autonomy, taking both transfers and shared revenues into account, *roughly two-thirds of local government revenue still originates from the central government.*

5**. Table: Share of classes of revenues in local government budgets**

	1993	1994	1995	1996	1997	1998
	as percent of total revenues					
Own revenues	23.3%	22.1%	26.3%	30.9%	35.2%	29.8%
Shared revenues	8.8%	8.7%	11.7%	11.3%	12.0%	14.7%
Total transfers	**64.2%**	**62.4%**	**59.1%**	**55.7%**	**50.6%**	**52.9%**
Loans and securities	3.6%	6.8%	2.8%	2.2%	2.2%	2.6%

Source: Calculated from data of the Ministry of Interior, (Pigey, 1999)

The 2001 OECD survey on fiscal design across levels of governments compiled up-to-date data for several CEE transition countries, providing an excellent base for comparisons. With respect to revenue structure of sub-national governments, the following data are available.

6**. Table: Profile of subnational revenues: Composition by revenue source**

Country / Year	Composition of subnational revenues (%)								
	tax revenues			non-tax revenues			grants		
	1997	1998	1999	1997	1998	1999	1997	1998	1999
Czech Republic	54.9	55.6	47.7	26.4	26.8	36.3	18.7	17.5	16.0
Hungary	*28.1*	*30.6*	*33.0*	*18.1*	*18.0*	*17.0*	*53.7*	*51.3*	*50.0*
Poland	37.6	36.4	24.5	28.0	27.8	24.2	34.3	35.8	51.3
Estonia	64.6	67.7	68.4	12.9	9.3	9.1	22.5	23.0	22.5
Latvia	53.9	54.0	56.0	20.7	21.4	20.4	25.3	24.6	23.6
Lithuania	65.7	74.1	91.0	4.7	4.0	4.8	29.6	21.8	4.1
OECD. Unweighted average. Unitary states (1)	43.4	-	-	21.7	-	-	38.3	-	-

Source: OECD, Fiscal Design across Levels of Government, Paris 2001 – www.oecd.org, p.22.

However one has to note for evaluation that significant cross country differences in the role of transfers arise because of differences in local government service delivery responsibilities, priorities on equalization, local own source revenue raising capacity, political

judgments in the country and other factors.[49] Transfers tend to play a large role in transition countries because of limited access to local source taxes. The *share of revenues from transfers is high in Hungary, even by the standard of transition countries* (higher than the Baltic countries, though lower than Bulgaria, Romania and Poland.). One justification given for such a large component of Hungarian local government finance coming from transfers is that *local governments are responsible for health care and education* and wages for these sectors are financed from the national budget. Thus transfers include e.g. hospital financing from the Social Security Fund, which is of a special purpose type, i.e. it cannot be spent by the municipality on any other goal. An additional note on the OECD data is that they count the shared personal income tax revenues among the tax revenues and not among the grants. This can be justified, but can also be misleading in the case of Hungarian municipalities, where PIT revenue is still one of the major revenue sources collected by and coming from the central government. Although it has been cut substantially throughout the years, currently 35% of all PIT revenues are shared with municipalities.

Hungarian local governments have legal autonomy in their operation spending decisions, irrespective of the source of revenues (i.e. they receive funds from different kinds of transfers but can use those freely), yet as the following table shows, from 1993 to 1998, there was a significant shift from a general purpose grant allocation system toward a more rigid task financing system. If in 1993, 37.3% of all grants were unconditional general-

[49] Wide ranges of functions are defined in the Law on Local Governments and in sectoral laws in Hungary. Ten functions are mandatory: potable water provision, kindergartens, primary education, health care, welfare services, public lighting, local roads, cemeteries and protection of the rights of local minorities. Optional local services include: urban development, environment protection, housing, water management, sewage, local public transportation, public cleansing, fire service, public safety, energy supply, cultural, arts and sports services. Even though the ten mandatory functions imply considerable responsibilities, typically localities try to carry out as many functions as they can – partly because their citizens require these, partly because they are rent seekers and they are the basis for receiving more central transfers. The Law on Local Governments provides a large degree of autonomy for municipalities in service delivery and standards. In practice, however, many sectoral laws constrain that autonomy by defining many of the specific terms and conditions under which localities must operate.]

purpose grants, in 1998 their share dropped to 23%, while earmarked ones for specific purposes increased from 56 to 70% of total grants.

7. **Table: Distribution of Grants by Major Categories (% of total transfers)**

	1993		1998	
	General Purpose	Earmarked	General Purpose	Earmarked
Formula-driven grants	37.3	56.0	23.0	70.0
Beneficiary and Discretionary grants	-	6.8	-	7.1

Note: Central government transfers in this table include not only normative grants, centralized appropriations, but also shared revenues such as PIT, vehicle tax and duties. (Gurenko – Hegedus, 1999)

For an international comparison, I provide a table recently compiled by the OECD, where one can infer that Hungary is in fact not an outlier at all.

8. Table: International practice in grant design – OECD calculations

Per cent of total grants

	Earmarked						Non-earmarked			Total
	Mandatory				Discretionary		Mandatory		Discre-tionary	
	Matching		Non-matching							
	Current	Capital	Current	Capital	Current	Capital	General purpose	Block		
States										
Australia	–	–	–	–	76.4	11.2	8.6	–	3.9	100.0
Austria	57.0	1.8	2.0	18.4		0.6	12.5	0.2	7.5	100.0
Belgium	67.2	10.9	14.7		1.0	0.1	6.0	–	–	100.0
Canada	–	–	18.6		–	–	81.4	–	–	100.0
Italy[a]	4.7		4.7		10.6	8.7	71.4	–	–	100.0
Mexico[c]	53.9		–	–		5.3	40.8	–	–	100.0
Spain	8.1	5.4	–	–	0.9	0.5	85.2	–	–	100.0
Switzerland	64.8	12.9	–	–	–	–	22.2	–	–	100.0
Average	31.4	4.5	4.4	2.9	11.8	2.6	41.0	–	1.4	100.0
Local jurisdictions										
Australia	–	–	–	–	17.1	0.1	82.8	–	–	100.0
Austria	39.3	3.5	7.4	34.8		1.2	13.7	0.1	0.0	100.0
Belgium	71.6		0.1		0.5	23.8	4.0	–	–	100.0
Canada	–	–	91.4	4.3	–	–	4.3	–	–	100.0
Czech Republic	12.4		–	–	74.1	13.6	–	–	–	100.0
Denmark	66.6		0.5		2.6	0.0	30.2	–	0.0	100.0
Finland	5.7		–	–	1.8	1.6	16.3	74.0	0.6	100.0
France	6.5		0.1		1.3	3.8	81.9	6.4	–	100.0
Greece	61.3	38.7	–	–	–	–	–	–	–	100.0
Hungary	40.1	7.4	–	–	3.8	5.6	41.9	–	1.1	100.0
Iceland	3.0		8.4		6.5	3.1	79.0	–	–	100.0
Italy[a]	–		–		39.4	36.1	24.5	–	–	100.0
Korea	6.4		–	–	11.2	10.2	69.9	–	2.4	100.0
Netherlands[b]	70.0		–	–	–	–	30.0	–	–	100.0
Norway	12.2		9.4		19.4	3.9	–	55.1	–	100.0
Poland	24.1	5.4	–	–	–	–	70.5	–	–	100.0
Portugal	–	–	–	–		11.4	85.0	–	3.6	100.0
Spain	14.3	16.4	3.1		–	–	66.2	–	–	100.0
Sweden	–	–	–	–	0.7	28.1	71.3	–	–	100.0
Switzerland	71.7	8.7	–	–	–	–	19.6	–	–	100.0
Turkey	–	–	–	–		77.3	–	–	22.7	100.0
Average (unweighted)	24.1	3.8	5.7	1.9	9.1	9.9	37.7	6.5	1.5	100.0

Notes: a: 2002 data; b: 2003 data; c: Including grants to local governments.

Sources: National sources and *OECD Revenue Statistics 1965-2004*, 2005 edition.

Hungarian municipalities were given an option of levying five types of local taxes, which are not obligatory. They have the discretion to determine which local tax they wish to levy and at what tax rate (subject to a centrally defined rate ceiling). The number of municipalities that levy at least one of the local taxes has increased each year. The two taxes that are most commonly levied are the business tax, levied by almost 2300 municipalities and the communal tax on private persons, implemented by more than 1,800 municipalities.

9**. Table: Local taxes in Hungary**

Type of tax	Number of municipalities levying taxes in 2000
Building tax	687
Land tax	380
Communal tax for private individuals	1,858
Communal tax for businesses	764
Tourism tax	514
Local business tax *From this using maximum tax level*	*2,226* *436*
Number of tax levying municipalities	2,970 (out of 3130 total)

Source:OECD, Territorial Review at National Level – Hungary, OECD, DT/TDPC (2000) 26

10**. Table: Revenues from local taxes**

	1993	1994	1995	1996	1997	1998
million current HUF	Total revenues from local taxes					
Business tax	21,306	26,828	38,190	66,130	92,357	113,652
Communal tax	1,591	1,716	1,822	2,666	3,157	3,604
Urban land tax	466	711	813	1,296	1,717	1,958
Building tax	2,599	3,255	4,144	8,313	10,752	13,522
Tourism tax	911	1,054	1,131	1,966	2,402	2,115
Total local taxes	27,101	33,991	46,383	80,813	111,162	134,851
	as percent of total local taxes					
Business tax	78.6%	78.9%	82.3%	81.8%	83.1%	84.3%
Communal tax	5.9%	5.0%	3.9%	3.3%	2.8%	2.7%
Urban land tax	1.7%	2.1%	1.8%	1.6%	1.5%	1.5%
Building tax	9.6%	9.6%	8.9%	10.3%	9.7%	10.0%
Tourism tax	3.4%	3.1%	2.4%	2.4%	2.2%	1.6%

Source: Ministry of Finance, (Pigey,1999)

However, there is a huge imbalance in terms of revenues for local governments from local taxes, as it is highly concentrated on Budapest and its districts on one hand, and favoring a few cities endowed with good economic development on the other. Apart from local taxes, local own resources can come from fees and charges, revenues from municipal properties (mostly originating through privatization) and borrowing (subject to a statutory ceiling). The breakdown of own resources and privatization revenues by municipalities is very uneven – nearly half of local tax revenues are raised in the center of the country, the majority of which are actually taxes collected in Budapest. Reasons for this lie in settlement structure (more than half of LGs have a population under 1 000) and other considerations such as employment structure (e.g. agrarian workers traditionally pay very little PIT) or number, type and size of

employers in the municipality (these affect both PIT-related and business tax revenues of the LG).

Locally raised own revenues are more or less spent freely on whatever the city council decides. Recognizing the above mentioned imbalance in revenue raising capacities, the central government introduced an equalizing system which takes the business tax collected into account in the calculation of central transfers for operations.

Municipal services may be provided directly by city hall, through the creation of a budgetary institution or of a municipally owned company, by setting up a joint venture with either a private entity or in association with other municipalities and by contracting out with a private service provider. Many of the mandatory services, such as those related to infrastructure and network services – water, wastewater, solid waste collection and treatment, maintenance of roads – are often provided by municipally-owned limited liability commercial companies.[50] Since the passage of the Public Procurement Act (1995), there are mandatory competition provisions for services contracted out. Local governments are also responsible for setting utility prices for water, wastewater, solid waste services and district heat. With the changes in methods of service organization and provision, the role of local governments is gradually evolving from direct service provider to purchaser of services and regulator of the quality and performance of services. However, although the role of municipalities has changed dramatically in this area, certain habits and ways of conducting business at the local level have not. This leads to issues of transparency and accountability.

[50] This is causing some problems with e.g. summarizing investment activities of the municipal sector, as considerable portion of investments is in fact carried out by or through these companies, whose books are not public.

Municipal investment activities

Hungary's first ten years of transition meant major changes in the structure, ownership, organization, financing, investment and employment levels in infrastructure and services. Increasing decentralization and partial or total privatization are characteristic to almost all service areas – and the tertiary sector overall has become dominant in Hungary's economy. Competition arises in many services (e.g. telecom and IT); although there are of course distortions and monopolies, with outdated network infrastructures in need of renovation and expansion. In terms of infrastructure, many of Hungary's fixed networks which imply no negative externalities and are characterized by low unit costs, e.g. natural gas distribution, electrical power and telephones were privatized and operate on a regional basis. The newest challenges concern *wastewater* collection and treatment, *solid waste* handling and *road* construction, the latter being an utmost priority of the central government. All three areas are important for meeting EU standards – and in fact already were in the focus of pre-accession and later Structural Funds provided by the EU – however these services involve large unit costs and externalities, hence increasing the level of service provision requires considerable investments. The service provision responsibility involves a substantial part of this infrastructure, especially concerning wastewater and solid waste which lie in the domain of local governments. In order to meet EU environmental standards, local governments will have to considerably increase their level of capital investment over the next five years. For example, according to one of many estimates calculated before EU accession, over USD 1 billion in capital investment per year will be required for 10 years if the country is to comply with the EU accession environmental standards. (Asztalos et al, 2000 World Bank-SNDP)

11**. Table: Expenditures of central and local government, % of GDP, current prices**

	1991	1993	1995	1997	1999	2001
GDP value (billion HUF)	2 498	3 548	5 614	8 542	11 750	15 825
Central expenditure / GDP (%)	33,2	35,0	35,4	25,9	31,3	28,9
Total local expenditure, GFS / GDP, %	15,2	17,2	14,6	13,3	13,0	12,3

Source: National accounts and budgetary acts

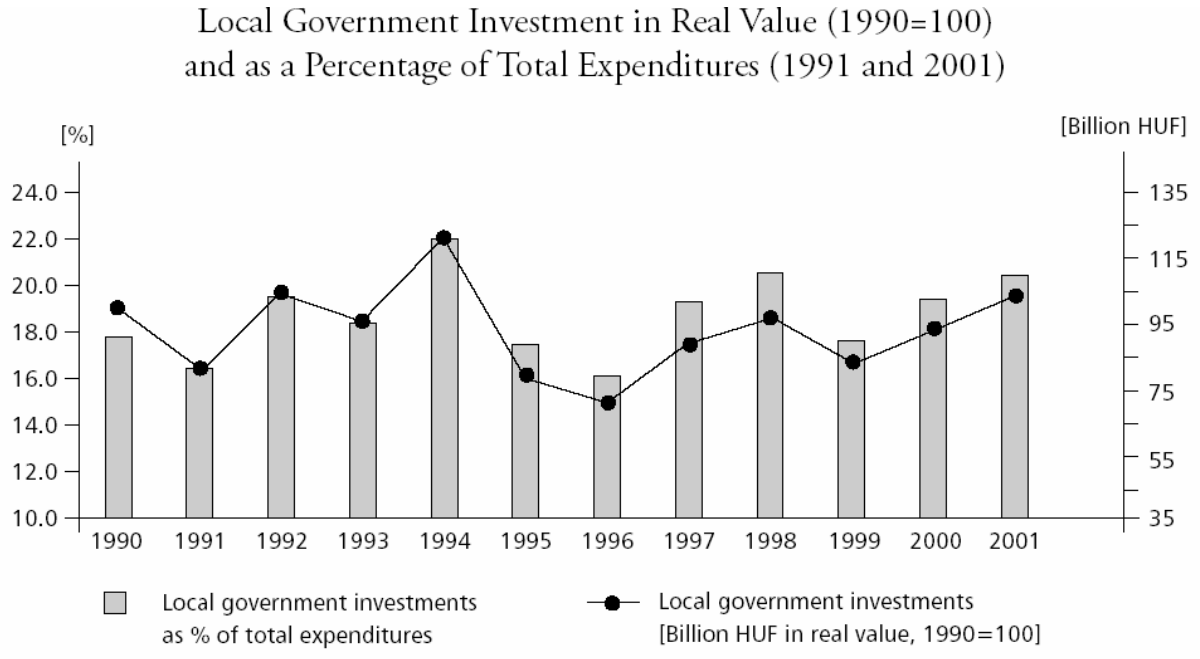
Capital investment of the overall local government sector has remained relatively stable since 1990, at between 15-20% of total expenditures. However, its ratio to GDP has fallen due to the decrease of local government share in GDP as a whole.

12**. Table: Local government expenditures (%)**

	1991	1993	1995	1997	1999	2001
Expenditure on employment of this: social security expenditure	44,1 *12,5*	42,9 *12,2*	43,2 *12,7*	39,6 *12,3*	41,3 *12,6*	41,5 *11,4*
Other not investment-related expenditure	33,1	30,9	29,6	27,8	29,2	26,9
Investment expenditure of this: own investment	16,8 *10,6*	**17,2** ***11,7***	16,7 *10,1*	18,0 *10,9*	18,2 *10,4*	19,8 *12,2*
Subsidies and other expenditures	4,7	7,2	8,4	8,7	8,5	8,7
Expenditure (GFS)	98,7	98,2	97,9	94,1	97,2	96,9
Payment on credit, other expenditure	1,3	1,8	2,1	5,9	2,8	3,1
Total current expenditure	100,0	100,0	100,0	100,0	100,0	100,0

Source: National accounts and budgetary acts

6. Chart:Local government investment as % of total expenditures (in real value)



Source: Balás-Hegedüs,2004

Since 1990, Hungarian local governments have been responsible for investments in services according to their expenditure assignments; however they can identify priorities other than along the lines of mandatory or non-mandatory services.[51] Local governments became the owners of local roads and transportation, gas networks, district heating and of municipal companies and their assets. Hence, infrastructure and environmental (mostly sewage and solid waste-related) investments are the typical municipal capital projects, especially with regard to the huge investment needs in these areas prior to and since EU accession in order to meet stringent EU environmental criteria. Some local government investment needs are related to the deferred replacement needs of the properties they inherited in the early 1990s, some are basic (line) infrastructure needs (these were especially so in the first half of the 1990s), some projects are to serve local economic development needs (e.g. industrial parks) or to fulfill local citizen/business priorities and a few prestige projects, usually before elections.

[51] These tasks are defined by the 1990 Act on Local Governments-see footnote 49 above for mandatory and optional functions. However there is considerable room for local decisions and flexibility in spending. On the other hand many sector laws in fact redefine municipal tasks, set standards etc. hence curb local autonomy in some way.

Consequently, local investment expenditures go to five main sectors: water and sewage services, solid waste deposit and treatment, education, health care and administration. Despite the priorities of line and environmental infrastructure for over a decade now, basic infrastructure supply is still not overdeveloped, especially in the eastern parts of the country or in villages.

It should be mentioned that a considerable amount of off-budget local government entities exist in Hungary, such as public works and other institutions, which operate as "private enterprises" owned entirely by the local government. Moreover, their role is significant in local investment activities, as quite a few are in fact carried out by them. Balance sheets of these partly or fully municipal owned companies are, strangely enough, not public; the only information available on their activities is through their relationship with local government balance sheets. This is a major limitation for empirical analysis. Hegedus, *et al.*, 1999, stressed the importance of the off-budget activities and a paper produced by the World Bank (Kopanyi - Hertelendy, 2000 - published 2004) also showed its importance. They calculate that "while local governments have spent 2.2 to 2.5% of GDP annually on infrastructure investments, municipal public enterprises have carried out investment of an additional 1.5% of GDP annually." (Kopanyi, M.- Hertelendy, Zs. 2004, p.344) According to another estimation by Hegedus (2002), expenditures incurred by these companies can make up a further 12-16% of that shown in local government balance sheets. Such off-budget expenditure items are most characteristic in the water sector, which reach up to 5 % of local government expenditures. However, no real research has been done on this area – and due to the lack of data I have had to ignore its effects for the present empirical analysis in this dissertation.

Financial sources of municipal capital investment

An effective system for investment grant allocation and the development of regional strategies is a major expectation of new EU members. Public sector investments in Hungary are still mostly financed through different central government resources, to some extent from local government own sources (but these were very often channeled through temporary revenue flows, such as privatization revenues or asset sales) and some private sector resources through PPP projects. Yet, the projected rapid decline in local privatization revenues along with further reductions in central government transfers will make this undertaking difficult (SNDP, 2000 p. XX). The availability of capital investment grants from the central budget and from EU funds are dependent upon local governments' matching share of co-financing, which frequently cannot be financed from internal municipal resources. Some experts have expressed concern that in the future, local governments will increasingly have to rely on the availability of private sector financing to finance their share of co-financing in order to quality for these external public resources (Asztalos et al., 2000).

13. Table: Financing sources of local government capital investment (%)

The Financial Sources of Local Government Capital Investment (1994–2001) [%]

	1994	1995	1996	1997	1998	1999	2000	2001
Loans	26	14	10	8	16	8	7	11
Revenue from privatization, property, shares etc.	31	54	67	67	30	40	45	31
Capital grants to local governments	33	34	35	37	36	39	42	50
Other (operating surplus)	9	–2	–13	–12	18	13	6	7
Total investment	100	100	100	100	100	100	100	100

Source: Ministry of Finance.

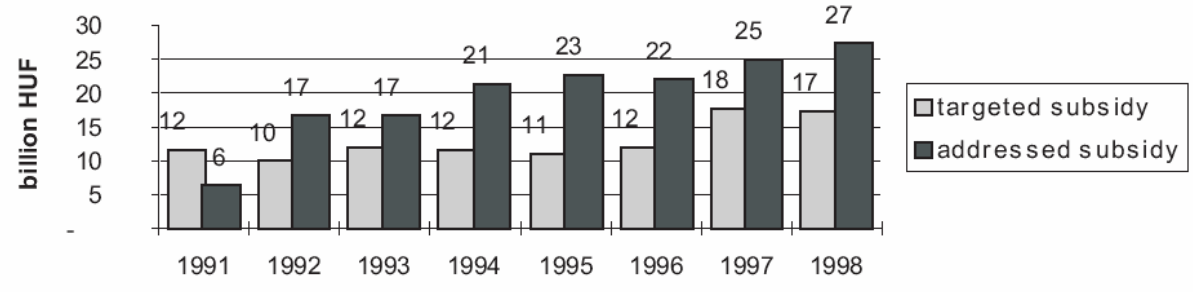
Local government investment resources are still fairly fragmented. The central budget provides two major types of investment grants: addressed and targeted grants. From the nature

of investment projects, it follows that these grants are available and are given for a multi-year period, which also means that quite a significant portion (usually 80-90%) of the yearly planned total amounts in the central budget are already determined by ongoing projects. Addressed grants are generally available for large projects above a value of HUF 200mn. Projects could be related to services in any sector, including environmental ones, but usually they are given for clean drinking water, sewage, education and health care related investments. The central government finances most (generally 80-90 percent) or all of the project cost, and each project individually requires Parliamentary approval – which on one hand provides a strong control element, and on the other gives room for lobbying by individual MPs.

Targeted grants are allocated for purposes of special national importance identified by the Parliament in the Act on Addressed and Targeted Grants (1992/89). They are *matching* grants: they do not cover the total costs of the project, thus local governments always need to contribute with their own resources. The annual budget law for 2000 makes it clear that central budgetary resources cannot be used as local own contribution when applying for different central grant schemes, which used to be a widespread practice.[52] The grant element, determined by law, varies by sector but averages around 50% of project cost across sectors. The grant is increased by 10% of project cost if several local authorities jointly undertake a project. Targets and eligibility criteria and matching ratios have been changed throughout the years, but current targets are the following: building new primary school classes to replace those endangering life (~ 5%), construction of sewage systems and treatment facilities (55%), regional solid waste treatment (15% - from 2002 not only landfills but incinerators), equipment purchase for public hospitals and health centers (15%), flood control and reconstruction (15%).

[52] See paragraph 23/c of the 1992/89 Act on Addressed and Targeted Grants modified by paragraph 85 of the 1999/125 Act on the General Government Budget for 2000.

7. Chart: Amounts of targeted and addressed grants 1991-98



Source: Balás-Hegedüs, 2004, LGI

A basic issue is how the local government financing system joins with the *sectoral funding programs*[53]. Several sectoral grants are provided by different ministries, which should be considered when assessing the investment expenses of the Hungarian government. These are not necessarily targeted to local governments, but also to private companies, NGOs etc. The most notable ones are the former Road Fund (where of an 80 Bn HUF budget only 1.5 went to municipal projects), Environmental Appropriation, and Water Appropriation. Most analyses (Hegedüs et al 1996, Pires, 2001, World Bank- SNDP country study 2000) point out the segmented decision making, lack of willingness for cooperation and even priorly existing conflicting interests which cause ministries to suffer from more efficiency losses. Hence, funding mechanisms do not follow a comprehensive unified logic or program, and thus Hungary loses a lot due to the lack multiplicative effects of subsidy programs.

Overall, public sector investment activity is larger than these grant programs, as there are also direct central government investments. Furthermore, if we add off-budget items, such as investment activities of publicly owned enterprises (there are several innovative forms for these both at central and local levels), then the total numbers increase even further to 856.3 Bn HUF in 1998 and 908.5 Bn HUF in 1999.

[53] It is in fact one major argument raised by critical experts against the very fragmented local government system of Hungary that it is incapable of operating the local tasks of those "sector" services efficiently and thus leading to serious macroeconomic efficiency losses.

14. Table: Public sector investments in the budget reports, 1998, 1999

	1998		1999	
	billion HUF	**%**	**billion HUF**	**%**
Investment expenditures of central government institutions	107,0	17,3%	908,5	15,0%
Investments approved by Central Government	97,8	15,8%	110,0	16,7%
Investments of central funds	58,2	9,4%	7,5	1,1%
Subsidies of private housing	43,0	6,9%	80,9	12,3%
Other investment expenditures under line ministries	48,3	7,8%	105,1	16,0%
Total investments of local governments	266,0	42,9%	256,1	38,9%
Total public sector investments	620,3	100,0%	658,1	100,0%

Source: Hungarian central government budget reports 1998 and 1999, calculated by the Metropolitan Research Institute (Budapest, 2001)[54].

Regional development policy – institutions, financing, relationship with other policies

Hungary does have some substantial regional differences despite its small size. The major splits are between the western and eastern parts, and between the north and south of the country. There is an overwhelming capital city due to the mainly one-pole development of the country over a long period of time, with many smaller regional networks and lots of scattered, mostly rural areas lagging behind. In terms of regional GDP levels per capita, the most developed part is three times higher GDP than that of the least, while standard deviation is around 25-30%. Without taking Budapest into account however, this difference becomes only 1,5 times. It shows that without Budapest, the Pest county/central region is not as prosperous as Western-Transdanubia or Central Transdanubia, which are close to or above the national

[54] The calculations by MRI were based on actual budget reports – which show somewhat different data from those of CSO of Hungary, as the latter usually leaves out investment made by state-owned companies and other elements.

average, i.e. there is more to the problem than a simple gap between the capital and non-metropolitan areas.

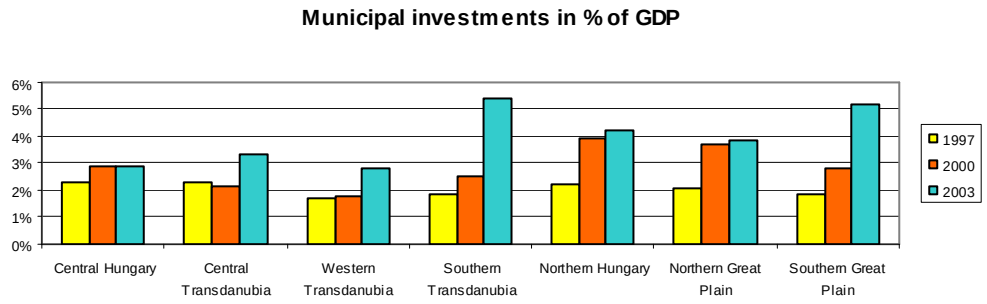
15. Table: Distribution and ranking order of GDP by regions, 2003

	GDP at current prices		per capita GDP		Ranking
county/region	million HUF	%	thousand HUF	in % of national average	
Budapest	6 468 082	35,1	3 777	207,9	1
Pest	1 806 524	9,8	1 620	89,2	7
Central Hungary	**8 274 606**	**44,9**	**2 927**	**161**	**I**
Fejér	737 564	4	1 721	94,7	5
Komárom-Esztergom	603 116	3,3	1 910	105,1	3
Veszprém	529 117	2,9	1 433	78,9	8
Central Transdanubia	**1 869 797**	**10,2**	**1 679**	**92,4**	**III**
Győr-Moson-Sopron	956 477	5,2	2 176	119,7	2
Vas	507 665	2,8	1 902	104,7	4
Zala	497 821	2,7	1 675	92,1	6
Western Transdanubia	**1 961 963**	**10,7**	**1 955**	**107,6**	**II**
Baranya	546 511	3	1 354	74,5	11
Somogy	414 144	2,2	1 237	68	14
Tolna	322 709	1,8	1 300	71,6	13
Southern Transdanubia	**1 283 364**	**7**	**1 301**	**71,6**	**IV**
Borsod-Abaúj-Zemplén	845 579	4,6	1 141	62,8	17
Heves	432 501	2,3	1 333	73,4	12
Nógrád	215 009	1,2	983	54,1	20
Northern Hungary	**1 493 089**	**8,1**	**1 162**	**64**	**VII**
Hajdú-Bihar	755 590	4,1	1 371	75,4	10
Jász-Nagykun-Szolnok	496 751	2,7	1 198	65,9	16
Szabolcs-Szatmár-Bereg	588 828	3,2	1 007	55,4	19
Northern Great Plain	**1 841 169**	**10**	**1 187**	**65,3**	**VI**
Bács-Kiskun	655 164	3,6	1 207	66,4	15
Békés	435 280	2,4	1 103	60,7	18
Csongrád	594 383	3,2	1 394	76,7	9
Southern Great Plain	**1 684 827**	**9,2**	**1 236**	**68**	**V**
TOTAL	**18 408 815**	**100**	**1 817**		

Source: Central Statistical Office, Hungary – own compilation

The following chart shows how municipal investments in % of GDP have risen in the underdeveloped regions (on the right side) during the 1997-2003 period, which can be a sign for regional development goals to be taken more into account, as well as the increased grant funds available for such purposes.

8. **Chart: Municipal investments in % of GDP regionally**



Source: Halász-Kálmán, 2006

By most estimates, regional differences widened during the transition period.[55] There have been growing differences in the rates of unemployment across regions, and in the monthly salaries between two employees with same qualifications and profession but located in different regions. Capital inflows were concentrated to the central region (Budapest and agglomeration), followed by the West-Transdanubian region (Győr-Moson-Sopron, Vas and Zala Counties). The Eastern counties received less, and the Northeastern regions have benefited far less from the FDI. There is a very strong correlation of indicators of FDI and GDP per capita regionally (correlation coefficient estimated to be 0.97 for all counties and 0.69 when excluding Budapest in 1997, OECD, 2001 p. 20). Hence, capital inflow was really significant in widening of disparities between the capital area and the regions. Western Hungary took advantage of its cumulative effects, while the eastern part of the country still suffers from restructuring after losing the past dominance of heavy industry and agriculture. Business R&D and information technology infrastructure is also concentrated in the capital and in the northwest.

Recognizing the facts listed above, it was a major step forward when Hungary created its legislation and designed institutional framework for regional development in 1996 (amended in 1999), basically in accordance with the EU principles – however, it goes even further in setting out institutional changes concerning the proper role of regions. As far as

[55] World Bank Regional Development Aide Memo, 1997.

finances are concerned, and parallel to the strong sectoral and municipal focus in the Hungarian system, the direct regional development labeled funds represent only a very minor share in the budget – in fact, a considerable part of those go to municipalities in less developed regions for their infrastructure investment. These include the Spatial Equalization Support ("TEKI", 1996-), the Targeted Decentralized Assistance ("CEDA", 1999-) and the Rural Development Allocation (2000-). The Ministry of Interior managed the first two, along with the addressed and targeted grants for local governments' infrastructure investments, while the Ministry of Agriculture and Regional Development sets the criteria for defining underdeveloped areas (currently 30% of regional GDP, 70% of population of favored micro-regions), municipalities or micro-regions of which are eligible for the Spatial Equalization Support and the Regional and Rural development allocation. These funds are considered to be for regional development, as they had been decentralized to the discretion of the County Development Councils and later their Regional counterparts; however there is hardly any coordination with other sectoral programs managed through the de-concentrated agencies of respective ministries (Illés, 2001, p. 692).

While in Hungary, the decentralized regional development funds were deliberately directed to the most needy regions of the country, i.e. Northern Hungary, Northern and Southern Great Plain (based on formulas using different factors), still *out of all the other public investment, around 64,5%, and from investment grants altogether 42.2% went to the most developed Central region and Central /Western Trans-Danubian regions*, i.e. the most developed ones along GDP and other indicators and less to the backward regions of north-east and south-east Hungary.[56] The spatial impact of direct subsidies/tax breaks etc. is hardly assessed, however even these have multiplicative effects. *The eastern regions receive significantly higher proportions of investment grants, than then their part in overall public*

[56] But as pointed out earlier, more than half of investment grants is the targeted and addressed system for municipalities, while only around 6% are the clear regional development oriented funds.

investment. This can possibly be justified by their lesser self-financing capacity (due to a lower level of development) – which is a sign of the implementation of equity goals in investment funding – but this might be caused by rent-seeking and other political economy explanations. If the regional breakdown of investment grants is compared with population proportions, Central Hungary and Western Transdanubia receive significantly less investment grants than their proportion in population, while the eastern North Hungary and North Great Plan regions receive more.

Development of a region of course is only partly dependent on public investment funding and government programs: on average 80-85 % of investment is carried out by the private sector. Private sector investment activities have a direct (raising regional output and income/GDP) and indirect (provision of jobs, infrastructure, higher living standards) impact. Private investment is highly concentrated in the Central region, mainly Budapest. In fact, modern views about the role of government regional development policy – partly reflected in EU directives and eligibility – state that its role is rather to provide the right incentives to invite, enhance and magnify the effects of private sector investment than to replace/crowd them out by investment from scarce public resources (Dixit, 1996, Baldrin-Canova, 2000 etc.). The latter are only necessary for cases where the market mechanism fails, e.g. for pure public goods and infrastructure with huge external effects.

Since the 2004 EU accession, the new National Development Plan – incorporating EU Structural Funds with Hungarian government funds – has brought a new element to investment and regional development policies, with the ultimate aims of finally connecting all the different government activities and funds. With its quite significant amount (HUF 675 Bn planned for the period of 2004-2006, and as of now, plans for 2007-2013 are projected for about HUF 15 000 Bn), it will undoubtedly boost investment and development activities of the private and public sectors in both physical and human infrastructure areas. However, the

efficiency of the use of this huge amount of funds depends on several factors, among them institutional and political ones – as hopefully this dissertation will help to reveal.

Previous empirical findings on municipal investment in Hungary

So far not much true scientific – especially quantitative – empirical work has been done with respect to local government investment, falling mostly in the category of policy analyses category. The need for systematic empirical treatment of these issues is thus apparent – my dissertation is an attempt towards fulfilling this need.

Many inherent problems of the targeted and addressed grant system were well elaborated in several different reports,(see e.g. Jókay – Kálmán - Kopányi, 2004 or Hegedüs et al. 1996) such as centrally determined unit costs, allocation cycle problems, yearly changes in priorities, too broad application criteria, lack of adequate monitoring and control mechanisms, etc. These analyses point out the *central dominance in the investment priorities*, which they consider to be due to the lack of substantial local own resources (local taxes were low and financing from capital market or borrowing being only a real option for larger cities, especially in the first half of the 1990s). According to these analyses, the system encouraged LGs to adopt "*grant-seeking*" behavior: it was common practice to use other centrally allocated funds as "local own share" when applying in the targeted grants system – and even though the government decrees on the coordination of funds have explicitly forbidden this practice, it remains to be seen how the ban will be enforced. Several case studies (e.g. those above mentioned and Garzon,1999) have shown how *most local governments prioritize planned investment projects along the lines of grant or private sector financing availabilities and not along a long-term local economic development plan*.

In Jókay – Kálmán - Kopányi (2004), we prepared deeply detailed case studies of different financing constructions, identified key characteristics of municipal infrastructure

finance based upon extensive field research and a comprehensive review of several sewage treatment and collection projects in 1997-98. The four cases give detailed descriptions of the motivations and interests of the different actors involved, as well as point to differences in local government strategies – these creative solutions on a project-by-project basis are often suboptimal at the social level, and reveal the distortions caused by uncertainty and the perverse incentives of the existing investment grant system. The basic investment strategy types are summarized in the following way.

Four General Models of Local Infrastructure Financing in Hungary

"The scale and dimensions of various sources of funding distinguish the four general models of infrastructure finance. This ranges from almost entirely state funds, to largely own-source funds and private capital that is to be repaid from operational revenues. Precisely what proportion of capital costs was truly from own sources differs among these typologies.

100% or overwhelmingly state-funded projects: No local government project is done without some degree of state funds. One extreme would be a complex mix of state funds adding up to 100% or perhaps more of a project's cost (Targeted grants, addressed grants, Central Environmental Fund, Water Fund, Road Fund, Regional Development Fund etc). Central government funding sources are not synchronized nor coordinated nor cross-referenced. Targeted and some other infrastructure grants also play an economic equalization role and are distributed on an entitlement basis.

Entirely own sources. At the opposite end of the spectrum, a local government could fund a project entirely from its own sources such as loans, operational savings, capital contributions and hook-up charges etc. A popular misnomer in Hungary is to characterize as an "own source" all funds that are obtained from sources other than the one being applied for at the time. In other words, a grant from the Environmental Fund is an own source to be matched against the targeted grant etc. All state originated funds, for clarity, should be separated from genuine own sources. Genuine own sources can include asset sales, capital income, operating profits from user fee based services, as well as loans based upon future cash flow from these sources. Borrowing is seen as a last resort mechanism, in contrast to the pay-as-you-go system of generational equity in practice in more advanced OECD countries. Bond financing, whether GO or revenue, is still controversial, yet a hopeful future option.

Public-private partnership. In Hungary, this model involves several variations. In one case a large commercial or industrial user offers a soft loan in some form to the project company or to the municipality, in return for quicker construction, or a more appropriate technology treating the enterprise's anticipated waste flow. The large user offers cash that can be used to complete project faster than otherwise possible given the 3-year draw-down under the traditional targeted grant system. The large user avoids environmental penalties and operational disruptions, while the municipality enjoys a steady stream of predictable user fees during operations and liquidity during construction. Another variation is to involve a concessionaire in a BOT arrangement, where the concessionaire finances, builds, owns and then later transfers ownership to the municipality in return for a guaranteed rate of return. In a unique Central European twist, BOT could mean that a piece of infrastructure is built with public funds then sold to a concessionaire or leased to an operating company. (Privatization of natural gas and electric utilities took place in this manner).

Vendor finance. Vendors could be asked to not only provide liquidity loans, but to essentially finance the "own source" portion of a municipal project by delaying payments over long periods, and by actually loaning cash, or buying services at disproportionate prices from the operating company or project company. The project's own sources are provided by the vendor who then recoups the investment through its usual profit margin. The vendor essentially extends a loan that would be repaid from the proceeds of a potential concession fee offered to the municipality in return for the right to operate the facility. The infrastructure, built with state funds and from explicit and hidden loans from

the prime contractor, and/or major services and equipment vendors, is financed from anticipated profits from user fees and from high markups on services rendered."
Source: Jókay - Kálmán - Kopányi, 2004, p.552

Illés (2001) emphasizes the hectic, politically oriented nature of the whole process and concludes that overall, regionalization in Hungary does not follow pre-determined principles, but is rather a question of day-to-day party political tactics and power relations of coalitions.

The TERRA Studio Kft. (2000) Report to the Ministry of Agriculture and Regional Development on Local Investment Resources concludes that the least developed areas of the country have the least resources for local investment. In those areas, personal and business incomes are also smallest, the major investor being really the local government (public sector) – and the revenue position of local governments correlates with these low levels of income, though not strongly. Out of the income groups, not so surprisingly, they found larger companies to be the most scattered and unequally distributed in the country – however the role of these large (often foreign) companies in investment and regional development is dominant. Their results show that municipal revenue structure and levels clearly prefer larger municipalities and cities – though regional position (location) was clearly the leading variable, with settlement structure and size being only secondary to dynamics of revenues. Research results have proven the hypotheses that local governments finance their investment mostly from asset sales and state grants, while the municipalities of more developed regions are only slightly more active. Investment shortages and need-based demand were found mostly in underdeveloped/low income areas, however in some groups of areas (regions), development indicators and income positions do not correlate, and show different pictures.

Barati (2004) checked 2000 data from a local government survey (TARKI, 2000) and looked at explanations for the investment behavior of municipalities. She kept only three *explanatory variables*: the revenue from the tax on tourism and from the business turnover tax (the *local tax revenues*); central investment subsidies (*state subsidies*); and the amount of long term loans (*loans*). Her results showed that the three chosen parameters have a significant

effect on the investment activity of the municipality; however in municipalities smaller than 10 000 inhabitants, they explain 25-50% of the deviations of the dependent variable, while in the bigger municipalities, they explain 80-90%. For the direction of the effects, 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 and larger municipalities, for small ones it is positive, while for larger municipalities it is negative, i.e. more loans means less investment activity. Barati explained these findings with (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.

> " (i) 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.
> (ii) A minimum requirement for receiving state subsidies for investments is a population served by the asset of a minimum of 10 000 people. The big municipalities easily meet this requirement, while the smaller ones have to form municipal associations, which take 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.)
> (iii) 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 to finance other municipal tasks." (Barati, 2004 p.19)

In an earlier paper (Kalman2002) I found that the *regional breakdown of public sector investment and investment grant allocation clearly follows different patterns, while both diverge from stated regional development goals* – which does not contradict ideas of current economic theory on growth or new economic geography, however reveals some inconsistencies in policy priorities and low rank of regional development. Several possible absorption problems Hungary might face with EU Structural Funds are mentioned, mostly due to its institutional and administrative weaknesses.

Researchers of the Hungarian Academy Regional Research Center have dealt more with regional development policy issues, and have proved several related hypothesis (Lados, M. (ed.) 1998 p.36-38): e.g. *wherever GDP is higher, more is invested than in less developed*

areas. They have also shown that relative deviation (regional spread) in investment activities of private sector is always higher than those of total investment, i.e. the public sector fulfills some kind of balancing or equalizing role – which is in line with its expected role based on economic theory. They then concluded that *regional differences in investment are higher than in income* and since there seems to be a positive correlation between investment activity and growth of income, this in fact points to a *tendency for divergence* of regional income levels.

Chapter VI.

Are there true local investment strategies, based on local priorities – or do subsidies cause distortions? Results of a 2004 survey of city mayors

Since the topic in this dissertation is more closely the choices on investment and investment grants, the focus will be on policy issues related to these, keeping the basic research question in mind: ***whether local infrastructure policies in Hungary are really designed according to efficiency considerations? What politico-economic factors might affect central and local governments' allocations on infrastructure investment?*** As there exists merely anecdotal evidence from interviews and case studies (as shown in the previous chapter) and relatively little systematic research on issues concerning the role of local priorities and the distortion effects of available subsidies in investment decisions, the role of lobbying and other political factors in successful grant applications, I have tried to ask at least a few questions on these in a more systematic way, in a survey of city mayors. Some of these issues, especially attitudinal ones, can only be approached this way, and some will be tested in the large-n regressions (detailed in Chapter VII, below). However, survey information also helps for model specifications there.

Sample description

The survey was conducted in 2004 by MEDIAN Public Opinion Polling Ltd., contracted by the Hungarian Academy of Sciences Economic Research Institute as part of a research project sponsored by OTKA, the Hungarian Scientific Research Fund. Being a

member of the invited research team, I managed to include *several questions on investment behavior and attitudes on grant-seeking* in the *survey of Hungarian city mayors*, so the analysis here is a first analysis from those original data[57].

The survey sample was stratified, *over-representing cities above 10 000* and largely under-representing small villages compared to their true ratios in the Hungarian municipality structure – thus it likely gives somewhat biased results, which should be handled with care, and inferences should be made regarding cities instead of the overall sector of local governments. The reasons for this stratification of the sample were the main interests of the survey on local taxation practices, the attraction of large scale companies and investment activities/investment transfer recipiency, all of which are more characteristic and reasonably expected in medium and larger cities. 143 city and capital district mayors took part in the survey (61% of all cities in Hungary), while only 94 additional data sheets on financial and other data were returned. In terms of population size, the sample differs considerably form the true population distribution of cities, hence answers had to be *weighted* in the analysis by a population-weight, with more weights given to smaller places for more balanced results.[58]

16. Table: Sample strata by size

Sample strata/ Population size	Hungarian settlement structure	(% of LGs)	Of cities above 5000	Survey cases within sample strata	Survey %
above 10 000	135	4.4%	50.6%	100	69,9%
5-10 000	133	4.3%	49.4%	31	21,7%
under 5000	2899	92.3% (54.8% under 1000)		12	8,4%
Total	3167	100%		143	100,0%

Source: Ministry of Interior data

[57] Since the whole questionnaire is in Hungarian, I decided not to include it in the Annexes of this dissertation, but of course it is available from me upon request any time.
[58] Decision on this was already made by constructors of the database, hence I received the data coded as such and the weight to be used given.

In terms of regional distribution, our sample is better, though Western-Transdanubian cities are somewhat underrepresented and cities from the Great Plain somewhat overrepresented, but everywhere else, more than half of cities are in the sample.

17. Table: Sample by region

	Cities in Hungary		Cities in Sample	
Region	no.	%	no.	%
Central Hungary	47	19,1%	29	19,5%
Central Transdanubia	27	11,0%	14	9,4%
West Transdanubia	22	8,9%	7	4,7%
South Transdanubia	32	13,0%	20	13,4%
North Hungary	30	12,2%	17	11,4%
North Great Plain	49	19,9%	37	24,8%
South Great Plain	39	15,9%	25	16,8%
Hungary	246	100%	149	100,0%

Source: CSO, Regional Statistical Yearbook 1999

Some major sample data averages however follow those of overall country averages of cities. Per capita municipal income is HUF 224 000 in the sample, while 226 000 is the national average; per capita PIT revenues ("wealth of the city") correspond to the city average of HUF 85 000. Demographic and unemployment data well match national city averages.

Background variables

Answers to survey questions are analyzed against a number of carefully selected background variables. The background factors are as follows:

- *Size* is a basic characteristic of municipalities, measured by *number of residents.* As emphasized already in the theory chapter on decentralization and fiscal federalism, it has been argued that size has an effect on responsibilities and thus on budget priorities, efficiency and responsiveness of local government, citizens' knowledge of local politics, political participation and culture etc.

- Regional position often correlates with economic activities, population size, wealth, political culture, but it may have independent effects through the diffusion of political and administrative innovations (see the huge literature on New Economic Geography and related disciplines). The East-West differences are a frequent topic in the Hungarian discourse.

- Socio-economic position is another non-negligible background factor. In our case, local wealth was measured by *the per capita income tax base* of the local governments, while the *percentage of paved roads* was used as a proxy for urbanization level of the settlement.

- Opportunities of local communities are determined not only by the wealth of local people, but also by the financial means available for the local government. Although the two factors often correlate, legal and administrative institutions also influence the amount of resources local government distributes. The *financial situation of municipality* is measured by the per capita income of local government, per capita own current and separately per capita own investment revenues (for a general review on the importance and average proportions of different revenue categories see Chapter V on Hungarian local government finance).

- As the fiscal federalism literature emphasizes, local autonomy is jeopardized by high dependence on external resources. In the case of local governments, the *dependence on state transfers* can especially limit local autonomy and encourages the diversion of local resources toward locally less important goals – especially important for our investigation of investment priorities. One of my background variables thus is a kind of decentralization ratio, the *proportion of own current and capital revenues in the municipality's total budget* – which is in fact the reverse grant dependence.

18. Table: Sample in own revenue categories

	Frequency	%
above 40%	17	12,0
20-40%	53	37,2
10-20%	63	44,0
under 10%	10	6,7
Total	143	100,0

- Magnitude of per capita investment expenditures is included since it is the main topic of the investigation.

I. Decentralization versus Efficiency

A.) How much actual decision-making in local investments depends on revenue basis – and how "local" is that? To what extent can we see that decentralization indeed contributes to increased efficiency?

My hypotheses (*H1* Increased reliance on local resources leads to a more independent, forward looking, strategic planner local government, *H2* Increased reliance on local resources leads to more efficient project financial planning) were formulated based on expectations of fiscal decentralization theory and international practice. As the decentralization theorem stresses, local priorities are better taken care of, financial management is sounder, hence less room for unintended distorting effects of grants: for e.g. project selection, over-sizing in order to get more funds, not planning for later years for operation expenses, all causing bad implementation. To measure the reliance on local resources, I use the *ratio of own (current and investment) revenues in the local government's budget* [decentr] – a kind of decentralization measure commonly used in the literature for such purposes. I have developed *latent variables* (indices constructed from several question items)

- for *strategic planning*, long-term forward thinking [strategy],
- for project planning efficiency [project]

- for sound, efficient *financial management*,[fineffic]
- for importance of *local priorities* [local]
- for the importance attached to political factors in LG financing [politics]
- also for the view on the importance of lobbying [lobby]

and then used these along with controls for own resources, PIT base of locality, per capita grants received, per capita own current and investment revenues, size (ln population) and region, for testing the above hypotheses. The descriptive statistics for the variables used are the following.

19. Table: Variables used in survey analysis

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
per capita capital grants	133	,00	97,57	5,5902	13,9652
per capita municipal income	133	117,04	510,73	234,3005	82,4406
per capita local investment (incl.financial)	133	7,24	356,32	47,6872	47,0096
per capita local PIT base,2003 prices	133	206,12	914,22	456,3101	130,7769
per capita municipal current own income	133	7,29	206,72	44,7303	27,1056
per capita municipal investment income	133	,55	135,25	20,5969	23,0045
% of flats connected to gas,electr. and water networks	133	,34	,98	,7587	,1200
% of own current+capital revenues in total budget	143	,0564	,6719	,238199	,126205
project planning efficiency	141	1,67	4,00	2,8143	,4408
long term thinking, strategic planning	142	1,00	5,00	3,3514	1,0496
financial management efficiency	141	1,10	2,00	1,6760	,2069
importance of lobbying	141	1,00	3,00	2,0158	,4835
importance of political factors in LG finance	138	1,43	4,71	3,2213	,6974
importance of local priorities	138	1,44	4,44	2,6306	,6065
ln of population	134	7,71	14,35	9,4951	1,0088

H1: Strategic planning, long-term thinking

Since infrastructure investment is clearly an area where implemented projects and service improvements have long-term effects and are also quite costly; therefore their financing is also spread out over many years (sometimes involving several generations of taxpayers) and means heavy burden on local government budgets – it is advisable that such developments are implemented as part of a vision, a long-term overall plan for the development of the whole locality. However, in practice it often turns out – reinforced by some honest interview answers – that such documents just "look good on the shelves" of mayors, can be publicized and shown to anyone interested, but in reality, decisions are rarely made following those, rather on an ad hoc day to day/year to year basis. Some questions in the survey tried to detect the situation concerning strategic planning in those cities surveyed.

20. Table: Long-term strategy or survival?[59]

	Frequency	%
survival	22	15,5
2	12	8,5
3	23	16,2
4	23	16,2
long-term strategy	62	43,7
Total	142	100,0

We can see that the respondents to this survey felt the importance of a long-term strategy, hence answers have a **mean of 3,65** i.e. somewhat more having a long-term plan than those who just play for survival (23.5% of all). 43.9% said clearly that they indeed have a long-term plan (5), but also another 16.9% chose 4, *i.e. according to these answers, 60% take long-term planning seriously*. 15.7% choose the escape option 3, meaning that both are characteristic of their behavior. This result seems somewhat contrary to those in interviews and case studies, where more often it is revealed that the majority of local governments do not

[59] Exact phrasing: Does your local government have a long-term strategy, like a development program or you rather just play for survival, with the tactic of "small steps"?

really follow a true long-term strategy. That is also why more questions on this very subject were drafted.

Checking pair-wise correlation coefficients (see Table 6.1 in Appendix) shows that answers to this question of long-term planning are significantly and positively correlated with the "wealth" of a municipality" measured by per capita personal income tax base (0.196), and even more with the percent of own revenues in the budget, a measure for the degree of decentralization (0.303). The *richer its inhabitants* (higher PIT base) *or the more "financially independent"* (higher % of own revenues) *a municipality is, the more likely they take long-term planning and strategy seriously*. In terms of own revenue categories, the following table shows the different strategies.

21. Table: Long term planning by own revenue groups

		does your LG have some kind of long term strategy or only play for survival?				
		survival	2	3	4	long term strategy
own revenue categories	above 40%	2		2	2	12
	20-40%	9	2	4	9	29
	10-20%	10	7	13	12	20
	under 10%	1	2	4	1	2

What drives local investments: long-term plans, local needs or available subsidies?[60]

The next question concerned *one type of distortion of subsidies*, namely *if their mere existence alters project selection priorities.* As can be seen from the table, the most popular (median) answer for this question was the middle of the scale, (3 – 32.4%), the mean is also very close (3.04), but the answers are quite dispersed (std. Deviation is 1.29). This reveals that most responders *could not / did not want to decide really between the driving force of*

[60] Exact phrasing of survey question: "Are local investment decisions lead by available central subsidies or do you make investment decisions clearly on true local needs, based on multi-year plans?"

subsidies and those of true local needs for their investment decisions – which alters the picture a little from the previous answers on long-term planning.

22**. Table:** What drives local investments (grants or needs) – by size groups

			what drives local inv. decisions the most-grants or local needs?					
			available subsidies	2	3	4	local needs	Total
size category (sample strata)	above 10 000	Count	11	13	34	10	14	82
		% within size category (sample strata)	13,4%	15,9%	41,5%	12,2%	17,1%	100,0%
	5-10 000	Count	9	5	9	8	9	40
		% within size category (sample strata)	22,5%	12,5%	22,5%	20,0%	22,5%	100,0%
	under 5000	Count	2	8	3	2	5	20
		% within size category (sample strata)	10,0%	40,0%	15,0%	10,0%	25,0%	100,0%
Total		Count	22	26	46	20	28	142
		% within size category (sample strata)	15,5%	18,3%	32,4%	14,1%	19,7%	100,0%

In terms of municipality size, what is clearly visible from the survey answers is the somewhat *different behavior of medium-sized cities*. Their portion is higher than the sample average on both extremes, i.e. available subsidies as well as for others true local needs are more of a driving force than for larger cities, who are the most numerous in our sample. The first is explained by the fact that it is *they who rely most on state transfers in their investment projects*. Small settlements: 10% described investment choices as being absolutely driven by available grants, 41.7% of them chose answer 2, i.e. not full, but quite strong effect of available subsidies – this result is not so surprising, given the fact that this group has the least own resources/local tax revenues. But also, a quite high percentage (25%) of small places have claim to only follow local needs in investment decisions – this can maybe explained by their small size-smaller projects, which are not eligible for transfers (except if, as is frequently the case, they do it jointly). Larger city respondents were most reluctant to really answer, 41.4% choose the midpoint, admitting both factors affect their decisions. Many of these larger cities are the financially most independent, i.e. have significant own resources, however their projects are also the largest in terms of size and costs and thus, as we will later see in the analysis, they are the bulk of recipients of major central investment grants, like the addressed

and targeted grants – which perhaps partially explains their "hesitant" behavior in answering this question.

I constructed a combined index ***variable for strategic planning [strategy]*** – from Likert-type (scale of 5) items of the two questions mentioned above: usage of long-term planning/survival (q63_1), project decision based on local long-term plan & local needs / or by available subsidies (q63_2). Checking this combined variable in pair-wise correlations reinforces that **strategic planning positively, mildly (0.207) correlates with degree of decentralization** (% of own revenues in the budget), however – contrary to the sole question on long-term planning – it does not correlate any more with wealth of citizens (PIT base).

Correlations do exist between answers to several questions too, thus long-term strategy answers are positively correlated (0.218) with answers on project sizes reflecting true needs instead of pure grant maximization. Long-term planning seems negatively (-0.198) correlated with another question on investments serving citizen interests, i.e. where long-term planning is taken seriously, the more likely it is that business interests will be a priority, or vice versa: *where local government investments primarily serve to attract business, long-term planning is also taken more seriously*. Finally, answers on long-term planning positively correlated with those on copying other municipalities or not in investment decisions (0.260), but since in the latter question non-copying, independent behavior was at the higher end of the scale of possible answers, this means that the more a municipality cares for long-term strategic planning, the more likely its mayor chooses to "go our own way" and not be influenced by others. The other component, the question on what leads investment decisions, was correlated with another one on citizen contributions (0.218) which can be interpreted in the following way: the more a city's investment decision serves true local needs (and are not lead by availability of grants), the higher the chances that the local government does have some kind of information on citizen willingness to pay and does differentiate citizen contribution along

different project types. Or, phrased the other way around, the *more citizen contributions are actually taken seriously and differentiated as part of financing of investment projects, the more likely that local investment decisions are in fact serving true local needs.*

To verify what factors can affect the strategic planning, financial management efficiency, project planning efficiency etc. of municipalities, I conducted multiple regressions. The results for strategic planning are given here.

23. Table: Regression results for long term strategic planning

Dependent Variable: long term thinking, strategic planning

	Coefficients		
	B	**Std. Error**	
ln of population	**-0,0801**	**0,117673**	
per capita capital grants	**-0,0263**	**0,007319**	**
per capita local investment (incl.financial)	**0,0098**	**0,003156**	**
per capita local PIT base	**0,0020**	**0,001118**	
per capita municipal current own income	**-0,0063**	**0,004924**	
per capita municipal investment income	**-0,0038**	**0,005912**	
project planning efficiency	**0,3680**	**0,222054**	
financial management efficiency	**-1,2442**	**0,453379**	**
(Constant)	**4,2365**	**1,256842**	
Adjusted R Square	**0,119198852**		

**** significant at 1%**

We can see from this model that received per capita investment grants are significant, yet with a negative and fairly small coefficient in explaining strategic planning – i.e. *the more grants a local government receives, the more it tends to become a somewhat less forward-looking and long-term strategic planner.* This, to me, already signals an efficiency loss induced by grants. Another good explanatory variable seems to be the magnitude per capita investment expenditures (i.e. those who invest more in general are more strategic, long-term thinkers), though with a coefficient of almost 0. Interestingly, financial management efficiency is significant, but with a high negative coefficient, which means that the more efficient, better financial management an LG has, the less strategic, forward-looking it is –

which goes against my expectations, and I find this result hard to interpret. But I will further investigate the issue with the next hypothesis.

Copy similar LGs or total independence

In order to discern on the other side of the coin, the independent nature of LGs, there was one question in the survey which tried to *detect independence of local governments* and their investment decisions *or* phrased from the other angle: to what extent are they influenced by others, or try to "*behave like everyone else*". The median answer was 2, quite independent, but only one more municipality chose this rather than the hesitant answers 3, so the mean is 2.5. This partly shows that the question could have been badly designed, as results are contrary to interview and case study evidence on investment behavior, where copying neighbors and/or similar sized municipalities is often reported. However these results reinforce in general that there is still a considerable *"independent" flavor in Hungary,* after the heuristic system change in 1990, against any amalgamation efforts/scale economic arguments. This is especially apparent in the answers of the few small settlements in our sample, who did not even consider answer 4 or 5 (watch/copy others) at all.

The regional breakdown shows that higher than average portions of Budapest, Pest County, Central Trans-Danubia and surprisingly Southern Plain respondents opted for the total independence answer, while 40% of Northern Hungary mayors reported watching or copying other municipalities and another 26% were indecisive on the issue. Hesitation was considerably high among Southern Trans-Danubian respondents too.

24. Table: Copying others or independent investment decisions - regionally

		Do you copy similar LGs or go your way in your investment decisions?					
		watch/copy others	2	3	4	our own way	Total
region	Budapest	1	1	3	2	3	10
		10,0%	10,0%	30,0%	20,0%	30,0%	100,0%
	Middle Transdanubia		2	2	3	5	12
			16,7%	16,7%	25,0%	41,7%	100,0%
	Western Transdanubia		2	1	2		5
			40,0%	20,0%	40,0%		100,0%
	Southern Transdanubia		2	10	7	4	23
			8,7%	43,5%	30,4%	17,4%	100,0%
	Northern Hungary	6		4	2	3	15
		40,0%		26,7%	13,3%	20,0%	100,0%
	Northern Great Plain	3	2	13	15	7	40
		7,5%	5,0%	32,5%	37,5%	17,5%	100,0%
	Southern Great Plain		4	6	6	7	23
			17,4%	26,1%	26,1%	30,4%	100,0%
	Pest County	2	1	2	4	5	14
		14,3%	7,1%	14,3%	28,6%	35,7%	100,0%
Total		12	14	41	41	34	142
		8,5%	9,9%	28,9%	28,9%	23,9%	100,0%

Looking for proofs of local tax-competition, Szalai (2005) analyzed data from the same survey and other sources. One of his results was that in the formulation of local tax policies, smaller municipalities usually watch the rest of the places within their county, while larger cities with county rights observe cities of the same category in the country – though this does not mean they would choose to merely copy tax rates. Obviously strategic behavior is characteristic in tax competition, since a major goal is to attract new and keep existing businesses (as the bulk of Hungarian local taxes come from the local business tax).[61] To the extent that investments also serve to attract new businesses, one could expect such strategic behavior in investment policies as well – however, results in this survey so far have suggested that Hungarian municipalities in the majority of their investments prefer to raise citizen living standards (and give a lower priority to attracting new businesses).

[61] Szalai, 2005 found reinforcement, i.e. local tax competition does exist to some extent in Hungary. Though there are different strategies followed by Hungarian local governments (generally higher or lower rate strategies)and it is not a simple „race to the bottom"; his results also show that assymetry in tax competition does not primarily depend on size of a municipality, yet is clearly associated with the magnitude of the local tax base.

Checking correlations reveals that answers on watching/copying others are positively related to answers on long-term strategies and project size design, i.e. *the more a city identifies itself as independent* ("we go our own way"), *the more likely it is to rely on long-term strategic planning* and also the more it will design its investment projects based on true local needs and *falls less into the temptation of over-sizing* investments. There is a moderate negative correlation (-0.243) with the answers on a further question on the availability of local matching sources for grant applications, which reveals that those who watch and copy others are more likely to be less financially independent and do not have enough own resources, though the chi2 measure does not show significant association between the two.

To conclude, my hypothesis on the positive relationship of own revenues and strategic planning is *accepted:* correlation coefficients showed that answers to the question of long-term planning in the survey are significantly and positively correlated with on one hand the "wealth" (PIT base) of a municipality, but even more with the percent of own revenues in the budget. The ***more "financially independent"*** **(**higher % of own revenues**)** ***a municipality is, the more likely they are to take long-term planning and strategy more seriously***. However, none of the per capita own revenue variables (for investment and current revenues) become significant in the regression model. While the alternative hypothesis got verified in the regressions, ***the more grants a local government receives, the more likely it is to become somewhat less forward-looking, long-term strategic planner***. Additionally, based on correlations in the survey answers it was found, that *the more a city identifies itself as independent* ("we go our own way") *the more likely it is to rely on long-term strategic planning and also that long-term planning is taken more seriously, where local government investments serve primarily as an attraction for business* (though that is not typical).

Furthermore, along with the importance of long-term planning, citizen contributions also tend to be taken more into account.

Efficiency of Project planning and financial management vs. own resources

H2 Increased reliance on local resources leads to more efficient financial management and project planning

a) more care for true local priorities in investment choices

b)fewer problems with project oversizing

c) less problems with later operation costs

d) less problems with local matching shares

a) More care for true local priorities?

To introduce the topic of local priorities in local investments, let us start with an overall picture about what mayors in the sample considered the most important aspects/factor endowments for the well-being and development of a city. This question is interesting for the topic at hand, as local priorities concerning necessary investments and areas of the budget to focus on are assumed to be linked to such a background view. One question asked what they consider important for any settlement (5 very important – 1 not at all), the other asked them to evaluate whether the position of their city is favorable (2) or not (1) in that respect.

25. Table: What factors are considered important for the development of a municipality?

Factor endowment	Important	Favorable position	
		Mean	Rank
transport connection, accessibility	4.09	1.59	14.
local industrial companies	3.79	1.47	17.
education institutions	3.57	1.93	3.
leadership of LG	3.55	1.96	1.

financial position of LG	3.54	1.35	20.
security, low level of crime	3.52	1.94	2.
energy and communal supply	3.52	1.84	7.
local education level and professional knowledge	3.50	1.65	12.
image if municipality, built environment	3.50	1.64	13.
telecommunication quality (phone, internet)	3.48	1.92	4.
professionalism of LG administration	3.45	1.91	5.
natural environment, landscape	3.22	1.79	8.
cultural facilities and programs	3.18	1.84	6.
banking services	3.18	1.76	9.
sport, tourism	3.13	1.59	15.
shopping	3.10	1.70	11
age of population	3.05	1.45	18.
local agriculture	3.03	1.42	19.
history, traditions	2.95	1.72	10.
restaurants, entertainment	2.89	1.50	16.

Source: Own calculations from 2005 City Mayor Survey

Analyzing the same survey data, Péteri (2005 p. 10-15) grouped these 20 answers into four major groups and checked if opinions differ based on some background variables on municipality and personal features of the mayor. It is clearly visible that *economic and infrastructure type of factors are the winners, followed by quality of communal services* and work of local government, while external development factors came to the third group, all with a fairly low std. deviation, i.e. mayor's opinion is more or less uniform on these.

26. Table: Groups of factors considered important for the development of a municipality

	Mean	Std.Dev.
Economy and infrastructure (q50: 1.-5.factors)	3.52	0.47
Quality of communal services and local government (q50: 10,13,16-18)	3.52	0.54
External factors (q50: 12,14,15,19,20)	3.25	0.51
Life standard, services, culture (q50: 6-9, 11)	3.16	0.59

Source: Péteri, 2005

What importance is attached to **economic and infrastructure factors** clearly shows *regional* differences and is also related to *urbanization level (*measured by percentage of paved roads), *"wealth"* of a city (measured by per capita personal income tax revenues) and to the *percent of own revenues* in the budget, a kind of decentralization variable most often used in the literature. These pair-wise correlations are significant, however negative, i.e. *the higher the per capita personal income tax or the ratio of own current and investment*

revenues, the less importance is attached to these economic and infrastructure development factors. One possible explanation is that richer *municipalities already have the basic economic and infrastructure conditions for development*, hence these mayors do not attach as much importance to them. Factors in the last group, that of living standard, services and cultural facilities are correlated with per capita revenues of a city, i.e. mayors of more well-off cities are in the position to really pay attention to these softer aspects of development and growth.

As to the favorable position of their cities, mayors considered mostly those factors which are directly or indirectly under their influence (2nd column of the above table). Thus according to the mayors, their cities are in a favorable position with respect to city leadership, security, education and communal services, telecommunication and public administration. Though transport/accessibility was among the generally important factors for development, it was observed that the more a city was lacking in this respect, the more the mayor is aware of its importance. With local industry, it was just the opposite: the more local industry a city has, the more mayors feel its importance – the positive correlation being that where industry is lacking, cities look for other paths of development and consider those to be important. Answers on education facilities and accessibility/transport also correlate: the less favorable the accessibility to the city, the more mayors consider education to be an important development factor (and vice versa: the better the transport connections, the less importance placed on education).

Péteri (2005) finds none of these and other development factors show any relationship with the political color of the mayor or the majority of the assembly of local government. Personal features of mayors are neither related to the importance attached to the group of economic factors, but they are to the other three groups. There are significant correlations with the education level of mayors though, the higher a mayor is educated, the less

importance he attached to external factors, i.e. they consider those conditions they can influence to be more important for the development of their city. Interestingly, the longer mayors have served in their position, the less important they consider communal or standard of living, or cultural services for development. (Péteri, 2005, p.10-15)

Types of investments

27. Table: Types of 5 largest investments(new constr. or renovation) of surveyed LGs between 1995-2004

	size of municipality				
	above 10 000	5-10 000	under 5000	Total	%
social services	9	6	3	**18**	**3%**
education	37	16	10	**63**	**11%**
water/sewage	68	37	10	**115**	**20%**
road	45	31	6	**82**	**14%**
housing	33	9	2	**44**	**8%**
drainage	6	2	0	**8**	**1%**
solid waste	10	3	5	**18**	**3%**
gas/electricity	12	7	9	**28**	**5%**
public building renovation	32	23	9	**64**	**11%**
market/shopping	15	4	2	**21**	**4%**
parks/land development	6	3	0	**9**	**2%**
cable TV	1	0	2	**3**	**1%**
transport	3	1	0	**4**	**1%**
beach/spa	17	7	7	**31**	**5%**
planning	4	1	2	**7**	**1%**
health	21	3	0	**24**	**4%**
industrial park	18	2	5	**25**	**4%**
central heating	5	1	2	**8**	**1%**
public space security cameras	1	0	0	**1**	**0%**
IT	1	0	0	**1**	**0%**
Total	**344**	**156**	**74**	**574**	**100%**

Among the cities surveyed, 20% of their five largest investment projects belonged to the *water and sewage* category, the second most popular infrastructure investment goal was *roads,* while *education infrastructure* and *public building renovation* both come in the third place among the most popular investment goals. But it is also informative to check out the rest of goals, e.g. that beach and spa projects were also quite popular in the last decade. The ratios and most popular goals are more or less the same across all three size groups, though

roads seems to be less important for the smallest places, for them gas infrastructure and renovations, besides the construction of spas are ahead of roads.

Local spending priorities

In order to detect budget policy priorities, a hypothetical question was formulated: "what would you spend mostly if there was a 20% increase in real terms in central subsidy revenues of the local government next year?" A *striking majority of nearly 66% of mayors prioritized investments*, which in fact did not change in the past decade – though in 1991, it was "only" 38% of mayors who choose this option fist. This can partly be a sign of still considerable investment needs not realized due to lack of funding (reinforced by the high percentages of small municipalities opting for investments, see table below), but also a sign of mayors still thinking that the main source of investment financing is state grants (i.e. "we receive more, we invest more, but not from our own money"). However, the picture changed with respect to other elements of local budget policy, in 1991 the improvement of the worst services, a kind of leveling seemed much more important for mayors than in 2004. Besides the active investment policy, the second most frequent was the equal operation costs increase, keeping or improving the already achieved service levels.

28. Table: Local budget policy priorities[62]

Budget goals	(%)	
	2004	*1991*
1. **investment**	**65.9**	38.7
2. equal increase of all operation costs	21.4	18.1
3. improving the worst service	9.6	23.6
4. decreasing user fees and local taxes	3.1	19.6
Total	100.0	100.0

Source: own calculations and Péteri, 2005

[62] The source of the 1991 data is Péteri 2005, p. 30, who takes them from Horváth-Péteri, 1993, p. 114.

Strikingly low is the choice of decreasing user fees or local taxes as a consequence of higher grant revenues and its frequency did change considerably since 1991. Apart from suggesting some changes in attitudes towards burdening citizens, this is the classical *flypaper* effect problem, a puzzle investigated heavily in empirical fiscal federalism literature and still unsolved after many positive and negative results. Hungarian city mayor survey answers seem to reinforce that "money stays where it sticks"[63] but obviously, the validation of the issue would need proper empirical modeling.

There are some systematic differences in budget priorities according to political color of mayors – not so surprisingly. Growth-oriented budget policy is somewhat more characteristic to right-wing mayors, while "equal improvement of everything" is rather characteristic of left-wing and independent mayors. Right-wing mayors are most against undifferentiated "give something to all sectors" kind of leveling budget policy. Somewhat differently, more than average right-wing and independent mayors prioritize decreasing taxes and fees as a possibility in case of more grants.[64]

29. Table: Budget priorities by political color of mayors

		spending priorities if central grant to LGs would increase with 20% in real terms				
		decreasing user fees and local taxesentés ére	raising all services current operation costs equally	infrastructure investment	improving the worst service	Total
Party position of mayor (parliamentary parties)	independent	3 6,0%	14 28,0%	32 64,0%	1 2,0%	50 100,0%
	right	1 5,9%	1 5,9%	13 76,5%	2 11,8%	17 100,0%
	left	1 1,6%	13 20,6%	40 63,5%	9 14,3%	63 100,0%
	other		1 16,7%	5 83,3%		6 100,0%
Total		5 3,7%	29 21,3%	90 66,2%	12 8,8%	136 100,0%

Role of different actors in shaping general spending and investment priorities

[63] For references on the flypaper effect, see footnote 26 in Chapter II.
[64] For more on these and the usage of different budgeting and financial tools, see Péteri, 2005.

As visible from the following two tables, mayors consider first and foremost prominent local government actors as most important in forming both overall local budget and investment decisions. There is not much change in these opinions since the beginning of transition, as shown by the first 6-7 positions. Only after the local leaders come ministries local business units and certain groups of citizenry. Analyzing the same results, Péteri 2005 somewhat ironically highlights that apparently mayors have learnt "to use media well", as they rated it as being the least important in budget or investment decisions.

30. Table: Role of social actors in budget creation

		Mean 2004	Rank 1991
1.	local government assembly	4.61	1.
2.	finance committee	4.39	6.
3.	mayor	4.32	2.
4.	finance department	4.06	3.
5.	notary	3.90	4.
6.	institution heads	3.73	n.a.
7.	department heads	3.67	5.
8.	**ministries**	**3.33**	7.
9.	local business units	2.84	11.
10.	residents	2.66	8.
11.	businessmen, entrepreneurs	2.58	12.
12.	respected special citizens	2.57	13.
13.	local parties	2.51	17.
14.	pensioners	2.38	9.
15.	local civil organizations, associations	2.37	10.
16.	churches	1.79	16.
17.	local media	1.76	19.

Note:1991 data are from Péteri, 2005

31**. Table: Role of social actors in municipal investment decisions**

		2004 Mean	Std.Dev.
1.	local govt. Assembly	4.62	.62
2.	mayor	4.40	.78
3.	finance committee	4.24	.87
4.	finance department	3.85	.99
5.	notary	3.82	1.05
6.	department heads	3.61	.98
7.	institution heads	3.50	.99
8.	**ministries**	**3.16**	1.49
9.	local business units	2.86	1.15
10.	residents	2.72	1.12

11.	businessman, entrepreneurs	2.71	1.12
12.	local parties	2.45	1.31
13.	respected special citizens	2.44	1.1
14.	local civil organizations, associations	2.39	.99
15.	pensioners	2.26	.96
16.	churches	1.78	.93
17.	local media	1.75	.89

As my interest here is on central-local relations and political factors, the most interesting is what mayors think about the **influence of ministries**. As chi-square tests reinforced its importance, I show the size breakdown of answers.

32. Table: Influence of ministries on local budgets – by size

		in local budget formation what roles these actors play? - ministries						
		dont know	no role	hardly any	some role in half of cases	significant	decisive	Total
size category (sample strata)	above 10 000	1	19	17	8	14	21	80
		1,3%	23,8%	21,3%	10,0%	17,5%	26,3%	100,0%
	5-10 000		5	3	1	9	22	40
			12,5%	7,5%	2,5%	22,5%	55,0%	100,0%
	under 5000		2	3	5	5	5	20
			10,0%	15,0%	25,0%	25,0%	25,0%	100,0%
Total		1	26	23	14	28	48	140
		,7%	18,6%	16,4%	10,0%	20,0%	34,3%	100,0%

It stands out that the majority (**55%) of medium-sized** cities between 5-10 000 considers **ministries to be decisive in formulating local budgets,** and **39%** of them think the same with respect to **investment decisions**. These put previous answers on local planning and local priorities in a somewhat different light, and **reinforce the hypothesis on the strong central influence of local spending and investment priorities.** Larger city answers are more balanced, with a considerable ratio of answers in all categories, nevertheless total percentages show that 54.3% of respondents chose ministries to be strongly influential or decisive in budgets, while 46% said the same with respect to investment decisions.

33. Table: Influence of ministries in local investment decisions – by size

		in investment decisions what role these actors play - ministries?					
		no role	hardly any	half of cases-some role	significant	decisive	Total
size category (sample strata)	above 10 000	22	15	15	12	16	80
		27,5%	18,8%	18,8%	15,0%	20,0%	100,0%
	5-10 000	4	5	5	11	16	41
		9,8%	12,2%	12,2%	26,8%	39,0%	100,0%
	under 5000	2	2	6	5	5	20
		10,0%	10,0%	30,0%	25,0%	25,0%	100,0%
Total		28	22	26	28	37	141
		19,9%	15,6%	18,4%	19,9%	26,2%	100,0%

Whose interests do local investments serve?

This question[65] was designed as part of an effort to detect whether municipal leaders consider their investment projects for *re-election purposes, and thus bias towards investment satisfying the citizens* with raising quality of life, or care more for attracting new and/or satisfying existing business interests. (This of course indirectly serves the same, as with increased prosperity and employment local government can get more taxes, which eventually mean better services to its citizens – but politicians tend to like direct solutions.) As Table**34** below shows, among our survey respondents ***overwhelmingly LG investments focus on citizen life standards***.[66] This result is not so surprising given the considerable infrastructure lag Hungary still has compared to the EU average. This lacking communal infrastructure still mostly is in the areas of water/sewage/waste handling – hence most and the largest municipal projects (and also the available subsidies) focus on these. However, one should not neglect the political economy idea, that investment projects can buy votes at the next election, which is one of the main inquiries in this thesis and probably also a factor underlying these answers. I will try to investigate this issue further in subsequent sections with other tools.

[65] "Whose interests do your local investments serve? Raising citizen quality of life or rather the interests of existing and future entrepreneurs/businesses?"

[66] However, most smaller/medium places probably would do a lot to attract more new business – but location choices are affected by a number of factors outside the scope of municipalities (see Békés-Muraközy, 2005).

34**. Table: Focus of investment policy on citizen life standards or business interests – by region**

		Your local investments serve raising citizen quality of life or rather current and future business interests?					
		business interests	2	3	4	raise life standards	Total
region	Budapest			3	2	4	9
				33,3%	22,2%	44,4%	100,0%
	Middle Transdanubia		1	5	2	5	13
			7,7%	38,5%	15,4%	38,5%	100,0%
	Western Transdanubia			3	2		5
				60,0%	40,0%		100,0%
	Southern Transdanubia		2	14	3	2	21
			9,5%	66,7%	14,3%	9,5%	100,0%
	Northern Hungary	6		4	3	1	14
		42,9%		28,6%	21,4%	7,1%	100,0%
	Northern Great Plain	1	5	24	7	3	40
		2,5%	12,5%	60,0%	17,5%	7,5%	100,0%
	Southern Great Plain		2	14	4	3	23
			8,7%	60,9%	17,4%	13,0%	100,0%
	Pest County	1		4	5	3	13
		7,7%		30,8%	38,5%	23,1%	100,0%
Total		8	10	71	28	21	138
		5,8%	7,2%	51,4%	20,3%	15,2%	100,0%

The regional breakdown[67] – worth considering as the chi-square test has shown significant differences – confirms that a much higher than total average percentage of respondents from Budapest and Central Trans-Danubia, and moderately higher number of Pest County respondents ***focus on investment*** raising quality of life, thus rather ***serving citizen interests*** – and re-election purposes, to confirm our hypothesis. Meanwhile, in industry-dominated and economically lagging Northern Hungary, 42% of mayors answered their investment policy clearly trying to serve the interests of present or future businesses (to be attracted).

Answers on this question show a positive (0.165) correlation with the percentage of own (current +capital) revenues in the local budget, i.e. apparently ***the more decentralized the budget of a city*** (the more financially self-reliant it is), the somewhat ***more likely it will be to concentrate on raising citizen life standards with investments***, which can be interpreted that mayors/city councils of more financially independent cities can afford to use investments for re-election purposes too. Caring for citizen quality of life rather than business interests in

[67] Though the question itself is somewhat an outlier in this set of questions, as the scale of 1 to 5 here is more nominal (does not go from worse, less independent, less active behavior to a better, more independent one).

investment decisions did not show any significant correlation with wealth of the city or other financial or development measures, neither with the political color of the mayor.

To get another side of the picture, I also created some ***composite variables*** comprising several survey items, among them ***one for the importance of local priorities***[68] and ran OLS regression on what factors explain it.[69] As shown below, out of several controls, per capita municipal investment income and project planning efficiency are significant, both with a positive sign. Of these, the coefficient of per capita municipal own investment revenues is really small, almost 0, but that of project planning efficiency is considerable (0.267), all of which translates to the following somewhat obvious, yet important statement: *if there is better, more efficient investment project planning in a given municipality, then local priorities – views of local actors – are also more taken into account in local policy formulation.*

35. Table: Regression results for importance of local priorities

Dependent Variable: importance of local priorities			
	B	**Std. Error**	
ln of population	0,066266	0,069112	
per capita capital grants	0,000641	0,003939	
per capita local PIT base,2003 prices	-0,00092	0,000697	
per capita municipal current own income	0,00195	0,002902	
per capita municipal investment income	0,006024	0,002694	*
project planning efficiency	0,267662	0,131764	*
financial management efficiency	0,295759	0,272569	
long term thinking, strategic planning	-0,03085	0,051843	
% of flats connected to gas,electr. and water networks	0,668942	0,555014	
(Constant)	0,595554	0,806544	
* significant at 5%			
R Square	0,212687		

[68] This local priority variable was created using two related question sets. The first one asked about the role of different local actors (local civic associations, entrepreneurs, local businesses, churches, local media, residents, pensioners, outstanding local personalities, assembly of local government) in the formulation of the local budget, while the second one asked about the role of the same set of actors in investment decisions. The more these actors are involved, the more local policy reflects true local priorities.

[69] Since these composite variables are constructed from several Likert type items with scale of 5, they take on non-discrete values in a range from 1 to 5 much like a continuous variable, so using them in regression is justified.

Other than this regression result, this composite variable for the *importance of local priorities* had a significant and *positive correlation with region and with per capita municipal investment income* (so there is some truth in saying that more own revenues mean more local priorities, even if it was minuscule in the regression), but it has *larger correlation coefficients with two further composite variables: importance of lobbying (0.251) and importance of political factors in LG finance (0.461).* These draw our attention to a hint from survey respondents that in fact these *political factors count more than the percentage of own revenues in the budget*.

b) Are projects oversized to maximize transfer revenues?

This sensitive question provides additional information on *planning efficiency* of Hungarian local governments as well as on one *type of distortion caused by the transfer system*, again based on anecdotal evidence from interviews. These anecdotal evidences on over-investment practices are documented from the second half of the 1990s (e.g. Hegedüs et al., 1996, Jókay–Kálmán-Kopányi, 2004, Deli, 2003). While it is true that since then, monitoring and control in central subsidies has somewhat improved, and that feasibility studies and detailed budgets are now necessary elements of applications, the system is still not capable of totally screening out such practices.

Therefore, to detect if this practice is still present, one question was included in the city mayor survey with a scale of 1-5, 1 meaning oversized projects and 5 representing projects reflecting solely true needs. The mean of answers is 3.39, however the most typical answer, the median, is 4, but also percentages (52.5% chose answer 4 and 5) show that answers in this survey tend towards projects based on true needs, no tactics with over-sizing. However, we should not neglect the 25.5% who honestly admitted over-sized projects in order to receive more transfers, and the 22% who were indecisive between the two extreme options.

36. Table: Are projects oversized to maximize transfer revenues?[70]

		Your project sizes are planned for meeting true needs or to maximize transfer revenues?					
		large projects	2	3	4	true needs	Total
% of own revenue categories	above 40%	3	2	2	2	7	16
		18,8%	12,5%	12,5%	12,5%	43,8%	100,0%
	20-40%	6	5	8	15	18	52
		11,5%	9,6%	15,4%	28,8%	34,6%	100,0%
	10-20%	11	6	17	15	14	63
		17,5%	9,5%	27,0%	23,8%	22,2%	100,0%
	under 10%	2	1	4	2	1	10
		20,0%	10,0%	40,0%	20,0%	10,0%	100,0%
Total		22	14	31	34	40	141
		15,6%	9,9%	22,0%	24,1%	28,4%	100,0%

The above table clearly demonstrates that as we go from the lowest own revenue category to the highest, the percentage of respondents claiming that projects follow true needs increases considerably, hence on this end at least there seems to be a direct relationship between own revenue and project planning practices. Yet, on the other end, even 18.8% of the most financially independent admit having oversized projects, in order to get more money from state sources, though due to the very small n-s (3 out of 16) belonging to this category, we should be cautious with these results.

There are no considerable differences in the specific answers if we check for different size-categories, but there are regionally. Budapest, Pest County, Central Trans-Danubia and interestingly Southern Great Plain respondents reported project sizes to truly reflect local needs, i.e. a good planning and budgeting efficiency. On the other hand, a striking ***71% of Northern Hungary respondents admitted a distortion effect*** that maximizing transfer revenue is indeed a major concern for them and they hence might oversize projects or over-invest. A possible explanation for this finding is cultural, that this is *a lagging region*, with heavy industry under socialist regime that lost a lot with transition in terms of jobs and prosperity. It is here, and also more on the eastern areas of Hungary, that old attitudes of "*expecting every*

[70] "Your project sizes are planned for meeting true local needs or to maximize transfer revenues?"

solution from the state and the center" and *"always complaining"* are still very prevalent. This attitude and also the lack of real self-reliant financial options due to a bad economic situation cause them to try to maximize transfer revenues as much as they can.

Pair-wise correlations have shown answers on what project sizes are reflecting to be slightly positively correlated with the wealth of city (per capita PIT base): 0.172, and with the decentralization ratio (share of own revenues of the budget): 0.178. These mean that ***the richer the inhabitants and the more financially self-reliant a city, the more likely it is to try to calibrate investment project sizes well and reflect true local needs***, the less likely they will fall prey to the temptation of over-sizing projects in order to get more subsidies – but *correlations are really minor*. However, answers to this question seemed moderately negatively correlated with answers on citizen contribution (-0.326) which says that those cities that try to *plan investment project sizes well* and reflect only true local needs interestingly more likely will not want to differentiate *citizen contribution* and keep it *rather low.*

c.) Operation cost problems with previous infrastructure investments

To check these *efficiency/planning problems from a retrospective view*, a control question asked about the other side of the coin: whether municipalities have any current *operation cost problems* with previously finished investment projects. It is visible from the above table, that one third of responders were again indecisive in this issue, however the mean is 2.77, i.e. there is some tendency for answers 1 and 2 (***45,4%)***, which clearly admit **yes, *there are operation hardships*, *current cost problems*** to some extent. Only 25,4% chose 4 and 5, i.e. no operation problems. These results alter the picture about real long-term strategic planning and projects being based on true needs and answers given by respondents even in this survey in previous questions. If there were *real long-term planning*, that would involve not only technical, but *serious financial planning* too – which *should exclude such*

problems. Also, it is known that the macroeconomic environment/central budget and hence the overall financial framework for local governments is still changing yearly, though not to an extreme extent, which makes proper long-term financial planning somewhat harder.

The moderate (-0.178) negative correlation (however the Chi2 also indicated association) between the question on project sizes with this one on operation cost problems reinforces the above statement. Although quite low, the *negative correlation* means that regardless of whether respondents claimed to have well-calibrated projects reflecting true needs and no over-sizing due to the availability of grants,, they were still likely to have operation cost problems, which at least **signals bad project design in the past**. It can also be interpreted as meaning that *good technical planning of projects is still not necessarily matched with sound financial planning, hence* ***operation cost problems running previously oversized investment do occur***. Cross-tabulating these two questions reveals that even among those who stated their project sizes to reflect only true local needs and never oversized, 27% choose yes, they have operation cost problems and another 29% choose the next category 2, which altogether makes up 56% having some problems with running previous investments. Interestingly this is only 18 + 4.5 = 22.5%, i.e. much less in the group who admitted oversized projects.

37. Table: Planned project sizes versus later operation cost problems

		Do you have operation cost problems with running previous investments?						
		dont know	yes	2	3	4	no problems	Total
Your project sizes are planned for meeting true needs or to maximize transfer revenues?	large projects		4	1	8	2	7	22
			18,2%	4,5%	36,4%	9,1%	31,8%	100,0%
	2		2	5	5	2		14
			14,3%	35,7%	35,7%	14,3%		100,0%
	3		4	14	8	3	2	31
			12,9%	45,2%	25,8%	9,7%	6,5%	100,0%
	4		2	9	12	8	2	33
			6,1%	27,3%	36,4%	24,2%	6,1%	100,0%
	true needs	1	11	12	8	1	8	41
		2,4%	26,8%	29,3%	19,5%	2,4%	19,5%	100,0%
Total		1	23	41	41	16	19	141
		,7%	16,3%	29,1%	29,1%	11,3%	13,5%	100,0%

Another question in the survey was also related to the issue of *budget planning efficiency*, namely one that asked about the last five greatest investment projects and ***whether final project expenses were greater than planned or less***. Answers to this did in fact show a -0.176 moderate correlation with those on operation cost problems, which means that *those who reported having larger than planned final costs in their last investment projects are more likely to have operation cost problems from previous investments too, i.e.* ***there are serious problems with their financial planning and budgeting capacities***. Or to put in the context of grant distortions: the more municipalities *report higher than planned final project costs, the more likely they were to be tempted to oversize projects in order to maximize grant revenues, not caring much about the future* - a behavior that the subsidy system unfortunately still seems to provide incentives for.

Results confirm the previous result of *mainly small places having planning efficiency problems*, as a much larger than national average portion of them (37% compared to 20% average) reported more final investment project costs than planned (though as I noted earlier, municipalities of this size were truly underrepresented in this survey, hence this data might be slightly biased). Among the larger cities above 10 000 (highest sampling strata), 20% chose the answers for more than originally planned final project costs, so this problem is not unknown to them either – they represent the average, not surprisingly, since this sample contains most (60%) of the large cities.

38. Table: Project oversizing/overspending by size categories

		project total expenditures compared to planned						
		dont know	much less	less	same	more	much more	Total
size category (sample strata)	above 10 000	2	1	2	59	12	3	79
		2,5%	1,3%	2,5%	74,7%	15,2%	3,8%	100,0%
	5-10 000	1		1	30	7	1	40
		2,5%		2,5%	75,0%	17,5%	2,5%	100,0%
	under 5000				11	8		19
					57,9%	42,1%		100,0%
Total		3	1	3	100	27	4	138
		2,2%	,7%	2,2%	72,5%	19,6%	2,9%	100,0%

Regional differences are also significant: larger portions of LGs in previously "good performer, long-term planner" regions (Pest County, Western Transdanubia, Central Transdanubia) admit having operation problems with previously finished investments, a result indicating that project sizes were not necessarily that well-calibrated to needs, as well as long-term planning not necessarily including financial long-term planning. Northern Hungary seems again to be an outlier, but for now on the good end of the scale: 57% report no operation cost problems at all, which somewhat contradicts previous large portions of answers of daily survival and oversized projects due to transfer maximization from this region.

Operation cost answers were significantly *positively correlated* (0.302) with the question on ***how hard it is to obtain own sources and local matching parts*** and to apply for subsidies (detailed in the next section). One can interpret this as *the better, more efficient municipal financial planning is* (no operation cost problems with previous investments*) the more likely they also have the necessary own matching resources for subsequent investments*. Indeed, this is a sign that these local governments are careful and prudent financial planners and only apply for subsidies with local funds they truly already have. However they are a minority, since out of those who reported having enough own resources and only apply with those, only 38% had no problems with current operation costs of previous investments, i.e. those were carefully planned, which is merely 5.5% of all respondents. On the other end of the scales, 55-57% of respondents chose the worst two categories together, i.e. admitting to have operation cost problems and at the same time saying that they had not enough own resources or had difficulty in obtaining the latter – which also reinforces that these two problems are indeed correlated.

39. Table: Local matching resources for grant applications vs operation cost problems

		Do you have operation cost problems with running previous investments?						
		dont know	yes	2	3	4	no problems	Total
Are local matching sources/credit hard to have but needed or you have some and only apply with that?	dont know				1			1
					100,0%			100,0%
	not enough own		13	12	10	4	4	43
			30,2%	27,9%	23,3%	9,3%	9,3%	100,0%
	2		1	21	13	2	2	39
			2,6%	53,8%	33,3%	5,1%	5,1%	100,0%
	3	1	4	4	9	3	4	25
		4,0%	16,0%	16,0%	36,0%	12,0%	16,0%	100,0%
	4		1	3	5	5	1	15
			6,7%	20,0%	33,3%	33,3%	6,7%	100,0%
	have own to apply witl		5	2	4	2	8	21
			23,8%	9,5%	19,0%	9,5%	38,1%	100,0%
Total		1	24	42	42	16	19	144
		,7%	16,7%	29,2%	29,2%	11,1%	13,2%	100,0%

Operation cost problems with previous investment seem to be slightly negatively correlated with the wealth of cities (-0.186) and also with the per capita level of investment grants received (-0.176) (see Table 6.1 in Appendix). These confirm the usual claim of *availability of extra revenues (more taxes, grants) causing lack of financial discipline*: the higher the per capita PIT base of a city (the richer its citizens), or the ***more grant financing in its investments, the less careful financial planning a municipality does***. Though correlations are rather low, results indicate signs of fiscal illusions, which points to possibilities for future research.

Trying to check for the original hypothesis, i.e. the role of own revenues in the problem with operation costs, I ran a regression on this question controlling for several variables with the following result. Apparently from the per capita revenue variables per capita municipal, own income comes out significant and positive, i.e. the more current own revenues, the less likely they are to have operation cost problems, which is rather obvious and also, the coefficient is virtually zero. The same is true about per capita PIT base – hence *I cannot make any inference regarding the ratio of own revenues having any role in more or less operation cost problems with previous investments*, i.e. the ***original hypothesis cannot be accepted***. However, my combined project planning efficiency variable comes out with a quite high and positive coefficient, which translates as *the better, more efficient project planning*

practices local governments have, the more likely they are to report no current operation cost problems with previously finished investments. This is as expected, yet the fact that it behaves well in the regression is a sign of the correct construction of the project planning variable. Model fit is also reasonably high.

40. Table: Regression results for operation cost problems

Regression Coefficients
Dependent Variable: Do you have operation cost problems with running previous investments?

	B	Std. Error	
per capita capital grants	-0,0074	0,0071	
per capita local PIT base,2003 prices	-0,0023	0,0011	*
per capita municipal current own income	0,0108	0,0051	*
per capita municipal investment income	-0,0010	0,0046	
recoded project cost compare	-0,0837	0,1189	
project planning efficiency	1,6367	0,2325	**
long term thinking, strategic planning	0,0888	0,0903	
ln of population	0,0605	0,1228	
(Constant)	-1,9073	1,2547	

R square	0,3324
** significant at 1%	* significant at 5%

d.) Own revenues - local matching for grants

The *issue of own revenues* is interesting not only for operation purposes, but also to account for *local matching shares in investment projects,* required for all national and EU investment subsidy programs. In the survey, one question dealt with how hard is for local governments to have the local matching sources needed for grant applications: “are local matching sources/credit hard to have but needed or you have some and only apply with that?”

Clearly the *answers*[71] *reflect that* ***this issue is a problem***. The mean is 2.49, while answer 2 is the median one. Altogether, *57.8% respondents* had chosen 1 or 2, saying that they *do not* have enough *local own resources*, and that it is *hard to obtain* these resources – *but for the purposes of successful application to investment grant programs (and fulfillment of projects) they prefer to take out more loans* or put themselves into other positions of financial hardship. In one sense, answers to this question show risk-taking behavior by municipalities, but if we add that there were very few real financial bankruptcy cases of LGs in Hungary in the last decade, besides which the rate of outstanding long-term debt of the whole sector is only slightly increasing[72], then we see that Hungarian municipalities are not fond of taking risks. The other end of the answers was carefully phrased this way: "local own matching part for subsidies does not cause any problem, as we only apply for those for which we already have (or can easily access) local resources". 14%, chose this option, or 21% when taken together with category 4 answers, which is in fact considerable in light of the usual complaining attitude of local leaders experienced in interviews. However, it should be taken into account that these survey answers are from city mayors and not from small villages. It is also interesting to assess these answers in light of those given to other questions on possible distortion effects of subsidy programs (namely the one on project selection), since previously, only 32.4% chose answers on available subsidies driving their investment preferences, but ***here 57.8% said they make some sacrifices in order to obtain state funding.*** Obviously, this does not necessarily mean that they in fact do everything to get those grants, nor does it mean that solely grant criteria lead them in project selection, but still, it *signals how grant-dependent local investments of even larger cities are.*

[71] The exact – not particularly good – phrasing of the question was: "Are local matching sources/credit hard to have (and caused too much loans to be taken or other financing problems) but needed for getting the grants or obtaining the local matching part for grants cause no problems as you have some and only apply with that?"
[72] See data in Balás-Hegedüs, 2004

The chi-square test shows regional differences in local matching shares to be significant, where, contrary to my expectations, high proportions of well-developed Western Trans-Danubian mayors report problems with not having enough own resources – though their number is very small altogether in the sample. One possible explanation could be that these cities are already more active in applying for EU funds and perhaps, due to stricter rules, are more aware of the issue of necessary local matching parts. Pest County mayors also tend to indicate problems, while surprisingly, Northern Hungary is again on the other end, 66% report no problems, having own funds to apply with or only applying to subsidy programs for which they have own matching funds – which contradicts previous answers on transfer maximization behavior.

There was a medium negative correlation of answers on local matching sources for investment projects with the answers to the question of project size design (-0.285) which seem somewhat contradictory: the more they indicated that project sizes reflected true needs *the less likely they were to have enough own resources to apply for grants* – or the more project sizes reflect true needs and are not designed for grant maximization intentions, the more likely it is that the municipality is having problems of own resources, but makes sacrifices (e.g. takes out loans) to get the grants and make the investments.

41. Table: Local matching resources for grant applications vs project oversizing

		Your project sizes are planned for meeting true needs or to maximize transfer revenues?					
		large projects	2	3	4	true needs	Total
Are local matching sources/credit hard to have but needed or you have some and only apply with that?	dont know					1	1
						100,0%	100,0%
	not enough own	6	2	10	7	16	41
		14,6%	4,9%	24,4%	17,1%	39,0%	100,0%
	2	1	5	11	12	11	40
		2,5%	12,5%	27,5%	30,0%	27,5%	100,0%
	3	2	3	5	5	8	23
		8,7%	13,0%	21,7%	21,7%	34,8%	100,0%
	4		2	2	10		14
			14,3%	14,3%	71,4%		100,0%
	have own to apply with	13	1	3		4	21
		61,9%	4,8%	14,3%		19,0%	100,0%
Total		22	13	31	34	40	140
		15,7%	9,3%	22,1%	24,3%	28,6%	100,0%

Cross-tabulation reinforces this, as among those who reported no problems with local matching funds, a striking 66% admitted before in the other question to have or having had oversized projects in the past in order to maximize transfer revenues (though they are only 10% of all respondents) – while among those for whom obtaining the needed local matching parts do cause a problem (answers 1 and 2), only around 18-20% chose oversized projects to get more grants. These may seem contradictory at first sight, but they on one hand stem from the ambiguously phrased question, but on the other hand, these answers can point to other anecdotal evidence, namely that local "own" matching parts for e.g. targeted and addressed subsidies are in fact not necessarily or completely obtained from own resources, but from successful applications to other grant programs (documented in Deli, 2003, Jokay et al., 2004, Hegedus et al., 1996). Unfortunately, the fragmented financing system with its different deadlines and not harmonized grant goals has allowed for such practices, even up until the recent past. And this might also be reflected in the survey answers, depending on who considers these funds to be "local own" sources and hard to get, or who refers to true local sources.

Apart from the already reported negative correlation with project size design, the answers on the difficulties in obtaining local matching sources have shown a substantial positive (0.389) correlation with those on citizen contributions. Taking the meanings of answer possibilities at scale ends into account, this can be interpreted that the *more a municipality has enough own sources* (or only applies with what it already has) *the more it cares for the importance of citizen contributions* and their differentiation with respect to different kinds of investments. Conversely, and more obviously: the more municipalities said they know and differentiate citizen contributions, the more likely they are to have claimed having enough own matching resources for project grant applications. These are both signs of careful and sound budgeting policies. On the other end, choosing not enough own resources to apply with seem to go together with very low citizen contributions – which can be a signal that these local governments have not yet necessarily explored all their possibilities for own resources. Whether the reasons for this are economic (overburden of central taxes and fees) or political (not wanting to burden local citizens), true or just perceived, is another matter. Interestingly, neither matching sources nor citizen contribution answers were correlated with any income or development measure of municipalities, not even with the decentralization measure of share of own resources in the budget, hence it cannot be said that those who have more were the ones who reported less problems.

Citizen contributions

As already shown above, related to the issue of own resources was the question on citizen contributions. This tried to detect to what extent municipalities put some of the burden of their investments (admittedly mostly favoring citizen quality of life) on citizens and ask for some contribution in the form of connection/hook up fees or other user charges, differentiated along the different investment types. How much true information do they really have about citizen willingness and ability to pay? Literature and policy experiences suggest the usage of

these, as apart from adding to the usable pool of local resources, contribution *helps citizens to be aware that there is "no free lunch" and also the willingness to pay is a way of signaling preferences.* Yet again, anecdotal Hungarian policy experience (Jokay et al., 2004, Hegedus et al., 1996) emphasized in interviews is that municipalities try to avoid putting any burdens on citizens in the form of taxes, user fees or investment contributions (and rather collect taxes from businesses) – partly for reasons of crowding out by high central tax burdens, but also admittedly due to political reasons.

Survey answers reinforce this often made claim of not burdening citizens, or not even having proper information about their willingness and ability to pay. The exact phrasing of the possible answers was 1 – we usually set citizen contribution very low, as according to our opinion there is no real ability to pay in our city; 5 – we did survey local citizen willingness and ability to pay, and do differentiate citizen contribution according to project types. The answers considerably favor the first statement(nearly 50% chose answer 1or 2) and another 27.7% was undecided, while only 12.1% expressly marked 5, i.e. in fact differentiating citizen contributions and even having some exact information on willingness/ability to pay. What is interesting is that in medium-sized cities, more than the average proportion (19.4%) of respondents have chosen the option of differentiated, real citizen contributions, but of course, even within this group the majority sets citizen contribution very low (answers 1 and 2).

42. **Table: Importance of citizen contributions to local investments –by size**

% within sample layers/size

		) you know and differentiate citizen contribution to investment types or it usually very low?						
		dont know	very low	2	3	4	differentiated	Total
sample layers/size	above 10 000	2,0%	23,2%	23,2%	30,3%	11,1%	10,1%	100,0%
	5-10 000		22,6%	35,5%	19,4%	3,2%	19,4%	100,0%
	under 5000		27,3%	27,3%	27,3%	9,1%	9,1%	100,0%
Total		1,4%	23,4%	26,2%	27,7%	9,2%	12,1%	100,0%

In terms of regional differences in citizen contribution (which are again significant), a somewhat suspicious high portion (46.7%) of Northern Hungary respondents again choose the best answer 5, "differentiated and substantial citizen contribution", and only few of them are at the other end of "very low". Meanwhile, higher than average portions of Northern and Southern Plain regions chose "very low citizen contribution, no real ability to pay" (answers 1 and 2). Budapest district mayors were almost evenly distributed among "don't know", "very low", "indecisive" and "high, differentiated citizen contribution" answers – which on one hand reflects diverse practice, but also that *even in the capital city, with the highest per capita personal revenues there is hesitation and reluctance toward this issue.*

43. Table: Importance of citizen contributions to local investments –by region

		Do you know and differentiate citizen contribution to investment types or it is usually very low?						
		dont know	very low	2	3	4	differentiated	Total
region	Budapest	2 22,2%	2 22,2%	3 33,3%			2 22,2%	9 100,0%
	Middle Transdanubia		4 33,3%	2 16,7%	5 41,7%	1 8,3%		12 100,0%
	Western Transdanubia		2 28,6%	2 28,6%	1 14,3%	1 14,3%	1 14,3%	7 100,0%
	Southern Transdanubia		3 13,6%	6 27,3%	5 22,7%	5 22,7%	3 13,6%	22 100,0%
	Northern Hungary		1 6,7%	2 13,3%	3 20,0%	2 13,3%	7 46,7%	15 100,0%
	Northern Great Plain		13 32,5%	9 22,5%	12 30,0%	3 7,5%	3 7,5%	40 100,0%
	Southern Great Plain		5 21,7%	10 43,5%	6 26,1%	1 4,3%	1 4,3%	23 100,0%
	Pest County		3 25,0%	4 33,3%	4 33,3%		1 8,3%	12 100,0%
Total		2 1,4%	33 23,6%	38 27,1%	36 25,7%	13 9,3%	18 12,9%	140 100,0%

As already emphasized, answers on citizen contributions were significantly negatively correlated with questions on long-term strategic planning and project size design, however positively with local matching sources and with investment decisions driven by local needs. The latter two are somewhat obvious relations, as the more they have contributions from citizens, the more local resources they will have and also more they will take citizen views (local priorities) into account when planning investments. Putting it another way: the more their investments really serve local needs and follow local priorities, the more they can

actually collect contributions to it from citizens. Yet it is still revealing that these connections show up in the correlations, meaning that answers in the survey were also consistent with one another in this respect. No significant relationship was detected with income and development levels of LGs or with political color however.

To test my original hypothesis, "the more reliance on local resources – the fewer problems with local matching for grant applications", I used regression on this question as a dependent variable. After checking several model specifications with different control variables, using the backward method, the following model remained the most powerful and meaningful.

44. Table: Regression results for problems with local matching resources

Regression Coefficients

Dependent Variable: Are local matching sources/credit hard to have but needed or you have some and only apply with that?

	B	Std. Error	
per capita capital grants	0,0204	0,0079	**
per capita local investment (incl.fin	-0,0035	0,0025	
per capita local PIT base,2003 pric	-0,0021	0,0012	
per capita municipal current own in	0,0051	0,0050	
% of flats connected to gas,electr.	1,5473	0,9639	
recoded project cost compare	-0,3718	0,1188	**
project planning efficiency	2,1486	0,2380	**
long term thinking, strategic planni	-0,0992	0,0938	
financial management efficiency	-0,7096	0,4867	
importance of local priorities	-0,3085	0,1592	*
ln of population	-0,1214	0,1176	
(Constant)	0,4838	1,4956	

R square 0,4945

** significant at 1% * significant at 5%

As can be observed, per capita grants received seem significant, but with a negligibly small coefficient. More interesting is the project cost compare variable, that is from a previous question on whether final project costs exceeded planned ones for the LG's latest greatest investment, and this has a significant, yet negative effect on problems with local matching, but this is as expected, since because of the coding, this in fact means that *the less they report*

over-costing, the more likely they are to have no problems with finding the needed local matching funds for grant applications. With highest and strongly significant coefficient my project planning variable appears again, reinforcing that ***good, efficient project planning strongly contributes to being able to apply for grants, as well as with coming up with the necessary own matching portions***. An interesting event is the significant, yet negative coefficient of the variable on importance of local priorities, apparently meaning that the more they report taking views of local actors into account, the more likely they are to have some problems with ensuring the local matching ratios for grant application.

Regression results for efficiency of project planning and financial management

I constructed ***composite variables separately for project planning efficiency***[73] and for sound ***financial management***[74], because they are two related, yet distinct things. Local governments can be good in certain aspects of general financial management (e.g. use modern budgeting techniques, controlling etc.) but still lack good project planning skills with foresight for several years, calculating net present values etc. Or it is also possible that some of their projects are already designed carefully, but their financial management generally is still rather poor and only follows a year-to year logic. Several survey questions were related to both, hence in constructing the composite index-like variables, I used certain set for project

[73] This variable for *project planning efficiency* was constructed from the following items: q63_4 asking on project oversizing, q63_5 about citizen contributions, q63_6 problems on the local matching own resources, q63_7 on current operation cost problems with running previous investments, and q1_3_1-q1_3_5 on final project costs compared to planned amounts for last five largest investments. All items were Likert scales of 5, thus the composite variable takes on nondiscrete values ranging from the 1 to 5 continoum.

[74] The variable for *financial management efficiency* was constructed from the following set of items asking if they have used the given efficiency related financial tools: q54_2 on increasing local taxes, q54_4 on inducing budgetary institutions to collect revenues, q54_7 on taking long-term investment loans, q54_9 on decreasing costs in least efficient budgetary areas, q54_10 on decreasing administrative costs, q54_19 on founding a partnership with another LG, q54_20 on going through a due diligence process for any budgetary institution or company of theirs, q54_21 on reorganizing any service or institution, q54_22 on contracting out services or having PPP agreements with the private sector, 54_23 on using procurement.

planning and a different set of items for financial management, in order to avoid multi-collinearity problems.

Checking pair-wise correlations for these composite variables with several others revealed that project planning efficiency has a significant positive correlation with only final project costs compared to planned ones, while my financial management efficiency variable was correlated positively with the per capita local PIT base (0.30) and with the population of the municipality (0.206). These mean that ***the better-off or the bigger a municipality is, the more likely it will be to have sound financial management.*** Including these composite variables into OLS regressions as dependents, I obtained the following results.

45. Table: Regression results for project planning efficiency

Regression Coefficients
Dependent Variable: project planning efficiency

	B	Std. Error	
ln of population	0,043668	0,045431	
per capita capital grants	0,003898	0,003006	
per capita local investment (incl.financial)	-0,00236	0,000893	**
per capita local PIT base,2003 prices	-0,00063	0,000336	
long term thinking, strategic planning	0,068071	0,035639	*
importance of local priorities	0,134433	0,060098	*
financial management efficiency	0,351708	0,182344	*
(Constant)	1,597589	0,497558	
R Square	0,131079		

** significant at 1% * significant at 5%

First for ***project planning efficiency***, regression brought better results than pair-wise correlations, as I found more significant explanatory variables. The magnitude of per capita local investment is strongly significant, though with a negative sign and with a very minuscule, practically zero coefficient. More interesting are the composite variables, which all came out significant and show that strategic planning is positively affecting project

planning efficiency, i.e. if local governments take strategic planning seriously, they likely will be competent in project planning as well, or at least that the two have a common root. Also, the *importance attached to local* priorities (which was constructed from items on the role of different local actors in budget and investment decisions) has an even *higher positive coefficient*, pointing to the importance of taking local priorities more seriously. Those who involve local actors and their views more into decision-making are in fact better and more efficient in project planning and management as well. The coefficient for my variable representing efficient financial management is much higher than the previous, highlighting that according to the surveyed mayors too, *sound financial management and efficient project planning/management are in a strong positive nexus*, those who hold modern financial management views and use such techniques will also be better in careful, more efficient project planning.

When *financial management efficiency* was a dependent variable in the OLS regression, per capita local investment expenditures again came out significant, yet with basically a zero coefficient, and the same is true for per capita local PIT base (the measure for the wealth of a city). The relationship of project planning efficiency and financial management is reinforced here as well with the first being a significant explanatory of the latter. However my variable for long-term planning/strategic thinking came out significant, yet with a negative sign, suggesting that those who consider strategic planning and put it into practice are not at all better in financial management techniques – a result contrary to my expectations and previous correlations although the coefficient is fairly small.

46. Table: Regression results for financial management efficiency

Regression Coefficients
Dependent Variable: financial management efficiency

	B	Std. Error	
ln of population	**-0,01174**	**0,023008**	
per capita capital grants	**-0,0018**	**0,001496**	
per capita local investment (incl.financial)	**0,001321**	**0,00063**	*****
per capita local PIT base,2003 prices	**0,00074**	**0,000211**	******
long term thinking, strategic planning	**-0,04749**	**0,017303**	******
per capita municipal current own income	**-0,0013**	**0,000961**	
per capita municipal investment income	**-0,00102**	**0,001153**	
project planning efficiency	**0,082441**	**0,043223**	*****
(Constant)	**1,397345**	**0,222976**	
R Square	0,186215		
** significant at 1%	* significant at 5%		

H9: Which factors are considered important for successful grant application? Role of lobbying through political channels

The previous results on the importance of ministries among influential actors have already *shown the strong central influence on local budget and investment decisions*. This leads us to suppose that this relationship works both ways and perhaps rent-seeking local governments do indeed lobby sometimes for their interests, especially with respect to grants. One question tried to tap these issues. We can see from this table that such assumptions are not unfounded; mayors indicated lobbying in ministries second most important in successful grant applications, while lobbying in parliament through parties is also in the fourth position. Yet, corroborating their previous answers on the importance of good project planning and

local needs, the professionalism of local staff is also among the first four.[75] However, *opinions on the importance of local government being the same political color as the central government* (a hypothesis I am checking in my large-n panel analyses in Chapter VII) *are definitely at the lower end of the scale and with the most diversion (highest std. deviation) of answers.*

47. Table: Order of importance of different factors in grant application success

Descriptive Statistics

	N	Mean	Std. Deviation
in successful grant receival_role of good project planning, reflecting local needs	142	4,27	,89
in successful grant receival_lobbying in difft.ministries	142	4,08	,98
in successful grant receival_role of professionalism of local staff	142	4,03	1,00
in successful grant receival_lobbying in parliament through parties	142	3,63	1,19
in successful grant receival_size and type of municipality	142	3,54	1,07
in successful grant receival_regional position of municipality	142	3,54	1,08
in successful grant receival_local govt. same political color as central govt.	142	3,30	1,30
in successful grant receival_larger than required own contribution	142	3,08	1,10
in successful grant receival_lobbying by local companies	142	2,72	1,05
Valid N (listwise)	142		

When verifying the importance of *regional breakdown* in answers to this question set, three came out significant (chi-square tests): opinions on importance of professionalism of local staff, same political color as central government and regional position of municipality, understandably. As we see, ***same political color of local and central governments is considered overly important*** (4 and 5) in grant application ***by survey respondents*** especially from Western Transdanubia and Southern Plain. Responses in total also tend towards the large role of same political color as central government, 45 % explicitly said so, while a considerable 30% is in the hesitant in between. As for the opinions on the importance of the

[75] One should add that it is fortunate that mayors do understand the importance of these latter aspects, since they become even more important as EU grant applications are now a reality for many, and on the horizon for the rest.

regional position in grant applications, again Western Transdanubia and Southern Plain, besides Pest County stand out.

48. Table: Importance of same political color with central government for grant success- by region

		in successful grant receival_local govt. same political color as central govt.						
		dont know	very small	2	3	4	very large	Total
region	Budapest		2	2	1	2	3	10
			20,0%	20,0%	10,0%	20,0%	30,0%	100,0%
	Middle Transdanubia		3		7	1	2	13
			23,1%		53,8%	7,7%	15,4%	100,0%
	Western Transdanubia				2	3	1	6
					33,3%	50,0%	16,7%	100,0%
	Southern Transdanubia		5	3	5	1	9	23
			21,7%	13,0%	21,7%	4,3%	39,1%	100,0%
	Northern Hungary		2	2	6	2	2	14
			14,3%	14,3%	42,9%	14,3%	14,3%	100,0%
	Northern Great Plain			4	17	11	8	40
				10,0%	42,5%	27,5%	20,0%	100,0%
	Southern Great Plain		2	5	1	8	7	23
			8,7%	21,7%	4,3%	34,8%	30,4%	100,0%
	Pest County	1	2	2	4	4		13
		7,7%	15,4%	15,4%	30,8%	30,8%		100,0%
Total		1	16	18	43	32	32	142
		,7%	11,3%	12,7%	30,3%	22,5%	22,5%	100,0%

If we check what LGs within different size categories thought about the ***role of lobbying in ministries*** and through parties in parliament ***for successful grant applications*** is, we see that medium cities consider it most important (87.5% choosing answer 4 or 5), but in all three categories the *majority of respondents chose* answers 4 and 5, ***a large role*** for such lobbying in order to get grants.

49. Table: Importance of lobbying in ministries for grant success – by size

		in successful grant receival_lobbying in difft.ministries					
		very small	2	3	4	very large	Total
size category (sample strata)	above 10 000	2	3	18	32	27	82
		2,4%	3,7%	22,0%	39,0%	32,9%	100,0%
	5-10 000		1	4	18	17	40
			2,5%	10,0%	45,0%	42,5%	100,0%
	under 5000	2		2	3	13	20
		10,0%		10,0%	15,0%	65,0%	100,0%
Total		4	4	24	53	57	142
		2,8%	2,8%	16,9%	37,3%	40,1%	100,0%

To go a little deeper into the issue, I selected *those respondents* ***who did not consider same political color with central government important*** (answers 1 and 2) and checked what

this subset thought about the lobbying issue. From these answers we can see that even in this small group of 36 answers, *lobbying in ministries and parliament is still considered important*, in this order, with mean answers of 3.58 and 2.94 respectively.

Parliament is a great field for grant-lobbying activities, as described by the term and literature on "pork-barrel" politics. Apparently, the Hungarian city mayors surveyed agree with this as well, and report that they ***consider lobbying in parliament through parties especially important for successful grant receipt***, overall ***58%*** described its role as large or very large, while a considerable 27% was hesitant and selected the midpoint answer 3. Though the sample is biased towards bigger cities, as we go downward towards smaller size categories, higher percentages of them hold such pork-barrel type lobbying overly important.

50. Table: Importance of lobbying in parliament for grant success – by size

		in successful grant receival_lobbying in parliament through parties						
		dont know	very small	2	3	4	very large	Total
size category (sample strata)	above 10 000	1	5	10	27	22	17	82
		1,2%	6,1%	12,2%	32,9%	26,8%	20,7%	100,0%
	5-10 000		1	1	11	13	14	40
			2,5%	2,5%	27,5%	32,5%	35,0%	100,0%
	under 5000		3			8	8	19
			15,8%			42,1%	42,1%	100,0%
Total		1	9	11	38	43	39	141
		,7%	6,4%	7,8%	27,0%	30,5%	27,7%	100,0%

Political background variables and opinions on grant application success

Since this issue is indeed political, I checked if answers in this grant success question set show any relationship with party affiliations of mayors. The chi-square test demonstrates that they do, although association is medium (Cramer V 0.248, Phi 0.429). Apparently, among survey participants, a considerable majority (84%) of left-wing mayors (45% from the sample are left-wing) and also 76% of independents (36% of the sample) think the professionalism of local staff is very important in successful grant reception (answers 4 and 5), while a 'mere' 52.6% of right-wing mayors think so.

51. Table: Importance of local staff professionalism in grant success – by political color of mayor

		in successful grant receival role of professionalism of local staff						
		dont know	very small	2	3	4	very large	Total
Party position of mayor (parliamentary parties)	independent		1	4	7	22	16	50
			2,0%	8,0%	14,0%	44,0%	32,0%	100,0%
	right			2	7	7	3	19
				10,5%	36,8%	36,8%	15,8%	100,0%
	left	1	1	1	7	26	27	63
		1,6%	1,6%	1,6%	11,1%	41,3%	42,9%	100,0%
	other		1		1		3	5
			20,0%		20,0%		60,0%	100,0%
Total		1	3	7	22	55	49	137
		,7%	2,2%	5,1%	16,1%	40,1%	35,8%	100,0%

As to opinions on the *importance of lobbying in ministries* for getting investment grants, 85.7% of independents and 78.9% of right-wing mayors consider it very important for grant success, while 72.6% of left-wing ones think the same.

52. Table: Importance of lobbying in parliament for grant success – by political color of mayor

		in successful grant receival lobbying in parliament through parties						
		dont know	very small	2	3	4	very large	Total
Party position of mayor (parliamentary parties)	independent		4	2	8	19	16	49
			8,2%	4,1%	16,3%	38,8%	32,7%	100,0%
	right		1	1	5	5	7	19
			5,3%	5,3%	26,3%	26,3%	36,8%	100,0%
	left		2	8	22	19	11	62
			3,2%	12,9%	35,5%	30,6%	17,7%	100,0%
	other	1	2		2			5
		20,0%	40,0%		40,0%			100,0%
Total		1	9	11	37	43	34	135
		,7%	6,7%	8,1%	27,4%	31,9%	25,2%	100,0%

Party lobbing in parliament is also considered quite important, but less so among especially left-wing mayors (48.5% choose answers 4 and 5), however 71.5% of independents, and 63.1% of right-wing ones think it is very important. The result for independents highlights the rumors, that many of them indeed have party sympathies and ties (how else could they lobby through parties in parliament?), however they consider running as independents improves their election chances (documented in Bőhm, 2006, Soós et al., 2002).[76]

[76] Another possible explanation is that independent mayors consider lobbying in parliament through parties important precisely because they do not have access to it and just "envy" others for this tool – but some evidence

Concerning importance attached to the *same political color with central government*, political affiliations show again significant differences, right-wing mayors – 63.1% of them consider same political color to be a very important factor in grant application success, while 'only' 38.7% of left-wing ones and 46% of independents do. However, another 37% of left-wing mayors and 34% of independents are undecided on the issue.

53. Table: Importance of same political color with central government for grant success- by political color of mayor

		in successful grant receival local govt. same political color as central govt.						
		dont know	very small	2	3	4	very large	Total
Party position of mayor (parliamentary parties)	independent		6	4	17	7	16	50
			12,0%	8,0%	34,0%	14,0%	32,0%	100,0%
	right		2	3	2	5	7	19
			10,5%	15,8%	10,5%	26,3%	36,8%	100,0%
	left		6	9	23	16	8	62
			9,7%	14,5%	37,1%	25,8%	12,9%	100,0%
	other	1	2	1	1	1		6
		16,7%	33,3%	16,7%	16,7%	16,7%		100,0%
Total		1	16	17	43	29	31	137
		,7%	11,7%	12,4%	31,4%	21,2%	22,6%	100,0%

Pair-wise correlations of answers to grant application success and some background variables

Since my major interest among all are the lobbying and political color questions, I concentrate on their correlation with other answers and background variables (the full table of pair-wise correlations is the second in the Appendix). Not so surprisingly, answers on importance of lobbying in ministries and in parliament do strongly and positively correlate (0.673) with one another, and both with the answers on the importance of same political color as central government, though that is not as strong (0.373 and 0.387 respectively).

Of the background variables used, the per capita capital grants variable is positively, though moderately correlated with the importance attached to lobbying in parliament (0.176) , but not with ministry lobbying and same political color opinions; i.e. the *more grants a local*

reinforces the other argument explained in the main text above, that in fact many of them do have ties to political parties.

government receives, the more its mayor considers lobbying in parliament through parties important, conversely, the more importance is attached to parliament lobbying, the more per capita grants. An explanation can be the high magnitude of addressed grants within total investment grants, which are in fact decided upon in parliament yearly – and indeed debates around it are said to be always fierce.

The wealth of a city (per capita personal income tax base) shows a negative moderate correlation with parliamentary lobbying (-0.252), i.e. *the richer a municipality's citizens (and hence incomes from the LG from this source) the less important it finds lobbying in the parliament*. Also, the composite infrastructure indicator is negatively correlated with this (-0.196), meaning that the more well-equipped a city is with basic infrastructure, the (somewhat) less importance its mayor attaches to parliamentary lobbying through parties. Interestingly, the urbanization indicator (% of paved roads) shows significant, though not too strong positive (0.164) correlation with opinions on lobbying in ministries (this time not in parliament), which somewhat contradicts the previous infrastructure endowment result. But if we consider that sewage and gas related grants given to local governments are decided upon in parliament; however for central government direct investment projects greatly affecting a city (like motorways) it is probably more fruitful to lobby through ministries, then the results seem a little more understandable. Contrary to my expectations, neither of the background variables show any correlation with the importance attached to the similarity of political color of central and local government here in the survey, however this issue will be investigated in much more detail in the next chapter.

Regression results on importance of political factors

Among the variables constructed by me there were two related to political factors. One is a proxy for what respondents think about *lobbying* in general[77], while the other variable is a more complex one for the *role of politics in LG finances.*[78] In trying to check what explains views on the role of politics in LG finance, I included the lobby variable among other explanatory variables and it indeed came out significant and positive with a high coefficient, i.e. *views about lobbying in general do in fact explain a lot from views on role of politics in LG finance*. Also the party position of the mayor significantly contributes to what his views are on role of politics – as shown in tables in the previous section. Per capita capital grants received do positively affect these views, though only to a very minor extent, and the same is true about per capita local investment outlays (with negative sign). The population control also came out significant, showing that ***the larger a place is, the more its mayor will hold politics to be an important factor in local government finances***.

[77] This variable was constructed from two items: q62_3 on whether local businessmen are active in local political parties and q72 if the respondent considers connections with important people a necessary condition for career.
[78] This variable was created using the following survey items:q55_11 on the role of local parties in the formation of the budget, q55_17 on the role of ministries in the formation of the budget, q56_11 on the role of local parties in investment decisions, q55_17 on the role of ministries in investment decisions, q64_4 on the role of lobbying in ministries for grant success, q64_5 on the role of lobbying in parliament for grant success and q64_7 on the role of same political color with central govt. in grant success.

54. Table: Regression results for the importance attached to political factors in LG finance

Regression Coefficients
Dependent Variable: importance of political factors in LG finance

	B	Std. Error	
ln of population	0,171137	0,076065	*
per capita capital grants	0,009606	0,004779	*
per capita local investment (incl.financial)	-0,0041	0,002044	*
per capita local PIT base,2003 prices	-0,0005	0,000726	
per capita municipal current own income	0,00319	0,003137	
per capita municipal investment income	0,005235	0,003891	
project planning efficiency	0,102027	0,144257	
financial management efficiency	0,365554	0,291533	
Party position of mayor (parliamentary parties)	-0,20009	0,059649	**
importance of lobbying	0,55974	0,121527	**
(Constant)	0,183762	0,854824	
R Square	0,266873		

** significant at 1% * significant at 5%

Concluding remarks

In sum, to me these results reinforce the political economy idea, that indeed political, institutional, structural factors alter the behavior of those in the public finance arena – in this case local governments and central grant allocators – from the efficient solution (pure welfare maximization) prescribed in textbooks based on public economics theory. Indeed, it seems these survey data have also proved that there is more to this than simply the extent to which local government financing is decentralized – although its importance should not be underestimated. Altogether, these survey-based results rather "add color and contrast to the picture". More robust results are presented in the next chapter, based on large-n estimations on the panel dataset containing all Hungarian local governments' budgets for the 1993-2003 period.

Chapter VII

Empirical work part 2 – Searching for electoral cycle and political color effects in municipal investment and grant distribution, panel regressions

The chapter is related to the literature analyzing the determinants of local public investment on one hand and political factors determining the distribution of intergovernmental grants on the other. In order to search for possible political color and electoral cycle effects in intergovernmental grant distribution and municipal investment activities, I decided to use quantitative large-n methods besides the qualitative small-n survey already discussed in Chapter VI. For this purpose, hypotheses on determinants of investment expenditures of local governments and chances for grant recipiency are tested with several model specifications. Linear and Probit regressions are run depending on the dependent variables and the model specifications used. Linear models are estimated in pooled OLS and panel fixed effects form, while Probit models are maximum likelihood (ML) estimates for pooled cross section – time series and panel data.

Data

The data I use for this analysis is a *panel dataset* built from the Regional Public Administration Authority database, which is *comprehensive for all Hungarian local government annual budgets* and balance sheets for the *years 1993-2003*, linked with some demographic and socioeconomic data from the "TSTAR" territorial database of the Hungarian Statistical Office and raw local election data from the Hungarian Ministry of Interior. All the

financial variables are shown *in thousand HUFs and have been recalculated at 2003 prices*. In case of current expenditures, this recalculation for same prices has been based on the GDP deflator, while that of the investment expenditures was based on the price-indices of investments. For analytical purposes, the *city of Budapest, local governments of capital districts and counties are deliberately left out of the dataset, due to their very special status* in the institutional and budgeting structure. This practice is commonly followed by researchers dealing with Hungarian municipal data. Thus the final number of local governments included in the panel is N=3130. After several checkups and corrections, this database handles problems from different budget structures throughout different years, hence contains same data content for all years. The often yearly changing data-definitions of the TSTAR database of Hungarian CSO greatly constrain the number of variables that can be used for the whole term of 1993-2003. Definitions and descriptive statistics of variables used in regressions are given in the next section.

For reasons of easier comparison across municipalities, all variables are transformed to *per capita values* in the analysis, along with which the population of the municipality can be used as a size indicator as well as an indicator for congestion. Although theory would justify usage of logaritmized data as well, in this analysis I opted not to do this transformation, because central investment grants (addressed and targeted grants) are received by only a portion of municipalities and for non-recipient municipalities (0-s in the gotgrant dummy variable used), the usage of logs would not make sense.

In the section describing the Hungarian institutional structure in Chapter V, it was already mentioned that little data is available for public utility companies operating communal services – only their relationship with local government balance sheets appears in the

database used. This is an important limitation that has to be taken into account when evaluating results.[79]

Throughout transition, the Hungarian public household has undergone constant changes parallel to the macroeconomic conditions. When analyzing macroeconomic time-series data from transition countries, a usual important aspect is to check for structural breaks due to changes in transition phases. As has already been described in Chapter V, the system of central investment grants to municipalities (addressed and targeted grants) was similarly characterized by constant changes (mostly of grant goals and matching ratios); however, the basic elements (e.g. eligibility criteria and matching nature) of the system remained unchanged in the whole period. One important change is noticeable throughout this time frame: except for the smallest local governments, the ratio and role of local own investment revenues (i.e. privatization revenues, asset sales, citizen contributions and investment loans) has increased in financing local infrastructure investments for all settlement types. This however is not considered a structural break, but rather a shift in the usage of different funds available for investment purposes.

Variables considered

Empirical political economy papers described in detail in Chapter III help in selecting the political variables (e.g. Johansson, 2003, Cadot *et al.*, 1999, and Case, 2001 etc. – more mentioned there). In these papers, the main determinants of the regional redistribution of grants are, for example, the desire to benefit loyal party constituencies or the marginal

[79] Total investment expenses of such utility companies do not show up in the local government balance sheets (although they are eligible for municipal investment grants from the center), hence the incentive effects of grants can be under-estimated based on balance-sheet data.

electoral gains to be obtained in the region with a high ratio of swing voters or the presence of active interest groups.[80]

Partisan support. The assumption is that parties will allocate more resources to the districts were they obtain higher political support. In this model, the parties' purpose is still to win the election, but because they are risk-averse they find it too risky to invest in swing voter groups and prefer to invest in the safer support groups. *Electoral turnover*, the ratio between total votes cast in the central (or local) elections and local population, is quite frequently used – the effects of this variable on investment are usually expected to be positive. Another variable often used is the local *government's margin* of representatives measured as the absolute value of the distance between the share of government representatives of the main party in the government and 50% . The hypothesis here is that an additional representative-seat will be more valuable to any party if this margin is low.

As mentioned in the theoretical part on Political Business Cycles in Chapter III, there are theories about incumbent government concentrating not on partisan (loyal) districts, but on the contrary, on *swing districts*, where there are more hesitant voters. The argument here is that it is more profitable for the incumbent government to invest – either directly in the form of central investments or investment grants – in the regions where more voters are likely to swing from one party to the other (see, e.g., Lindbeck and Weibull, 1989, Dixit and Londregan, 1999). Hence, another variable is sometimes used to capture the influence of swing voters in a given region/municipality. However to properly construct this variable, one should be able to draw the voter density function of each region and then to compute the density at the cut-point. Johansson (2003) computes this variable after doing a kernel

[80] Most of these empirical papers focus, however, on political competition in bi-partisan (and often winner-takes-all) systems. The theoretical papers that provide the basis for the analysis are also centered in this particular political system (see, e.g., Lindbeck and Weibull, 1988, Dixit and Londregan, 1998 and Snyder, 1989). However, this may not be entirely appropriate in the Hungary case, given the presence of multiple parties in most districts and proportional representation.

estimation of a different density for each region, using individual data on vote results. Since we do not have available data of such quality, unfortunately I have to dispense with its inclusion in model specifications.

Driven by hypothesis formulated from interviews with Hungarian experts and government officials, also to check theories circulated in the media, but constrained by data availability, I will, out of the above possibilities of political variables, concentrate here on ***partisan benefits***. That is, *whether the incumbent central government rewards municipalities of the same political color with higher investment grants* and thus tries to improve their and its own re-election chances for the next term. This argument was and is indeed often raised in Hungarian political discourse with respect to different colored central cabinets, but so far no systematic empirical investigation tried to check for its validity and possible extent. My estimates are a first attempt towards this direction.

*"**Political color** same as central government"* variables for the *mayor, absolute or relative majority of local assembly* are constructed from raw election data for the three election cycles involved. Election years were 1994, 1998 and 2002 – when national elections were always held in the spring and local elections followed a few months later the same year. Thus the political variables at my disposal are measured only when one election is held (at time $t=k$) and are constant until the next election (at time $t=k+4$), therefore, these are assumed as *a priori* known by the central government during the electoral mandate. Drawn from the partisan model, I expect a positive effect of these variables on investment grant recipiency chances; the central government will invest more in those municipalities where the support of the local governments will ensure that this improvement will be easily capitalized in increased political support for the next elections.

For picking up the position in the ***electoral cycle*** (after checking for simple year-dummies, which always came out significant), I constructed a variable on *election distance*

(el_dist) that takes values 3,2,1,0 and dummies for an *election year* (el-year) or *one year before election* (el_befor), which I use alternatively with election distance. Election distance is expected to have negative sign, while I expect election year and year before elections to have positive signs in both investment outlays and grant equations.

In order to include some variables accounting for the ***budget constraint*** of each local government, in local investment equations *per capita municipal own current income* (pcmcinc), *per capita municipal own investment revenues* (pcmiinc) and *per capita investment transfer revenues* (pcgr1) are included, which are three distinct categories, hence the problem of multi-collinearity is avoided. In grant recipiency equations, per capita municipal own current income (pcmcinc) and per capita own capital revenues (pcmiinc) are used. In the second round of model search, I changed these per capita controls with a decentralization measure that is percentage of own revenues in the local government budget due to the significant but more or less zero coefficients of the previous.

Yet, it should be noted that some of these variables are possibly endogenous ones, especially the municipal investment own revenues, as they can play a key role in a local government's decision on investment. To some extent, it can also be argued that grants can be considered endogenous, as they can "alter" a local government's project selection, and this way the same underlying factors determine the choice to apply for a grant and also the magnitude of total investment expenditures. On the other hand, however, grant allocation decisions made at the central government are after all out of the scope of local governments, hence I decided to treat the per capita amount of grant variable as exogenous.[81] Nevertheless, I ran several model specifications, checked also reduced ones without the possibly

[81] I suspect local governments (especially if they are on good terms with their MPs, as these decisions are eventually made in Parliament) try to do all sorts of lobbying to influence these decisions – as theories and empirical findings on so called "pork-barrel" politics have already emphasized and proved for other countries (references are given in Chapter III). I tried to find answers for these delicate issues in the survey-analysis part in Chapter VI, above.

endogenous controls and found basically the same results regarding the political variables of main interest.

Finally, I used several ***socioeconomic control*** variables in different combinations in the models, trying to capture equity and some more efficiency considerations. For example, I included an *indicator on local infrastructure level* (ind_infr : a composite indicator created from ones on percentage of flats connected to gas, electricity and water networks in municipalities) for need-based investment, expected with a negative sign both in investment as well as grant equations. Further possible *need indicators on education* (ind_okt), *social* (ind_szoc) and *health services* (ind_eu) were used, expected with positive signs. Share of *young* population (fiatal) and *old population* (oreg) were included to control for demographic variances in need for services, both expected with a positive sign for investments, but the latter I rather expected to be negative for grant recipiency models, as I suspected that local health and recreational services were not among the highest-ranked goals for central grants. The *per capita personal income tax base* of the municipality (pcinc1) tries to control for the "wealth" of localities (or rather for their inhabitants, but since local governments still do receive a portion of the PIT collected at their territories, this variable is also a budget constraint one). I also checked some models by using *regional dummies* for the seven statistical (NUTS2) regions of Hungary.

55. **Table: Descriptive Statistics and Expected signs of variables used in panel estimations**

Variable	Description	Obs.	Mean	Std. Dev.	Min	Max	Expected sign for LG investment	Expected sign for Grant recipiency
pcinv1	per capita municipal inv. expenditures	34262	33.23178	91.90046	87.657	4294.276	Dep var	
pcinc1	per capita local PIT base	34260	275.4341	106.6148	10.32835	1110.103	+	-
pcmcinc	per capita	34262	21.58617	33.60379	5.7449	1556.545	+	-/+

	municipal current own income							
pcmiinc	per capita municipal investment income	34262	10.2521	37.23078	.1461	1724.173	+	-/+
pcgr1	per capita investment grants received	34262	5.664323	42.81364	3.315	2060.797	+	n.a.
decentr1	% of own resources in LG budget	34252	.1759326	.1185445	0	.9089317	+	-/+
Lakos	population	34262	2739.844	9588.008	12	214927	+	+
ind_infr	indicator of local infrastructure endowment	34258	.4758508	.2071443	0	1	-	-
ind_okt	indicator of local education demand	34262	482.8164	2219.512	0	54252	+	+
ind_eu	indicator of local health service demand	34262	3304.887	25072.84	0	718044	+	-/+
ind_szoc	indicator of local social service demand	34262	19.8489	96.56436	0	2986	+	+
fiatal	% of young population	34113	.2182081	.0441528	0	1.508571	+	+
oreg	% of old population	34257	.2241237	.0655287	.0335196	1	+	-
Dummies:								
cl1_lgcg	local government political color same as central (absolute OR relative majority)							+
cl2_lgcg	local government political color same as central (absolute majority)							+
cl1_m_cg	mayor political color same as central government						+	+
el_year	election year						+	+
el_befor	year before election						+	+
el_dist	distance from next election year						-	-
gotgrant2	received central investment grants (addressed and targeted)							Dep.Var.

Estimation methods

As far as estimation methods are concerned, for investment equations (dependent variable pcinv1: per capita local investment expenditures) I used linear OLS[82] and panel regressions with fixed effects which performed and fit quite well.[83] The advantage of panel (also known as cross sectional time series or longitudinal) models over simple cross section data is the unique possibility to include and disaggregate dynamic relationships to cross sectional data, since one of the primary reasons for heterogeneity among individuals is the different history each has – thus panel data give greater flexibility to examine these differences across individuals: "panel data sets are more oriented toward cross-section analyses; they are wide (large-n) but typically short compared to longitudinal data. **Heterogeneity** across units is an integral part—indeed, often the central focus—of the analysis. … These data sets provide rich sources of information about the economy. Modeling in this setting, however, calls for some complex stochastic specifications." (Greene, 2002:283)

The most common model for analysis of panel data is the linear model, in which explanatory variables are taken to be exogenous. They allow the unobserved heterogeneity to be modeled with fixed effects or random effects, or with no heterogeneity at all. In the case of fixed effects models, the intercepts are assumed to vary across individuals at the same point in time and, possibly, over time for all individuals together, while there are individual specific error terms across time. In the case of the random effects models, the variations are assumed to be random and uncorrelated with both explanatory variables and the latent disturbance term in the equation (Matyas-Sevestre, 1992 : 7-17). In modern econometric language, "random

[82] Wooldridge (2002:256) states that under certain assumptions, the pooled OLS estimator can be used to obtain a consistent estimator of βs, but for inferences the usage of robust variance matrix estimator and robust test statistics are needed.

[83] According to Matyas-Sevestre (1992:27) "when the sample is closed and exhaustive (like in the case of geographical regions or industrial sectors), fixed effects are natural candidates." However, I also tried random effects, but the Hausman test always clearly indicated the usage of fixed effects regressions – thus the RE specifications results are not included in the summary tables.

effects" refers to zero correlation between the observed explanatory variables and the unobserved effect, while "fixed effects" means that we are allowing for some correlation between the unobserved effects and the observed explanatory variables ($x_{\_it}$). (Wooldrigde, 2002:252).[84]

Estimations were carried out on the whole sample containing all the local governments, but to gain more insight on the details, they were also conducted for sub-samples created along size categories (meret), along categories of share of own revenues in the local budget (s_ero) – a kind of decentralization indicator and in the case of investment outlays for those only who did indeed received investment grants (with a dummy called gotgrant). As shown in Chapter V, in the Hungarian context, local government tasks and budgeting possibilities differ greatly among different settlement-types and sizes which justify this step of seeking the details from the big picture.

For *grant equations* however, which basically represent a discrete choice between getting or not getting investment grants, and we are most interested here in probabilities for these in different settings, I decided to create a binary variable called gotgrant (1= if LG has received central investment grants in that year, 0= otherwise) and use probability models for a limited (binary) dependent variable. Estimations were done using the *Linear Probability Model* (OLS estimations) as well as *Probit* (maximum likelihood estimations), both repeated in their panel form too (fixed effects for the linear model and random effects in the case of Probit – see some more details about estimation issues in Chapter IV).

In order to avoid the usual econometric caveats, I was very careful with variable selection and kept the model design strongly linked to theory and economic sense, and also

[84] I have provided formulas for panel fixed effects and Probit estimation in Chapter IV at estimation methods already, thus refrain from repeating it here.

before making any interpretation based upon the regression results, I checked for the following problems and made the necessary corrections.

a) *multicollinearity problem*: The greater the inter-correlation between the independent variables, the greater the problem of multicollinearity and the more difficult it is to obtain numerical values for each parameter separately; under full multicollinearity the least squares estimation does not work. As mentioned, the problem of possible multi-collinearity between different independent variables was excluded here by careful variable selection, besides which I also checked for correlations – a commonly used method for detecting multicollinearity – and found that explanatory variables in the equations are free from the multicollinearity problem.

b*) Heteroskedasticity problem*: If the error variance is not constant for all the observations, the heteroskedasticity problem is encountered. In the presence of this problem, parameter estimates are consistent, but usual standard errors and t-ratios will be incorrect and should not be used for inference. If the heteroskedasticity problem is detected, several corrective strategies are available such as transforming the data from the level form to a logarithmic form or by using per capita figures. For this reason and also for easier comparability, I opted to use per capita figures in this thesis.

c.) *autocorrelation* (correlation with lagged values): "Autocorrelation is usually found in time-series data. Economic time series often display a "memory" in that variation around the regression function is not independent from one period to the next. Panel data sets, consisting of cross sections observed at several points in time, may exhibit both heteroscedasticity and autocorrelation." (Greene, 2002:192) Autocorrelation staying in the residuum refer to not using some dynamic information, which can often be the case for panel data. Investment decisions and related financial flows are necessarily results of dynamic processes, however the estimation of a true dynamic model would be overly complicated for

this database, hence I chose to rerun several of the linear and also the panel FE regressions using the Baltagi-Wu type of "one-step" AR(1) control process (first order autoregressive disturbance), as a second best solution. This resulted in some variables (year before elections and the need controls for social, health and educational services) losing their prior significance – see details in Table7.2 in the Appendix – but generally my major findings remained the same.

Results

Political budget cycles in municipal investment financing? - Linear Pooled OLS and Fixed Effects Panel Regressions

First I constructed several specifications, where the dependent variable per capita municipal investment was explained by the political cycle variables of most interest and also included different sets of control variables for local revenues and different need indicators. Estimations were carried out as simple pooled OLS and with panel fixed effects (FE), plus panel fixed effects corrected for autocorrelation (FE+AR) regressions. Tables for Chapter VII in the appendix show the most successful ones.

Regressions on all municipalities

Of greatest interest were obviously the electoral cycle variables now. After year dummies showed a strong significance, I successfully replaced them with the election year and election distance variables separately, which also pick up the time information, but provide more interesting details. Both came out significant at 1% level in all OLS and panel FE regressions as well as in the AR ones. *Election year is positive, as expected and with very high coefficients*, strongly significant in all models and all (OLS, FE, FE+AR) specifications,

i.e. my hypothesis that *municipal investment activities culminate in election years* – just prior to elections in order to please voters and improve re-election chances of mayors and local assembly – is reinforced. *Election distance is negative, as expected*, significant in all models and specifications and its coefficients are smaller, though one has to take into account that this variable is distributed over 4 years. At any rate, it clearly shows that the further away the next elections are, the less investments take place. The variable for the *year before elections* is mostly significant and positive in OLS and FE models, as expected, however loses its significance when panel FE regressions are corrected for autocorrelation. From these results, I can safely infer that ***political business cycles do exist in capital investment activities of Hungarian municipalities.***

I also included one of the other political variables, which measures if the *political color of the mayor is same as that of the central government*. It only comes out significant in panel regressions and in the reduced models, when possibly endogenous other explanatory variables (municipal own investment and current income) are left out or when instead of all the per capita revenue controls, the simple decentralization measure is included. In these cases, however, it behaves as expected and with *very high positive coefficients* – i.e. investment outlays of a municipality are higher if the mayor political color is same as central government *ceteris paribus*.

The *budget-constraint variables all came out significant and positive*, in all models and all specifications – and coefficients are almost the same in OLS, panel FE or panel FE+AR specifications. The inclusion of pcgr1, the per capita investment grant revenues, raises the explanatory strength of the model quite substantially (R^2 changed from previous 0.3 and 0.5 to 0.82). The coefficients of the investment grant variable are always quite substantial (1.28-1.29, which even rises to 1.7-1.72 when using the decentralization measure of percentage of own resources in LG budget or when possibly endogen controls are left out) –

showing that *in **financing capital investment activities** of Hungarian municipalities intergovernmental **grants do matter a lot**, in fact the most out of the revenue-source variables*. Per capita *municipal own investment revenues* are the second in terms of coefficients among the budget variables (with 0.90-0.93) – which shows that after grants, these **own investment sources are *indeed mobilized for investments*** and the higher they are, the more investments a municipality will make. At the same time, it highlights how important the differences are in endowments of municipalities with real estates and other assets to sell, privatization revenues, financial investments etc. – which comprise own investment revenues. Yet, *per capita own current incomes also* came out significant in all model specifications, with smaller, but still considerably large positive coefficients – i.e. ***revenues from local taxes and fees*** are also very important in explaining investments, they are not only used for operation purposes but also shifted for investment. This highlights another often emphasized policy point, that the huge imbalances that local governments encounter in terms of access to such tax revenues cause inequalities (whether this is considered good or bad depends on political views) – and as now proved, indeed it also ***affects their infrastructure development chances***.

It has to be noted however, that as I mentioned in the variable description part, these own revenues are the most likely candidates for possibly endogenous explanatory variables, since they can play a key role in a local government's decision on investment. Without own revenues, the local government might not even embark on investment, or a local government might in fact e.g. decide to sell some asset just in order to use the revenues for infrastructure investments. That was why I reran some models without these possibly endogen controls and was reassured that the political cycle and color variables of main interest behaved exactly the same way as without them, i.e. remained significant and with the expected signs. As I mentioned earlier, the variable per capita investment grants received I consider to be weakly

exogenous (predetermined i.e. grant variable for a given year does not correlate with the error term for that given year), hence I leave it in the model.

As far as the control for "wealth" of a city, the per capita personal income tax base – which is on one hand showing local taxing capacity of a local government to some extent, on the other hand perhaps it is another sign for infrastructure needs (more well-off citizens requiring better services). Though it is a significant determinant of municipal investment expenditures, its coefficients are always almost negligible, and only slightly increase from 0.01 to 0.07 in the reduced forms when possibly endogenous own revenue variables and need controls are left out.

When I replaced the per capita own revenue variables with the ratio type decentralization measure (% of own revenues in the budget), the coefficients of the most interesting political variables remained significant with the expected signs, while some increased considerably (effect of per capita grants, mayor political color), though the infrastructure level indicator lost significance and changed its sign from the previous negative to positive, and the variable for year before elections lost its significance, both of which I find hard to interpret. However, the political color of the mayor started to become significant only with the inclusion of this decentralization variable – though R2-s of these models decrease slightly, to a still fairly high 0.70 (OLS and panel FE alike). The coefficients for this decentralization measure are positive and significant, though strangely high, perhaps this is a sign for the need for logarithmic transformation of variables – yet as I explained, it was purposely not done for grant data reasons.

The need indicator controls[85] showing need for education, health and social services in a municipality were never significant in explaining investments in panel FE and FE+AR

[85] These summary indicator variables are created by simple arithmetic averaging of several related components, the infrastructure level variable (*ind_infr*) is a composite index of ratios of flats connected to water-, sewage- and gas-networks. Higher values of the variable show higher level of infrastructure services, the maximum being 1.

regressions, only for the composite infrastructure level indicator *ind_infr*. This is not so surprising, as these variables do not vary that much from year to year for any given municipality – the within variation is very small[86] – hence no significance in the FE specifications. (They were significant, but with practically 0 coefficients in the OLS setup).

The coefficients of the infrastructure indicator variable – sometimes fairly large – are significant and mostly *negative as expected*, indicating that where infrastructure levels are already high, there is less further investment activity – however its behavior is odd sometimes and changes to positive sign. While from demographic need-variables the proportion of young people was never significant, in all these models and specifications, the proportion of old people in a municipality was always significant and positive with very high coefficients. This might be explained as smaller places (villages) usually with aging populations are more in need of basic infrastructure investments – the next section on sub-samples will reveal more from this picture.

Municipal investment by groups of size, ratio of own revenues and grant status

Size. If we check for groups along different categories, we get more insights, with some very interesting details. Here the cut-points are for cities above 40 000, cities between 15-40 000, between 4-15 000 and under 4 000.[87] For the investment equations by size groups, I dropped the specifications with need controls, as they did not add much to the picture (0 coefficients). (Results in Table of Appendix). That the R^2 does improve considerably as we go towards the groups of smaller localities is not surprising, as the number of observations or

[86] The same time-constant nature can be said more or less about the population variable - included only as a control, since many per capita variables are used – it always shows significance, but is basically 0.
[87] These cut-points might seem somewhat arbitrary, however they were selected to ensure large enough case numbers in all categories.

number of LGs within each size groups also increase considerably (see exact number of settlements in categories in Ch. V) – i.e. the overall model fits better in explaining per capita investment of smaller municipalities.

What is really interesting is that several variables lose their significance for the largest cities (above 40 000 – there are only 23 of them). Neither election distance nor election year are significant in the OLS setup, however in the panel FE regressions, election year again becomes significant and highly positive with the specification containing the decentralization measure or without the endogenous controls. The OLS presents a slightly surprising result and here we can see the power of panel analysis – contrary to which even the mayor of Budapest (largest and capital city, left out of our analysis here) often emphasizes the importance of his capital investment policy for his third re-election. For the second group of cities with 15-40 000 inhabitants (72 altogether) and especially for the third group of those between 4-15 000 (281 municipalities), election year comes with a very high positive coefficient, meaning that ***investments in these middle-sized cities actually do flourish in election years***, while election distance is also significant with the expected negative sign. But also for the last, smallest group of places under 4 000 (2791 municipalities), both political cycle variables are very significant and with the expected signs, though with somewhat smaller coefficients, thus we can conclude that according to these results, ***election cycles do matter for timing infrastructure investments in all size categories***.

The political color similarity of the mayor with that of the central government behaves a little strangely, as OLS shows this to be most important for large cities above 15 000 (i.e. the first two groups) while in panel FE regressions it comes out totally significant for the second group (15-40 000) and in some specifications for the last group (under 4 000), but insignificant for the largest cities. Notable, however, are the huge positive coefficients for the ***middle-sized (15-40 000) cities*** – apparently where ***mayor color matters***, it matters ***a lot***.

Regarding the coefficients of other included variables, we can read that per capita grants always have very large and positive coefficients, however it is largest for the largest cities and decreases very slightly as we go towards smaller groups – while coefficients of municipal own investment incomes show a reverse order, they matter for all, but most for the smallest. This reveals an interesting point: while it is true that ***grants are the most important financing source for all size categories,*** **apparently** ***changes in received per capita grants have the greatest impact on per capita investment of the largest cities, while changes in per capita own investment revenues have the greatest effect on the per capita investment of small villages*** under 4 000. This can perhaps be related to the general greater magnitude and more expensive investments carried out by the largest villages as opposed to the smaller villages, though all variables are expressed per capita.

As far as own, but current revenues are concerned, they seem to matter most for the investments of the third group, i.e. municipalities of the 4-15 000 group, who tend to use also current revenues for investment purposes the most (though all others also seem to do so to some extent), since it is always significant and positive. *If these possibly endogenous own resources are left out, coefficients of per capita grants and per capita PIT base measure, but especially those of election year go up,* though R^2s slightly decrease.[88]

The *level of existing infrastructure* (the only one from the composite need indicators left in) is again a stranger, it behaves a little oddly in OLS estimations, though better in the panel regressions, where it apparently *matters only for the two smallest groups (i.e. those under 15 000*) with the expected *negative sign*: the more infra they have, the less they invest. From the two demographic controls, interestingly the share of younger population matters significantly only for the LGs between 4-15 000, insignificant in all other places, while *share of old people* became a *significant determinant for the investments of smallest villages* under 4

[88] The smallest R^2 still is 40%. This is not a major concern though, and sometimes it is as high as 82%.

000 (and for the largest cities with OLS estimation, though this effect disappeared with panel FE estimation).

Grant status. If we restrict our observations only to those who did receive some investment grants throughout all of the 11 years, the number of LGs involved decreases to 2057 (and more than possibly there are repetitions in this, i.e. there are ones who received in all, but at least for several years, as these grants are given for more than one year). On this sub-sample however, the explanatory strength of my model improves to an almost suspicious 0.90 R^2; I had expected it to improve, but not to this extent. The *most interesting election cycle variables all remain strongly significant and with very high coefficients (*now even that of year before election is a high positive one), i.e. ***in the group of those who did get grants for their investments, the political cycle remains very important in timing projects,*** *and determining* investment expenditures. (This result confirms my assumption that I will find election cycle considerations important not only for investment per se, but for grant distributions too – which is the justification for the grant equations.) Political color of the mayor however, loses its significance in all specifications.

The previously always significant PIT tax base also loses its significance for this group of those who got grants, so apparently the wealth of a city does not explain the investments of grant recipient localities. Other budget constraint variables (per capita grants, per capita own current and investment income or their % in the budget) all remain important explanatory variables though, with the expected positive signs, and in decreasing order of coefficient size.

Interestingly, the infrastructure indicator also loses its significance for this group in some models, while remaining significant but positive in others, which says that apparently the ***existing level of infrastructure development is not unambiguously a major determinant***

of investment outlays for those who receive grants to finance them. There can be different possible explanations for this; one is that perhaps the real difference is among those who got a grant truly based on high needs and those who did not get grants, and therefore the infra_need variable does not vary that much among the grantees. Another is that since grants are controlled for in the model and if we suppose grants really follow needs (i.e. they are not at all distortive), then need indicators do not have direct, but only indirect effects on the dependent investment variable, hence there is no significance for them in the models.[89] Yet another – more malicious – interpretation which I venture to suppose based on interview responses, is that indeed there is a kind of distortion effect of grants, i.e. their mere existence provokes the selection of certain types of investment projects as opposed to those that would reflect true local needs and preferences (which among others the infrastructure indicator is supposed to represent).[90] Survey results in the previous chapter have given some justification for such an interpretation.

Degree of decentralization. Measured by the ratio of own current and capital revenues in the total local budget(s_ero) – such a variable is often used in the literature to reveal different patterns among localities. I created four categories (own resources in the LG budget above 40%, between 20-40%, 10-20% and under 10%) and redid the regressions for these groups in both pooled OLS and panel FE forms. The remaining strong significance of the current and capital own revenue per capita variables throughout all groups and especially the quite good R^2s reinforce this idea. Notably, panel FE R^2 is highest (0.88 and 0.87) for the two

[89]By the same token, such an argument might be valid for the lack of significant variation for other need-variables too (educ-, soc-, health-indicators), which have already been left out from the models here. I thank Zoltan Hermann, of the Hungarian Academy of Sciences, Research Institute for Economics for pointing this out after reviewing an earlier version.

[90] Though as mentioned in the theoretical chapters, it is in fact one of the goals of grant programs to alter choices of recipients for the utility of all taxpayers, for e.g. ensuring minimum service levels, or inducing the internalization of certain externalities. Still, here theory would project level of existing infrastructure to have some effect on grants received.

middle and most numerous groups, so the model fits best those municipalities where the ratio of own resources in budget is between 10-20% and 20-40%.

First of all, it has to be noted that political cycle variables remain significant with relevant signs for all but the first group with the highest share of own revenues (above 40%). I translate this result as follows: those who are decentralized enough to stand on their own and have sufficient own resources basically have the freedom to invest whenever they wish, or can even do so continuously, and do not necessarily need to time investments for around election times. At the same time, they are less prone to electoral manipulations by the central government (that tends to give out slightly more grants in election years and year before – though there was a general declining trend in the past 15 years).

We can further add that budget constraint variables were strongly significant and positive for all own revenue categories, though coefficients for per capita grants received were highest for the group with higher than 40% own resources (in panel FE regressions), which seems a little strange – apparently they can do a lot without grants too, but nonetheless if they do receive grants, they have a big effect on overall investment expenses. This result coincides with Table **56** below showing that in fact, it is mostly larger cities that receive central addressed and targeted grants.

It is interesting to notice – another sign for the power of panel analysis – that while in the OLS setup the infrastructure indicator (ind_infr) gets insignificant for all these groups of own resources, in panel regressions it again becomes significant and with the expected negative sign in all but the most independent group (with more than 40% own resources). That is, *existing levels of infrastructure do have effects on investment activities of municipalities except for those with a considerable ratio of financial independence*. A possible explanation is that investments of these largest, financially most independent cities are most probably of such a kind that this infrastructure indicator does not measure, since they

are already provided with basic infrastructure and now concentrate on others. This result links back to those found in the survey analysis.

Probability models for receiving central investment grants and political variables

Since *grant decisions* basically represent a discrete choice between getting or not getting investment grants, and as we are most interested here in probabilities for these in different settings, I decided to create a binary variable called gotgrant (1= if LG has received central addressed and targeted investment grants[91] in that year, 0= otherwise) and use probability models for limited (binary) dependent variable. For comparability and preciseness, estimations were done using the *Linear Probability Model* (OLS estimations*)* as well as *Probit* (maximum likelihood estimations), both repeated in their panel form too (fixed effects for the linear model and random effects in the case of Probit).[92] Results using LPM are indeed quite similar to Probit versions. Several models have been tested with different sets of control variables including decentralization ratio, regional dummies and even a version without any controls. Unfortunately, here I had to use a reduced database, only containing years from 1995-2003, for reasons of data availability for the party affiliations in local governments (1993-94 missing) which were used to create the political color variables. Tables 7.8-7.10 in the Appendix give the results, from which I highlight the most important findings. For Probit estimations, marginal effects are given in the tables, as these have the same meaning as beta coefficients in linear regressions.

[91] Though there are other investment purpose grants available, especially regional-development oriented TEKI and CEDA available from 1996, the allocation mechanisms are different for these, since it is regional authorities who actually collect applications and make the decisions. Since addressed and targeted investment grants are truly central, allocated in Parliament after propositions by Ministries, I considered the latter two to be more readily available for pork-barrel, or electorally motivated usage by politicians, thus only these are considered when constructing the variable gotgrant.

[92] See reasoning for the use of LPM in the estimation methods introductory section of this chapter.

Cycles in grant receiving probability

First I present some aggregate data to show that political cycles/election years are indeed important in grant recipiency, after which I will present my own results concerning how political colors affect chances for grant receipt.

56. **Table:Addressed and Targeted central investment grants-Number of projects and amounts granted**

Addressed Grants				Targeted Grants				TOTAL	
	Investment projects				Investment projects				
Starting year of grant	No.of projects granted	Total cost of projects (Mn HUF)	Total amount of grants (Mn HUF)	Starting year of grant	No.of projects granted	Total cost of projects (Mn HUF)	Total amount of grants (Mn HUF)	Total No.of addressed and targeted granted projects	Total addressed and targeted grant amount (mn HUF)
1 991	44	6 662,0	6 662,0	1 991	1753	n.a.	8 471,8	**1797**	**15133.8**
1 992	49	9 897,0	9 847,0	1 992	2843	n.a.	18 035,1	**2892**	**27882.1**
1 993	32	11 056,0	11 006,0	1 993	2625	118 045,6	43 365,4	**2657**	**54371.4**
1 994	25	15 017,6	12 932,9	1 994	289	8 133,1	3 671,9	**314**	**16604.8**
1 995	31	8 037,0	7 233,5	1 995	382	17 258,0	8 606,4	**413**	**15839.9**
1 996	58	20 239,8	17 811,7	1 996	474	74 832,0	27 124,3	**532**	**44936**
1 997	90	24 592,9	18 981,5	1 997	320	82 105,3	30 830,3	**410**	**49811.8**
1 998	117	43 903,6	35 320,8	1 998	389	101 923,3	41 021,1	**506**	**76341.9**
1 999	30	20 157,4	18 028,1	1 999	71	31 171,4	17 888,8	**101**	**35916.9**
2 000	38	25 147,9	21 869,9	2 000	229	108 892,2	61 832,7	**267**	**83702.6**
2 001	30	23 248,9	20 867,6	2 001	174	34 459,5	18 855,9	**204**	**39723.5**
2 002	44	52 435,6	36 251,9	2 002	343	56 314,7	29 505,5	**387**	**65757.4**
2 003	55	70 610,4	54 903,9	2 003	107	40 175,3	19 798,7	**162**	**74702.6**
2 004	75	76 707,3	61 826,5	2 004	88	24 542,8	11 358,2	**163**	**73184.7**
Total	**718**	**407 713,4**	**333 543,3**		**10 087**	**697 853**	**340 366**	**10 805**	**1 059 111**

Source: Ministry of Interior, Hungary

From the above table (after the first few years of transition, when lots of carry-on earlier promised projects were still a part of and a heavy burden on the system) we can also read – especially in the number of projects granted – how the 1998 and 2002 election years stand out. It is also notable that 2 years prior to the 2002 elections, in 2000, very high total HUF amounts were granted, which can also be interpreted as a preparation for the 2002 elections, if we take the necessary project completion/construction time into account.

Moreover, from this table, only the number of new projects granted in any given year are visible, while according to the comprehensive database I use, in the 2002 election year the number of LGs actually receiving central addressed or targeted subsidies was 603 (as opposed to 387 in the above table of new projects, or 299 in the year before). These could have been granted earlier, but still under transaction, as these grants are given for many years along the project's life cycle. The numbers of recipients in other years are also different in my data, but not so strikingly. Also, it is unlikely but possible that an LG could receive these grants for more than one project – perhaps one that it is doing on its own and another that is part of a partnership/joint investment project. Nonetheless, the fact that election years do stand out is visible from these data.

57**. Table: Number of central investment grants recipient municipalities – own data**

year	*received CCT*	*Total LGs*
1993	1,186	3,087
1994	1,204	3,098
1995	780	3,116
1996	555	3,116
1997	456	3,118
1998	456	3,121
1999	359	3,119
2000	259	3,120
2001	299	3,123
2002	603	3,125
2003	298	3,119
Total	6,455	34,262

Source: Own calculations, RPAA database

Going to my own results from estimations: election cycle variables (el-year, el_befor and el_dist) were also included in these probability models for grant receipt since they are of interest in political grant determination as well, I had a hypothesis about their effect. The election distance variable did not seem to work here, though it did in the previous linear investment models. Election year definitely works fine and comes out significant and positive

in all LPM and Probit, pooled and panel model specifications. Across the models, its coefficients or marginal effects show a *+2.5-4% more chance for grant receipt, if there is an election year*. Contrary to my expectations however, year before elections however shows a significant, but negative sign – across all models year before elections means around –3% in the chances for grants. It has to be noted though, that since here I used the database reduced to 1995-2003 as explained above, it covers only two full election cycles, which can be a reason for el_dist losing its significance and the coefficients of election year getting smaller (compared to 7% in a previous run for all years), while those of year before election even changed their sign from a previous +2-3% to negative.

Political colors and central grant receiving probability

Yet the variables of most interest for me here in the grant recipiency models were the political color ones (of local assembly and mayor being same color as the central government), as I intended to show if and to what extent they affect chances for receiving central investment grants. In both LPM and Probit, pooled and panel estimations I got plausible results, with significant color variables and right +/- signs. The best performing of these was the *political color of the absolute majority in local government same as that of central government (*cl2_lgcg) as this got significant and highest betas/marginal effects in most specifications. I got strongly significant (at 1%) results, showing that *if political color of the absolute majority in a local government is the same as incumbent central government, chances for getting investment grants are considerably increased*. The precise translation of the LPM/ Probit marginal effects coefficients is, since cl2_lgcg is a dummy variable, that changing from different color to same political color, the chances for receiving investment grant *increase by +6-20% across different specifications*. When either an absolute or a relative majority of local government was considered in a similar variable (cl1_lgcg), it gets

somewhat smaller coefficients (chances increased with + 6.6-12%) and only in the LPM panel FE estimations did it lose its significance.[93] As far as the *political color similarity of the mayor* with that of central government (cl_m_cg) is concerned, it was also strongly significant across all specifications, and it *raises chances for the municipality to get central investment grants with +2.5 - 15%.*[94]

These are very strong results, reinforcing my hypothesis and coinciding with findings of other papers in different country settings (see Chapter III for references), that ***political color considerations were and are indeed present in grant distribution practices of the central governments in Hungary.*** Moreover, this argument is made stronger with the significance of the political cycle variables, showing that timing of these subsidies also matters. These findings fit with the partisan model, i.e. that *central politicians do use intergovernmental grants for improving re-election chances of their parties and themselves both at national and local levels.*

To check some of my other hypotheses, I kept several previous controls: per capita municipal current revenues (pcmcinc) and per capita own investment revenues(pcmiinc), and included per capita income tax base (pcinc1) again, which all came out significant, yet with virtually 0 coefficients.[95] The same is true for the need control composite indicators for education, social and health service demands. Besides these, I tried using regional dummies; however most of them were not significant, so I dropped them. When regions were significant however, it was interestingly always the same 2-3: namely Western Transdanubia, a highly

[93] One possible explanation for this could be that the other variable (where only an absolute majority of local government (cl2_lgcg) counts) is more restrictive in a way, if we are checking true partisan-motivated allocations of central politicians.

[94] For a comparative note across the different estimation methods, pooled LPM as well as Probit estimations usually gave a higher range of coefficients/marginal effects (e.g. 6-20% for cl2_lg_cg), while results with panel estimations were closer in range (e.g.6-11% for the same variable).

[95] As for the interpretation, a 1 % change in per capita municipal current own income raises probabilities for getting investment grants by 0.1% and similarly for per capita own capital incomes. Though all significant, their effects are very minor, because we are talking about per capita data and probabilities.

developed region which comes out with significant negative –6-8%, and Northern Plain, one of the least developed regions, comes out always with a significant positive +6-9% chances for grants.

However, when I used the ***ratio of own resources in the budget (decentralization measure)***, it always got strongly significant positive coefficients, ***adding +17-25% to the chances of receiving investment grants*** for a 1% increase in own revenues (except for panel LPM, where its coefficient was only 3-5%). This result can be interpreted as saying that Hungarian investment grant policy indeed rewards local efforts – in fact both targeted and addressed grants are matching in nature, i.e. local governments cannot get them without some local contribution to project costs. However up to the recent past, for lack of internal controlling, it was not an unusual practice for localities to cover these needed "own" contributions from other successfully received state funds. (documented in Hegedüs et al.,1996, Deli, 2003, Jókay et al. 2004) , also a recent article on tactics of LGs for over-using state given normative grants in election year 2006 in Nepszabadsag, a Hungarian daily – http://nol.hu/cikk/449262/). In fact, it is one of the most often emphasized policy critique of the Hungarian addressed and targeted grant system that because of its matching nature, better-off municipalities have an advantage in getting the grants – which is strongly reinforced here by my findings. *Hence, the system contributes to increasing (instead of reducing) existing inequalities among service levels in localities.*[96] I will elaborate this issue a little more in the concluding chapter VIII when giving some policy conclusions as well.

The composite infrastructure indicator (ind_infr) again behaves somewhat oddly, in pooled versions of both LPM and Probit estimations it gains significance, but contrary to my

[96] Yet, as the empirical literature on the relationship of infrastructure development, convergence and economic growth points out (to name but a few: Baumol,1986, Barro and Salai Martin,1991, 1995, Krugman,1993, De la Fuente, 1995, Canova-Marcet,1995, Boldrin-Canova, 2000 etc.,) it often leads to better growth prospects overall for a country, if absolute convergence is not enforced, the more well-off, already more developed regions are assisted (instead of leveling the disparities between regions) and that they will later "pull" the rest with them.

expectations with positive sign, it seems to add + 8-18% to the chances for grant receipt, while this effect is estimated to be + 3-5% in the panel Probit version. This seems strange: those, who already have more infrastructure would get more grants – *it looks as though the system rewards existing endowment of infrastructure.* But it also appears that local governments who own huge school buildings and health centers but lots of bad roads get more grants for reconstructions and add-ons – which are not necessarily the best solutions from overall efficiency.[97]

A further consideration is that if we look at the other two included need variables, share of young and old population – and see that both are significant, but young always with + sign, i.e. having more young people in a municipality increases chances for investment grants (with +4-27% depending on model specification), however the reverse is true for higher share of old population, it strongly decreases investment grants chances (with –4% to even -42% in pooled LPM version). An explanation however for these results can be the overwhelming number of small villages in the pool of all local governments, which tend to have ageing populations and a lack of any substantial revenue base, thus degrading services and infrastructure. That is the reason why I checked the same results on sub-samples along with size and own revenue categories.

[97] Yet, in the panel LPM version, the sign of this infrastructure indicator gets back to expected negative (-2-3% chances) which can be a sign of the panel specification being better. As mentioned in the introduction on estimation techniques, in panel estimation effects of changes in unobserved heterogeneities can be captured, like costliness or tax-price of a public service, which can be a reason for the sign of this infrastructure indicator behaving better.

Probability models for receiving central investment grants by groups of size and ratio of own revenues

Size. Indeed we get more insights with checking into different size categories. For a better understanding, I created a table where I combined size and actual grant status. What we can infer from this table is that though n-s are different, still there are considerable imbalances: while 86% of the largest cities (above 40 000) and 73.5% of the second largest (15-40 000) did receive central investment grants in the examined ten-year period, the two smaller groups had much less success – of the municipalities with 4-15 000 people, less than half (43.8%) while from the smallest villages under 4 000, only 14.6% received these central grants for investments. It is the large number of municipalities in this last category (2791) that shifts the total percentage to the low result of 18.84%.This result for the small municipalities is also due to grant allocation goals and rules, as these grants were primarily designed for supporting larger investment projects and as such, give support to smaller places only for investment projects carried out jointly in a formal cooperation. The justification for this preference for big cities is that they perform more tasks, hence not only need more investments, but also tend to need more complex and larger ones.

58. **Table: LGs which received addressed and targeted investment grant by size categories**

size	no	yes	Mean CCT received (thousand HUF)
above			
40000	35	218	**231166.4**
(23) %	13.83%	**86.17%**	
15-40000	197	547	**142555.9**
(72) %	26.48%	**73.52%**	
4-15000	1,622	1,263	**36866.2**
(281) %	56.22%	**43.78%**	
under 4000	25,953	4,427	**5719.4**
(2791) %	85.43%	**14.57%**	
Total	27,807	6,455	
%	81.16%	**18.84%**	

Source: Own calculations, RPAA database

Returning to my probability model results, as for the political color variables, according to both LPM and Probit models the *color of the local government* being same as central government *matters really for the group of middle-sized cities (between 4-15 000),* for whom it means + 12-17% *chances for receiving investment grants,* while for the largest and smallest it is not even significant. However, the *color of the mayor is considerably more for the larger cities (above15 000) increasing grant chances with +6-15% ,* and in Probit also for the mid-sized group by 6-9%. It is probably at these places where some charismatic mayor figures can actively lobby even in national policymaking for grant approval and also these are cities that possibly get more attention from parties in election mathematics. *Election year* however is not significant for this group of largest cities in LPM, though it is in Probit, but negatively (-7-9% in grant chances), yet it is *strongly significant and with high positive coefficients of +3-4.5% for the smallest* in both Probit and LPM models.

Share of own resources in the budget seems to be "punished" by the system for the largest cities(above 15 000) according to both LPM and Probit models, i.e. for them it in fact very significantly decreases their chances of getting investment grants (–35-85% according to LPM, while –61-83% according to Probit), i.e. the more own efforts they show, the less chances they have for grants, ceteris paribus – which is not necessarily harmful, as they have their own resources to invest from. While for smaller places (under 15 000) the reverse is true, their own contribution efforts are rewarded, and add to their chances of grant receipt a +11-52% by LPM and a +15-35% by Probit.

To gain a little more insight to this issue of own revenues and their role in grant financing – as already from survey answers in Chapter VI it turned out that they are an important issue indeed – I created the following tables and charts using the RPAA database I have at hand. As visible from the table, while they represent only 5.75% from all

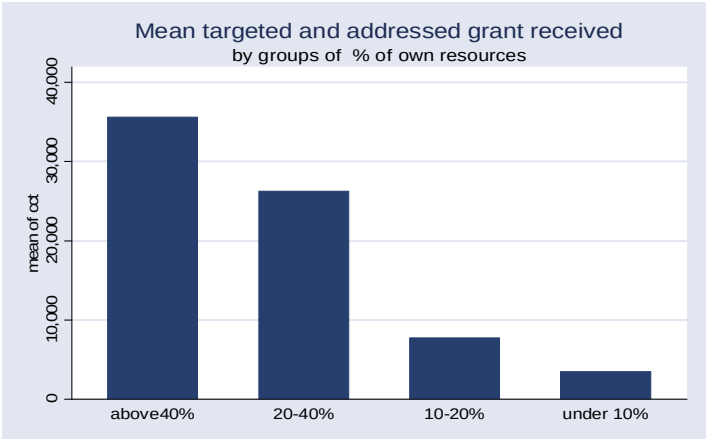
municipalities, cities with more than 40% own resources in their budgets number nearly 30% of those who have in fact received targeted and addressed central investment grants, and also the average amount received is highest for them. Though as the second chart reveals, regarding the total sum of grants received, that the group of those with 20-40% own revenues stand out as having received by far the largest share, cc. half of all the grants. On the other end are those municipalities whose own revenues were under 10%, where 28.6% of all LGs, (while 11% of the grant recipient LGs) belong – though we can see that the average amount is much smaller, roughly 1/10 of the average amount received by the largest and most independent (this is of course due to the different type and scale of projects carried out).

59. **Table: Percent of LGs and average sum of Targeted and Addressed Grants received by own-resource groups**

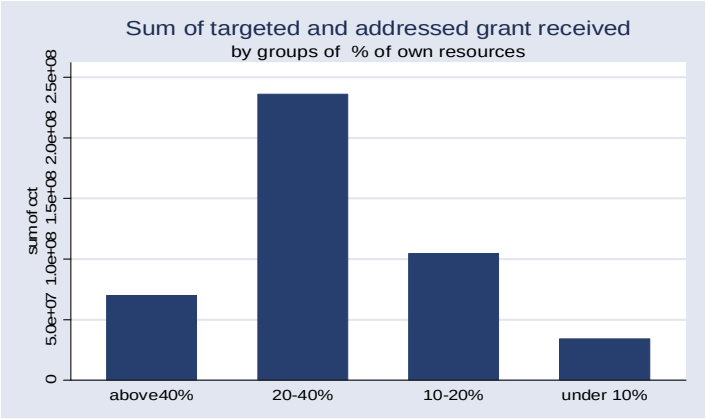
own resources in LG budget (%)	% of LGs that received CCT investment Grant	(% within all LGs)	Average CCT amount received (thousand HUF)
above 40%	29.25	5.75	**35594.23**
20-40%	27.49	26.24	**26242.51**
10-20%	17.17	39.41	**7735.513**
under 10%	11.11	28.6	**3490.288**
Total	18.84	100	**12978.3**

Source: own calculations

9. Chart: Mean targeted and addressed grants received by own revenue groups



10. Chart: Sum of targeted and addressed grants received by own revenue groups



Share of young people in population is strongly positive for grant recipiency chances of all size categories in LPM, while only for the smallest (under 4 000) in Probit does the share of old population really negatively affect the investment grant chances.

For the curious reader, I can state that the ambiguous infrastructure indicator now seems to behave well in the LPM model, wherever it is significant (for all under 15 000), it is with negative sign. However, in Probit models, it seems to be significant only for largest (above 15 000) and with positive sign. By now, I tend to conclude that perhaps the inclusion of such composite indicators in probability models is not the best idea, as they represent many factors in one variable – hence the ambiguous behavior of changing signs throughout different model specifications.

Degree of decentralization

60**. Table: Decentralization – financial independence: own resources in LG budgets by size groups**

	Own resources in LG budget (%)					% of size groups
Size indicator	above 40%	20-40%	10-20%	under 10%	Total %	
above 40000	20.95	73.12	5.53	0.40	100.00	**0.74%**
15-40000	12.77	66.67	20.56	0.00	100.00	**2.17%**

4-15000	11.89	52.27	32.27	3.57	100.00	**8.42%**
under 4000	4.87	22.39	40.83	31.92	100.00	**88.67%**
Total	**5.75**	**26.24**	**39.41**	**28.60**	**100.00**	**100%**

Source: Own calculations, RPAA database

In order to clarify this picture a bit more, I created the above table between size and percentage of own resources in the budget for the categories I used in the database. The Chi2 test of association between the two variables is significant. It is visible that in fact 88% of Hungarian local governments belong to the smallest size group of under 4 000 villages, while a mere 3 % of cities are in the first two size categories (above 15 000). However, in terms of own revenues, it is these cities that are relatively more financially independent, as 80-90% of them have at least 20% own revenues, and even 12-21% have more than 40% own revenues in their budget. It is notable though, reading it backwards that ***even among the largest cities (representing a tiny minority, only 21%) is considerably not so grant-dependent and financially autonomous***. Meanwhile, even in the second smallest group of places (4-15 000) only 52% have own revenues between 20-40%, which is still much higher than the average 26%, determined by the many small villages. Real financial autonomy (more than 40% of own revenues) is characteristic to only 12% of both the 15 000-40 000 and of the 4-15 000 smaller towns, but not at all (merely 4.9%) for smaller villages.

As visible, size indeed coincides with share of own resources in the budget to some extent, which explains why in my estimations the **political color of the local government** is again significant only for the two middle groups, **those with 20-40% or 10-20% own revenues** in the LG budget, and for them it **raises grant chances by +3-18%** according to both LPM and Probit models. In Probit models, the color of the mayor is strongly significant for all, but the least financially independent (i.e. more grant-dependent – those with less than 10% own resources), and it seems to get highest marginal effects for the "most decentralized"

group with above 40% of own resources (+12-17% chances of grant receipt), and somewhat smaller ones for the less financially independent. Election year however, just like with bigger cities, does not affect chances of the most well-off (or negatively, if it does –in Probit), while it matters with increasing coefficients (+3-28%) for all the three groups with own revenues of less than 40%. That is, **in election years, those municipalities are more likely to receive central grants for investments, which have less of their own to invest from – which in fact reassures my hypothesis that central politicians do try to use these intergovernmental grants to get themselves or their parties re-elected locally.**

Summary of results

In this empirical chapter, hypotheses on determinants of investment expenditures of local governments and chances for grant recipiency were tested with several model specifications on a panel dataset *comprehensive for all Hungarian local government annual budgets* and balance sheets for the *years 1993-2003*. For investment equations (dependent variable pcinv1: per capita local investment expenditures), I used linear OLS and panel regressions with fixed effects which performed and fit quite well. Estimations were carried out on the whole sample containing all the local governments, but to gain more insight on the details they were also conducted for sub-samples created along categories of size, share of own revenues in the local budget – a kind of decentralization indicator and for the sub-sample of those only who did indeed receive investment grants.

For *grant equations* however, which basically represent a discrete choice between getting or not getting investment grants, I used probability models for limited (binary) dependent variable. Estimations were done using the *Linear Probability Model* (OLS estimations) as well as *Probit* (Maximum Likelihood estimations), both repeated in their panel form too (fixed effects for the linear model and random effects in the case of Probit).

Results are indeed quite similar in Probit versions to those using LPM. For these grant equations too, several models have been tested with different sets of control variables including decentralization ratio, regional dummies and even a version without any controls.

The following table gives the short summary of my most important findings (estimations on groups by size and own revenue categories are not summarized here for space reasons, but are provided in the Appendix in Tables 7.3-7.6) which have been discussed in the results section above. An evaluation of my hypotheses is given in the first section of the next, concluding chapter VIII.

61. Table: Summary of most important estimation results

		Models for per capita LG investment expenditures			**Models for grant recipiency (probability models)**		
Variable	**Description**	**Expected sign**	**Result (pooled OLS/ panel FE)**	**Result on subsample: received central inv.grants**	**Expected sign**	**Result LPM (pooled OLS/panel FE)**	**Result Probit (pooled/ panel)**
Dep.vars:							
gotgrant2	received central investment grants (addressed and targeted)				Dep.Var.		
pcinv1	per capita municipal inv. expenditures	Dep var			Ø		
Political Dummies:							
el_year	election year	+	+++	+++	+	+/not sign.	+
el_befor	year before election	+	+++	+++	+	-	-
el_dist	distance from next election year	-	---	---	-	Not sign.	Not sign.
cl1_lgcg	local government political color same as central (absolute or relative majority)				+	+	+
cl2_lgcg	local government political color same as central (absolute majority)				+	++	++
cl1_m_cg	mayor political color same as central government	+	+++	Not sign.	+	+	+
Other Expl. vars:							
pcinc1	per capita local PIT base	+	+	Not sign.	-	* 0 / Ø	* 0 / Ø
pcmcinc	per capita municipal current own income	+	++/ Ø	++/ Ø	-/+	* 0/ Ø	* 0/ Ø
pcmiinc	per capita municipal investment income	+	+++/ Ø	+++/ Ø	-/+	* 0 / Ø	* 0 / Ø
pcgr1	per capita investment grants received	+	+++	+++	Ø	Ø	Ø

decentr1	% of own resources in LG budget	+	+++	+++	-/+	++/+	++
lakos	population	+	* 0	* 0	+	* 0	* 0
ind_infr	indicator of local infrastructure endowment	-	--- /+++	Not sign./+++	-	+/-	+
ind_okt	indicator of local education demand	+	* 0	Ø	+	* 0/ Ø	* 0/ Ø
ind_eu	indicator of local health service demand	+	* 0	Ø	-/+	* 0/ Ø	* 0/ Ø
ind_szoc	indicator of local social service demand	+	* 0	Ø	+	* 0/ Ø	* 0/ Ø
fiatal	% of young population	+	Not sign.	Not sign.	+	+	++/+
oreg	% of old population	+	+++	Not sign.	-	--	--/-

+/- : low positive /negative effect (coefficient or marginal effect under 7-10%)
++/-- : medium positive/negative effect (coefficient or marginal effect between 7-10 to 20-25%)
+++/--- : strong positive/negative effect (coefficient or marginal effect above 20-25%)
not sign.: statistically not significant
* 0 : significant, but close to 0
Ø : not used in analysis

Chapter VIII

Conclusion

"But the most common and durable source of factions has been the various and unequal distribution of property."
James Madison, The Federalist, no.10

"The ill-defined status of local government combines with changing perceptions of local autonomy, accountability, equity and the need for macroeconomic control, causing the relationship between central government and local government to be in a state of continuous change." Stephen Bailey (1999:4)

How do political institutions affect economic policy choices? This question frames much of recent research in comparative political economy and within it, aspects of fiscal policy are a main focus. The point of departure for this thesis has been the view that, despite all its elegance, rigor and much detailed refinement, the traditional – idealistic – framework of public economics/public finance and within it the theory of fiscal federalism is by itself not adequate in contributing to modern (local) government policymaking – in its complexity and multiple actor / multiple incentives arena what it really is in the advanced industrial world of the XXIst century. Neither is fiscal federalism in itself enough to capture and describe precisely what is going on, nor is it sufficient to provide valuable normative policy advice on what should/could be done. This is because it focuses almost exclusively on the assignment of responsibility and revenues for the provision of public goods among the different tiers of government. Yet, policymaking is concerned with trying to correct for all kinds of market failures, not just that of public goods. Moreover, taking government failures into account – a whole new paradigm – there is growing skepticism about the abilities of governments to

enhance social welfare/increase efficiency at all. Consequently, a more realistic view of the capacities of governments and the public arena overall is needed.

For the sphere of local government, its structure has significantly changed in many countries, shifting from being monolithic, hierarchical, standardized, and bureaucratic towards a more consumption-based, corporatist, networked governance type (Bailey, 1999:262). Theoretical tools derived from "New Institutional Economics" (NIE) and Political Economy in general can provide useful frames for understanding these emerging complexities, this paradigm shift from "government" to "governance". Careful review of the recent literature suggests that exploring the specific empirical implications of alternative theoretical models in detail, as well as exploiting the institutional features of multi-tiered government structures and local electoral systems, can help identify new politico-economic models for decision-making in the public household, be it central or local, on expenditures or revenues, on grant allocations, choice of technology or on policy reforms per se. Accordingly, analyses of local government policies can only be adequate if they try to account for the complexity of actors and incentive mechanisms that modern local governance exhibits in practice. This is of course generally true, proper policy analysis regarding any field requires taking the political process into account, which thereby need to take the incentives embedded in the institutional structure seriously. This view is by now generally shared in the public economist club as well; even outstanding classical scholars acknowledge the relevance of such considerations at least in some areas[98]. In a review on the role of public choice considerations in normative public economics, classical public economics scholar Robin Boadway lists certain areas of research where public choice considerations cannot be avoided and among them he explicitly mentions inter-jurisdictional fiscal arrangements, which is precisely where my topic also falls. (Boadway, 2002:64)

[98] See for example 'Political Economy and Public Finance', an excellent book compiled from the proceedings of a past congress of the International Institute of Public Finance, 2002

With this background, let me turn to my research that also tries to give some insights on the political economy of local government finance in Hungary. As emphasized in the introduction and in theoretical Chapter II of this thesis, the major policy argument for decentralization is *increasing the efficiency of the public sector* while still taking certain equity aspects into account. Since local governments compared to central agencies are in a position to have information advantages over local preferences, they can provide basic local services accordingly. As service provider responsibility comes closer to citizens, decision-makers are also held *more accountable*. Within the local government sphere, different service provision solutions, different price and quality mixes can appear, which on one hand provide a basis for the comparison of local government operations, and on the other, offer choices for citizens – i.e. decentralization brings elements of competition into the public household. These arguments are strengthening the view that decentralization offers chances for increased efficiency of the public sector.

However, these efficiency gains are coming from diversity and such local diversity in basic services is also a potential source of equity problems. For true local autonomy reliance on real local own resources is crucial, while the regional distribution of these is necessarily unequal. Moreover, different service provision mixes also lead to unequal conditions for people living in different places (horizontal equity problem).

Decentralization brings with itself a *more complex government structure* – it ensures local autonomy via disappearing direct central government control over local decisions, which is a major institutional change from the socialist system for all transition countries. Local governments are not subordinates within a bureaucratic system, but rather independent actors with their own interests and their own ways to represent them; hence their relationship with the central government is full of information asymmetries both ways. In this framework,

when the central government would like to influence local policy outcomes (for whatever reasons), it can only do so using incentive mechanisms, altering the general framework.

The actual setup of decentralized fiscal, institutional and political environment significantly influences the incentives and behavior of included actors (central, local governments, local electorate), thus also greatly affects to what extent the efficiency gains or costs of decentralization can manifest themselves – as recognized widely by those closer to policymaking.[99] According to Wetzel, D. - Dunn, J. (2000: 9):

> "Key institutional features for supporting autonomy and accountability include:
> - Predictability of policies and stability of government
> - Integrity of public officials (low level of corruption, "rent-seeking")
> - Secure and well-defined property rights
> - Effective processes for fiscal control, including budgeting and financial reporting
> - Political and civil liberties including democratic elections, freedom of expression, opportunities to form civic organizations, and physical mobility
>
> Together these institutions establish a *basis for sub-national fiscal autonomy and accountability*. Autonomy requires that sub-national governments have the opportunity to mobilize their own sources of revenue and independence in deciding how to allocate financial resources across different types of spending. The latter presumes a well defined assignment of expenditure functions across different levels of government. Local revenue autonomy requires access to a productive tax base, independent authority over user charges, and an administrative capacity to collect local revenues."

With transition, significant service provision responsibilities were transposed to local governments in Hungary – along with the necessary infrastructure, which also meant serious responsibilities for maintaining and developing the level of this infrastructure, that represent a major part of public investments. The ways and extent to which local governments are able to develop human infrastructure in this institutional environment greatly affects quality of local educational, social and health service provision. While communal infrastructure investments not only serve to increase the standard of living of local citizens (or regional, for that matter); but also have a significant role in economic development as well. They can influence location choices of businesses and thus local employment possibilities, the magnitude of the local

[99] See Wetzel-Dunn (2000), Shah (2004), Litvack et al (1998), Huther and Shah (1998) Martinez-Vasquez and McNab (1997), Potter (1997), Ter-Minassian (1997), Fornasari et al (1998), Tanzi (1996), Prudhomme (1995) and Stein (1997).

government tax base and ultimately the country's economic growth. Therefore, it is worthwhile to look at what factors affect investment activities of local governments (be they economic or political), since ultimately they influence the standard of living, local and national economic development. This argument is further strengthened by EU accession and the availability of Structural Funds exactly for such purposes and overwhelmingly through/for local governments – effective use of which being quite an issue and chance for the growth of Hungary, however their allocation provide great room for political or lobbying considerations, as many previous Cohesion Country experience shows (Hervé-Holzmann,1998).

Ultimately, what define investment activities of local governments are the kinds of local needs they face and available resources they have to fulfill the former. Needs are affected by the development level of the inherited infrastructure and that of the local economy as well as the needs of the citizenry. On the resource side, several aspects of the Hungarian local government finance system influence the evolution of investments. From local own revenues and grants given for current operational purposes, local government might have some operational surplus, which they can decide to use for investment purposes. Further possible sources for investment are central investment subsidy programs, EU transfers, investment loans, local government bonds, citizen contributions and privatization revenues. *Central government can have the most direct influence over local investment activities through its investment grant programs*. Besides these, it has several important indirect effects on the environment of local investments: through current operational grants, it can influence the magnitude of the operational surplus of local governments or their credit ratings; for reasons of macroeconomic stability it can set limits to local government borrowing, and it can boost local investment borrowing by giving state guarantees or helping establishing municipal guarantee funds and last but not least it can accept or reject/give or withhold additional

funding for their project proposals for EU Structural Funds, which are becoming the major investment financing sources in these years.

In light of these remarks, let me present my own findings in the search for determinants affecting municipal infrastructure decisions and intergovernmental grant allocations in the case of Hungary. Indeed I have found many interesting results, which I summarize now sorted out according to my hypotheses.

Hypotheses revisited and evaluated

H1 Increased reliance on local resources leads to a more independent, forward looking, strategic planner local government

Hypothesis 1 on the ***positive relationship of own revenues and strategic planning*** is **accepted***:* Correlation coefficients showed that answers to the question of long-term planning in the survey are significantly and positively correlated with, on one hand, the "wealth" (PIT base) of a municipality, but even more with the percent of own revenues in the budget. The ***more "financially independent"*** (higher % of own revenues) a municipality is, the more likely it is to ***take long-term planning and strategy more seriously.*** However, none of the per capita own revenue variables (for investment and current revenues) become significant in the regression model. While the alternative hypothesis got verified in the regression, *when a local government receives more grants, it becomes somewhat less forward looking, long-term strategic planner.*

Checking for differences in size groups, the survey analysis found somewhat *different behavior in medium-sized cities*. Their portion is higher than the sample average on both

extremes, i.e. available subsidies as well as for others true local needs are more of a driving force than for larger city respondents, who were most reluctant to really answer, 41.4% choose the midpoint, admitting that both factors affect their decisions. Many of these larger cities are the most financially independent, i.e. have significant own resources, yet their projects are also the largest in terms of size and costs and thus they are major recipients of central investment grants – which explains a bit of their "hesitant" behavior.

Additionally, it was found, that the more independent a city identifies itself ("we go our own way") the more likely it is to rely on long-term strategic planning and also that long-term planning is taken more seriously, where local government investments serve primarily business attraction purposes (though that is not typical). Furthermore, along with the importance of long-term planning, citizen contributions also tend to be taken more into account.

H2 Increased reliance on local resources leads to more efficient project financial planning

a) **- more care for local priorities in spending and investment decisions**
b) **- less problems with project oversizing**
c) **- less problems with later operation costs**
d) **- less problems with local matching shares**

H2a) More local resources lead to more care for local priorities in spending and investment decisions

My hypotheses **H2a "*more reliance on local resources lead to more care for local priorities*** in spending and investment decisions" is **accepted** – the following summary of results gives the reasons. Additionally, it was found that apart from more reliance on local resources, the efficiency of project management significantly affects the extent to which local priorities are indeed taken into account – this relationship reinforces the soundness of my idea

of including local priorities in the overall H2 hypothesis on project and financial management efficiency.

As for what factors survey respondents considered to be important at all ***for the development of a municipality***, it was clearly visible that ***economic and infrastructure*** *type of* ***factors*** are highlighted, followed by quality of communal services and work of the local government. Yet, *the higher* the per capita personal income tax or *the ratio of own current and investment revenues, the less importance* is attached to these economic and infrastructure development factors, for which a possible explanation was given that richer municipalities already have the basic infrastructure and thus can have the "luxury" of other local priorities. Budget policy priorities are also quite clear, as a striking majority of nearly *66% of mayors prioritized investments*, if given a chance of an additional 20% central subsidy revenues for the local government next year – which signals that for investment resources, most mayors are still thinking first of all about state-given funds and not the city's own.

There are some systematic differences in budget priorities according to political color of mayors (details given in ChVI.). As far as investment goals, *water and sewage, roads, education* infrastructure and public building renovation were the most popular in this order among cities surveyed. *Local government* ***investments*** *overwhelmingly* ***focus*** *on the* ***standard of living of citizens –*** for which there are true economic and development lag reasons, but also political ones, focusing on re-election chances for mayors and local politicians. Apparently ***if*** *the budget of a city is* ***more decentralized*** (the more financially self-reliant it is) it will concentrate somewhat more on raising citizen living standards through investment.

54.3% of total respondents choose ministries to be strongly influential or decisive in *budgets*, while 46% with respect to *investment decisions* - these put previous answers on local planning and local priorities under a somewhat different light, and reinforce the hypothesis on the ***strong central influence of local spending and investment*** priorities**.** While OLS

regression results for the composite variable on the importance of local priorities (constructed from survey items) point to the importance and the significance of efficient project planning: if there is *better, more* ***efficient investment project planning*** in a given municipality, then ***local priorities*** **-** views of local actors - are also ***more taken into account*** in local policy formulation. This variable for the importance of local priorities had moderate correlation coefficients with two further composite variables: importance of lobbying (0.251) and importance of political factors in LG finance(0.461), which draw attention to a hint from survey respondents, that in fact these *political factors do matter* (even more than the percentage of own revenues in the budget).

H2b) More decentralized - Less Oversized projects

This hypothesis is **only partly accepted**, since very small correlations support it. As we go from the lowest own revenue category to the highest, the percentage of respondents claiming that projects follow true needs increases considerably, hence on this end at least there seems to be a direct relationship between own revenue and project planning practices. Yet, on the other end, even 18.8% of the most financially independent admit having oversized projects, in order to get more money from state sources

In checking correlations of survey answers, I have found that ***the richer*** *the inhabitants and the more* ***financially self-reliant a city,*** the greater the likelihood that it will try to calibrate investment project sizes well and reflect true local needs, and ***the less*** likely they will fall prey to the temptation of ***over-sizing projects*** *in order to get more subsidies* – although these correlations were really minor. Correlations in survey answers also showed that the more municipalities reported higher than planned final project costs for their recently completed largest investments, the more likely it was that they would be tempted to oversize

projects in order to maximize grant revenues, not caring much for the future - a behavior that the subsidy system unfortunately still seems to provide incentives for.

H2c) The more decentralized (reliance on own revenues) - the less problems with later operation costs

Rejected, as ***operation cost problems*** do seem to ***occur generally*** and widely, however they cannot be directly linked to categories of own revenues (Chi^2 is not significant). Although minor correlations among survey answers expressed that the *availability of extra revenues* (more PIT base, more per capita investment grants i.e. less reliance on own resources*) causes* more operation cost problems with running previous investments, i.e. *lack of financial discipline* and also that having operation cost problems correlates with having problems for local matching part of own resources – I cannot make a strong inference regarding the ratio of own revenues having a significant role in more or less operation cost problems with previous investments, hence the original hypothesis cannot be accepted.

However, my combined project planning efficiency variable comes out with quite a high and positive coefficient in regression analysis, which translates as the better, *more efficient project planning* practices local governments have, the more likely they are to *report no current operation cost problems with previously finished investments.*

One third of responders were indecisive, yet 45.4% chose admitting that there are operation hardships, current cost problems with previously finished investment projects to some extent. These results alter the picture about real long-term strategic planning and projects being based on true needs, when coupled with serious financial planning these should exclude such problems. *Good technical planning of projects is still not necessarily matched with sound financial planning, hence* ***operation cost problems running previously oversized***

investment do occur, even among those who stated their project sizes to reflect only true local needs and never oversized - 56% have some problems with running previous investments.

Operation cost answers were significantly positively correlated (0.302) with the question on how hard own sources and local matching parts are to obtain for subsidy applications – which we can interpret as follows: that the better, more efficient municipal financial planning is (i.e. no operation cost problems with previous investments) the more likely they are to also have the necessary own matching resources for subsequent investments. However, such local governments with prudent financial planning are a small minority, while 55-57% of respondents choose the worst two categories together, i.e. admitting to having operation cost problems and at the same time saying that they do not have enough or that it is hard to have own resources – which also reinforces that these two problems are indeed correlated.

H2d) The more decentralized (reliance on own revenues) - the less problems with local matching shares

The hypothesis is **rejected**, since no significant relationship with decentralization ratio could be proved.

Yet, survey answers reinforce that this ***issue of local matching is clearly a problem***. 57.8% respondents answered that they do not have enough local own resources, or that it is hard to obtain – but for the purposes of making a successful application to investment grant programs (and for the fulfillment of projects) they prefer to take out more loans or to impose other financial hardships on themselves. It is also interesting to assess these answers in light of those given to other questions on possible distortion effects of subsidy programs (namely the one on project selection), since previously only 32.4% chose answers on available subsidies driving their investment preferences, but *here **57.8%** said they make some **sacrifices***

*in order to obtain state funding***.** Obviously this does not necessarily mean that in fact, they do everything to get those grants, nor does it mean that solely grant criteria lead them in project selection, but still, it signals how even the local investments of larger cities are grant-dependent.

The ***more*** a municipality has enough ***own sources*** (or only applies with what it already has) the ***more*** it ***care***s for the importance of ***citizen contributions*** and their differentiation with respect to different kinds of investments. Survey answers reinforce the oft claim of not burdening citizens, or not even having proper information about their willingness and ability to pay (nearly 50% said so and another 27.7% was undecided). Even in the capital city, with the highest per capita personal revenues, there is hesitation and reluctance toward this issue. Correlations have reinforced conventional expert wisdom to the effect that the more they take citizen views (local priorities) into account when planning investments, the more likely that local investment decisions are in fact serving true local needs, not distorted by grants. Or phrased the other way around: the more their investments really serve local needs and follow local priorities, the more they can actually collect contributions to it from citizens. It seems from the survey that mayors are well aware of this connection, yet practice on actual citizen contributions does not reinforce this – which again might refer to more deeply-rooted political reasons. Regression results on the question of local matching funds show the project planning variable with the highest and strongly significant coefficient again, reinforcing that ***good, efficient project planning*** *strongly contributes to* ***being able to apply for grants*** *with showing up the* ***necessary own matching*** *portions too*.

Overall results for H2: The more reliance on local resources – the more efficient project planning and financial management

Overall H2 cannot be accepted, hence is **rejected** based on the survey findings. We can clearly state from the results that the more grant financing in its investments, the less careful financial planning a municipality does, while the more well-off its citizens (higher PIT base) or the bigger a municipality is, the more likely they will have sound financial management**.** Answers on having the necessary own matching resources for investment grant applications significantly positively correlated with efficient municipal project planning is (i.e. no or less operation cost problems with previous investments), also regression brought the same result. So ***financial management efficiency*** *clearly does have* ***some relationship with own revenues, but I was not able to show its significance in all hypotheses or cases*** *(H2a accepted, H2b only partly accepted, H2c and H2d rejected).* Moreover, local governments with truly prudent financial planning are indeed a small minority – cc. 5% from this sample of Hungarian cities.

Nonetheless, I managed to find that Hungarian city mayors are well aware that strategic planning (which my H1 referred to) has a positive effect on project planning efficiency, i.e. if local governments take strategic planning seriously, they will likely be good in project planning too, or at least that the two have a common root. Also, in regressions, the importance attached to local priorities has a high positive coefficient in explaining the efficiency of project planning, pointing to the importance of taking local priorities more seriously. *Those who are involving local actors and their views more into decision-making in fact are better, more efficient in management* as well. The high coefficient for my variable representing efficient financial management highlight that sound financial management and efficient project planning (which are both part of my H2) are also in a strong positive nexus: *those who hold modern financial management views and use such techniques will be better in careful, more efficient project planning too.*

H3 Increased reliance on local resources leads to more overall investment activity

Accepted. It is obvious that differences in budget constraints of local governments (irrespective of its sources) lead to at least some differences in their investment activity (to what extent this is tolerated or tentatively counter-balanced by grants is a question of policy choice for equalizing). However, since – as my results also prove – grants are the principal financing source for Hungarian municipal investments, what I was really curious about here is whether more financially independent localities (i.e. those relying more on own revenues) actually decide to invest more in their infrastructure overall or not.

This hypothesis was evaluated by the panel estimations on the database of all local governments, the percent of own revenues (a decentralization measure) was one of the explanatory variables used there. As a matter of fact, the *budget-constraint variables all came out significant and positive,* in all models and all specifications – and coefficients are almost the same in OLS, panel FE or panel FE+AR specifications, hence H3 is accepted.

The inclusion of the per capita investment grant revenues raises the explanatory strength of the model quite substantially – showing that *in* ***financing capital investment*** *activities of Hungarian municipalities intergovernmental* ***grants*** *do* ***matter*** *a lot, in fact the* ***most*** out of the revenue-source variables. Per capita *municipal own investment revenues* are the second in terms of coefficients among the budget variables (with 0.90-0.93) – which shows that after grants, these ***own investment sources*** are *indeed mobilized for investments* and the higher they are, the more investment a municipality encounters. At the same time, it highlights how important differences in endowments of municipalities are with real estate holdings and other assets to sell, privatization revenues, financial investments etc. – which comprise own investment revenues. Yet, *per capita own* ***current*** *incomes also* came out significant in all model specifications, with smaller, but still considerably large positive coefficients – i.e. ***revenues from local taxes and fees*** are also very important in explaining

investments, they are not only used for operation purposes but shifted for investment too. This highlights another often emphasized policy point, that the ***huge imbalances*** *local governments have in terms of access to such tax revenues causes inequalities* (whether this is considered good or bad depends on political views) – and as now proved, indeed it *affects their infrastructure development chances* too.[100]

Replacing the per capita own revenue variables with the ratio type decentralization measure (% of own revenues in the budget), the coefficients of the most interesting political variables remained significant with the expected signs, while those of some other controls raised considerably (effect of per capita grants, mayor political color). The coefficients for this decentralization measure are positive and significant, though somewhat strangely high, which could be a sign for the need for logarithmic transformation of variables – yet as I explained, it was not done for grant data reasons.

The usual policy claim, that grants are the most important financing source of municipal investments was confirmed for all size categories, apparently changes in received per capita grants have *the greatest impact* on per capita investment of the *largest cities*, while changes in per capita own investment revenues have the greatest effect on the per capita investment of small villages under 4000.

H4 Socioeconomic and need-based indicators do affect the magnitude of local investment

[100] However, these own revenues are possibly endogenous explanatory variables, since they can play a key role in a local government's decision on investment. Without them, it might not even embark on investment, or a local government might in fact e.g. decide to sell some asset just to use the revenues for infrastructure investments. That was why I rerun some models without these possibly endogen controls and got reassured that the political cycle and color variables of main interest behaved exactly the same way, i.e. stayed significant and with the expected signs. As I mentioned earlier, the variable per capita investment grants received I consider to be weakly exogenous (predetermined i.e. grant variable for a given year does not correlate with the error term for that given year), hence I leave it in the model – though there might be arguments for its endogeneity too.

Partly rejected, partly accepted. The control for "wealth" of a city, the *per capita personal income tax base* was also included in my models, which shows on one hand the local taxing capacity of a local government to some extent; on the other hand perhaps it is another sign for infrastructure needs (more well-off citizens requiring better services). Though it is a significant determinant of municipal investment expenditures, its coefficients are always almost negligible, as they increase only slightly from 0.01 to 0.07 in the reduced forms, when possibly endogenous own revenue variables and need controls are left out. Yet, within the sub-sample of those who received grants, it lost its significance in explaining municipal investment expenditures, so apparently *the PIT base (wealth) of a city does not explain the investments of grant recipient localities*.

Other ***budget constraint variables*** (per capita grants, per capita own current and investment income or their % in the budget) all remain important and significant explanatory variables though, with the expected ***positive signs***, and in decreasing order of coefficient size. To get a more toned picture, I checked my results for groups of size and own resources. As far as own, but current revenues are concerned, they seem to matter most for the investments of the third group, i.e. municipalities of size 4-15000 tend to use also current revenues for investment purposes the most (though all others seem to do it to some extent), since it is always significant and positive. If these *possibly endogenous own resources are left out, coefficients of per capita grants and per capita PIT base,* but especially those *of election year, go up.*

Budget constraint variables were strongly significant and positive for all own revenue categories, though coefficients for per capita grants received were highest for the group with higher than 40% own resources (in panel FE regressions), which seems a little strange – apparently they can do a lot without grants too, but nonetheless if they do receive grants,

those have a big effect on overall investment expenses. This result coincides with the fact that mostly larger cities are recipients of central addressed and targeted grants.

Need indicator *composite controls*[101] showing need for education, health and social services in a municipality were ***not significant*** *at all* in explaining local investments in panel FE and FE+AR regressions - except the infrastructure level indicator ind_infr. This is not that surprising as it first sounds, as these variables do not vary that much from year to year for any given municipality – the *within variation is very small* – hence no significance in the FE specifications. (They were significant, but with practically 0 coefficients in the OLS setup).

The coefficients of the *infrastructure indicator* variable - sometimes fairly large - are *significant and mostly negative as expected*, indicating that where infrastructure levels are already high, there is less further investment activity – however its behavior is odd sometimes and changes to positive sign. According to panel FE estimates, it *matters only for the two smallest groups (i.e. those under 15 000* – but this is the majority of Hungarian LGs) with the expected *negative sign*: the more infrastructure they already have, the less they invest.

For groups by proportions of own resources, the infrastructure indicator (ind_infr) becomes insignificant in OLS, yet in panel regressions it gains renewed significance and with the expected negative sign for all but the most financially independent group (with more than 40% own resources). Thus***, existing levels of infrastructure do have effects on investment*** *activities of municipalities* ***except for those*** *with a considerable ratio of* ***financial independence***. A possible explanation is that investments of these largest, financially most independent cities that most probably fall in this category, are not measured well (or at all) by this infrastructure indicator, since they are already provided with basic infrastructure and now

[101] These summary indicator variables were created by simple arithmetic averaging of several related components, the infrastructure level variable (ind_infr) is a composite index of ratios of flats connected to water-, sewage- and gas-networks. Higher values of the variable show higher level of infrastructure services, the maximum being 1.

concentrate on other types of investment projects. This result links back to those found in the survey analysis.

Concerning *demographic need-variables,* the proportion of young people was never significant in the investment models; the proportion of old people in a municipality was always significant and positive with very high coefficients. From the two demographic controls, interestingly the share of young population does matter significantly only for the LGs between 4- 15 000, albeit insignificant in all other places, while the *share of old people* became a *significant determinant for the investments of the smallest villages* of less than 4000. This might be explained as smaller places (villages) usually with aging populations are more in need of basic infrastructure investments – yet, as we saw in the analysis, central investment grant programs tend not to favor these small places.

H5 Socioeconomic and need indicators are considered for investment grant allocations

Partly rejected, partly accepted. These socioeconomic and need indicators *were expected to have some role* in grant allocations too, since they control if existing own revenues of a municipality, wealth of locality (measure by per capita PIT base), its size, region, local need for infrastructure, health, social and educational services, demographic factors such as share of young or old people etc. matter in the allocation of grants. By theory they should, to some extent (see details in Chapter II and III) – precisely *because grants are supposedly correcting for certain efficiency or equity problems.* The above mentioned were used as control variables in the regressions on the panel database of all Hungarian LGs, both in models for per capita local investment expenditure and probability models of getting investment grants. Moreover, answers to some questions from the survey of city mayors also add to the picture.

The picture is quite mixed in my findings, indeed several of these socioeconomic and need controls turned out to be statistically not significant for grant recipiency in the analysis. In the probability models for grant recipiency, the effect of per capita local PIT base was again always significant, yet practically zero, adding to this the finding that it lost significance in the investment equations for the sub-group of those who got grants, I can state that the *PIT base (wealth of citizens) of a city does not seem to affect grant-recipiency chances.*

In the probability models for getting grants, the composite *infrastructure indicator* (ind_infr) again behaves somewhat strangely, in pooled versions of both LPM and Probit estimates it gains significance, but *contrary to my expectations with positive sign,* seems to add + 8-18% to the chances for grant receipt, while this effect is estimated to be + 3-5% in the panel Probit version. It is surprising that those who already have more infrastructure would get more grants - it ***appears the grant system in fact rewards an existing endowment of infrastructure*** and local governments who own huge school buildings, health centers, and lots of bad roads get more grants for reconstructions and add-ons – which are not necessarily the best solutions from overall efficiency – as critiques of the Hungarian system of targeted and addressed grants usually point out (Hegedus et al, 1996, Deli, 2003). When the models on investment expenditures were run on the subgroup of grant-receivers, interestingly the infrastructure indicator also lost its significance for this group in some models, while it remained significant, but positive in others. This says that apparently the *existing level of infrastructure development is not an unequivocal major determinant of investment outlays for those who receive grants to finance them.* I offered several possible explanations (see relevant section in the previous Ch. VII): one is that the infrastructure variable might not vary that much among the grantees, or possibly need indicators have only indirect effects hence no significance, or perhaps indeed there exists a kind of distortion effect of grants, i.e. their mere existence provokes the selection of certain types of investment projects (which then do not

reflect on local needs or the existing level of infrastructure that much) – for which survey results in the previous chapter have given some justification.

The budget constraint variables, per capita municipal current revenue, and per capita own investment revenues were in the models and then out from the reduced forms, in addition to which I included per capita income tax base again. All of these came out significant, yet with virtually 0 coefficients. The same is true for the need control composite indicators for education, social and health service demands. Besides these I tried using regional dummies, however most of them were not significant, so I dropped them.

Regarding demographic controls in the grant recipiency models however, the proportion of young people got strongly significant and positive, while that of old people strongly negative – *suggesting* that the addressed and targeted *central investment grants definitely favor places with a younger population* (adds +4-27% to the chances of grant recipiency depending on model specification) and do not favor small, ageing villages. This is of course partly due to the announced goals of these grants, many of which link to e.g. education. The share of young people is strongly positive for all size categories' grant recipiency chances in LPM, while only for the smallest (under 4000) in Probit and as expected, the share of old population very negatively affects the investment grant chances of again this same group of under 4000 small, ageing villages.

Replacing per capita with ***ratio of own resources in the budget*** *(decentralization measure)* always get strongly significant positive coefficients, ***adding +17-25% to the chances of receiving investment grants*** for a 1% increase in own revenues (except for panel LPM, where its coefficient was only 3-5%). This result can be interpreted as saying that Hungarian investment grant policy indeed rewards local efforts – in fact both targeted and addressed grants are matching in nature, i.e. local governments cannot get them without some local contribution to project costs – however up until the recent past, for lack of internal

controlling, *it was not an unusual practice for localities to cover these needed "own" contributions from other successfully received state funds*. (Citations given in Chapter VII). In fact, my findings strongly reinforced one of the most often emphasized policy critique of the Hungarian addressed and targeted grant system, that *because of its matching nature**, better-off municipalities have advantages in getting the grants**, hence the system contributes to **enlarging** (instead of smoothing) existing **inequalities** among service levels in localities.* To say something about this critique, the question is, whether such equalization is (should be) really the goal of this grant system at all or not – I will contemplate this a bit more in the policy conclusions section.

To sum up, my hypotheses on the effect of these socioeconomic need indicators on chances for grant recipiency are partly rejected, partly accepted. Details on the items given above – in short the need indicators – did not work well in explaining grant recipiency and usually had practically zero coefficients, similarly to the per capita budget constraint variables and per capita PIT base. Only the level of local infrastructure endowment, share of young people and the decentralization measure of ratio of own resources were significant and positive, while the share of old people was strongly negative.

H6 Political cycle considerations are present in local investment decisions

Accepted. Political cycles were operationalized with variables for election year, the year before election and election distance included in models where the dependent variable was per capita local investment expenditure. The data covers three full cycles; hence significance and positive sign for the first two, and negative sign for election distance are taken as verification of the presence of political cycles. I have constructed separate probability models for central investment grant recipiency chances, where I included variables of political color similarity for local assembly and mayor, but also some of the political cycle variables.

My variable for e*lection year is positive, as expected, and with very high coefficients*, strongly significant in all models and all (OLS, FE, FE+AR) specifications explaining per capita municipal investment expenditures i.e. my hypothesis that ***municipal investment activities culminate in election years*** – just prior to elections in order to please voters and improve re-election chances of mayors and local assembly – is accepted. *Election distance is negative, as expected*, significant in all models and specifications and its coefficients are smaller, though one has to take into account that this variable is distributed over 4 years. Regardless, it clearly demonstrates that the further away the next elections are the less investments take place. The variable for the *year before elections* is most significant and positive in OLS and FE models, as expected, however loses its significance when panel FE regressions are corrected for autocorrelation. From these results, I can safely infer on the first hand, that indeed ***political business cycles do exist in capital investment activities of Hungarian municipalities.***

Checking for size groups reveals that *election cycles do matter for timing infrastructure investments in all size categories:* investments in the middle sized (15-40 000) cities do actually flourish in election years, for the groups of 4-10000 and under 4000 municipalities both political cycle variables are very significant and with the expected signs, while for the largest cities (above 40 000 – there are only 23 of them) neither election distance nor election year are significant in the OLS setup, however in panel FE regressions election year becomes significant and highly positive again.

Checked for groups of own revenues, it has to be noted that political cycle variables remain significant with relevant signs for all but the first group with the highest share of own revenues (above 40%). I translate this result as follows: those who are decentralized enough to stand on their own and have sufficient own resources basically have the freedom to invest whenever they wish, or can even do so continuously, and do not necessarily need to time

investments for around election times. At the same time, they are less prone to electoral manipulations by the central government (that tends to give out slightly more grants in election years and year before – though there was a general declining trend in the past 15years).

H7 Political cycle considerations affect the central distribution of investment grants

Accepted. Rerunning the investment models on the sub-sample of those who received grants, the most interesting election cycle variables all remain strongly significant and with very high coefficients (now even that of the year before election is a high positive one), i.e. in the *group of those who did get grants* for their investments, the *political cycle remains very important* in timing projects and determining investment expenditures.

In the grant-probability models, the election distance variable did not seem to work, though it did in the previous linear investment models. Election year definitely works fine and comes out significant and positive in all LPM and Probit, pooled and panel model specifications. Across the models, its coefficients or marginal effects show a ***+2.5-4% more chance for grant receipt, if there is an election year***. Moreover, aggregate yearly data on new projects granted and grant amounts allocated show that indeed political cycles/election years are important in grant recipiency, so all in all my hypothesis is highly reinforced.

H8 Similarities of political color matter for central distribution of investment grants

Accepted. In the *investment cycle equations* (dependent variable: per capita investment expenditures) the only political color variable included was that of the mayor same as that of the central government. It comes out significant in panel regressions, in the

reduced models, where it behaves as expected and with *very high positive coefficients* – i.e**.** ***investment outlays of*** *a municipality are* ***higher if the mayor political color is the same as central government*** *ceteris paribus*. In different specifications it behaves differently for the size groups, the most notable being the huge positive coefficients for the *middle-sized (15-40000) cities* – apparently *where mayor color matters, it matters a lot***.** However it was insignificant for the grant-recipient sub-sample, which is also a call for checking it in another way, that is, in the probability models.

Probability models for grant recipiency were constructed with the main interest in political color variables, as I intended to show if and to what extent they affect chances for receiving central investment grants. In both LPM and Probit, pooled and panel estimates, I got plausible results, with significant color variables and right +/- signs. The best performing of these was the *political color of the absolute majority in local government same as that of central government (*cl2_lgcg) as this got significant and highest betas/marginal effects in most specifications. I found strongly significant (at 1%) results, showing that *if* ***political color of the absolute majority in a local government is the same*** *as the incumbent central government, the* ***chances for getting investment grants are considerably increased*** **(***with* ***+6-20%*** *across different specifications).* As far as the ***political color similarity of the mayor*** with that of central government (cl_m_cg) is concerned, it was also strongly significant across all specifications: it *raises chances for the municipality to get central investment grants by +****2.5 - 15%.***

According to both LPM and Probit models, the color of the local government being same as central government matters most for the group of middle-sized cities (between 4-15 000), meaning a + 12-17% chance of receiving investment grants, while for the largest and smallest it is not even significant. However, the color of the *mayor* is considerable more important for the ***larger cities*** (above 15 000), increasing grant chances by ***+6-15%,*** and in

Probit also for the middle size group by +6-9%. It is probably at these places where some charismatic mayor figures can actively lobby even in national policymaking for grant approval, and also these are cities that possibly get more attention from parties in election mathematics.

In my estimations for own revenue subgroups the political color of the local government is significant only for the two middle groups, those with 20-40% or 10-20% own revenues in the LG budget, and for them it raises grant chances by +3-18% in both LPM and Probit models. In Probit models, the ***color of the mayor is strongly significant for all, but the least financially independent*** (i.e. more grant-dependent - those with less than 10% own resources), and it seems to get *highest* marginal *effects for* the "most decentralized" *group with above 40% of own resources* (+12-17% chances of grant receiving), somewhat smaller ones for the less financially independent.

These are very strong results, reinforcing my hypothesis and coinciding with findings of other papers in different country settings (see Chapter III for references), that ***political color considerations were and are indeed present in grant distribution practices of the central governments in Hungary.***

H9 Lobbying through political channels does affect success in receiving investment grants

Accepted. Survey results on importance of ministries among influential actors have shown a *strong central influence on local budget and investment decisions.* This led me to suppose that this relationship works both ways and *rent-seeking* local governments sometimes do indeed lobby for their interests, especially *with respect to grants.* This assumption was that strongly reinforced in survey answers, as *54.3% of all respondents choose* ***ministries to be strongly influential*** *or decisive in formation of local budgets, while 46% said the same with*

respect to investment decisions. Mayors indicated ***lobbying in ministries*** *as second most* ***important in successful grant applications*** (after good project design), while *lobbying in parliament* through parties is also in the *fourth* position, while local government same color as central government was mentioned as 7th most important. As far as ***lobbying in parliament*** *through parties –it seems to also be important for successful grant receipt*, overall ***58%*** qualified its role as large or very large, while a considerable 27% was hesitant. 63.1% of right-wing mayors think it is very important, less so among left-wing mayors (48.5%), however 71.5% of independents. S***ame political color of local and central governments*** *is also considered overly important* in grant application *by survey respondents.*

Regarding the control variables, in all three size categories the majority of respondents gave a high ranking to lobbying in ministries in order to get grants. While correlations revealed that *the richer* a municipality's citizens *(*and hence incomes for the LG from PIT source*) the less important* its mayor considers *lobbying in the parliament*. Regression has proved that *the larger* a place is more its *mayor will hold politics to be important* factors in local government finances overall.

Final words on my results

The analysis have confirmed my hypotheses and coincide with findings of other papers in different country settings (see Chapter III for references), that political color considerations were and are indeed present in grant distribution practices of the different central governments in Hungary. Moreover, this argument is made stronger with the significance of the election cycle variables, showing that timing of these subsidies also matters. These *findings fit with the partisan model*, i.e. that (*central)* ***politicians do use intergovernmental grants to improve re-election chance****s of their parties and themselves both at the national and local levels.*

My main finding – that political factors explain some portion of the variation in municipal investment grant allocations that economic factors cannot – should likely be of little surprise. By virtue of their flexibility, such discretionary grants are a natural vehicle for the political objectives of the incumbent government, as much as for targeting assistance based on some equity goal or economic efficiency criteria. My other important result on the existence of political cycles in both magnitude of local investments and grants allocated to finance them is more of a verification of "common wisdom", yet never done in a systematic and scientific way with respect to Hungarian data, as to my knowledge. More surprising, perhaps, and hence also important is the evidence I find of substantial and systematic non-significance of most variables reflecting need and other socioeconomic controls in the allocation of investment grants.

Apart from checking all my hypotheses, some further results of the analysis are worth mentioning. One is about general ***grant dependence*** of basically all Hungarian *local governments when it comes to financing their infrastructure investments*. It is an oft-made policy statement generally for the operation of municipalities all over the transition countries (and Europe, from an American perspective), yet here my results truly confirm it regarding the investments of Hungarian LGs. As I have found, even among the largest cities (above 40 000 representing a tiny minority), 86% have received targeted and addressed central investment grants in the 11-year period investigated. Size and financial independence are statistically associated, yet even for the tiny group of largest cities, the majority (73%) have a ratio of 20-40% true own revenues in their budgets and only 21% are considerably less grant-dependent and financially autonomous (having above 40% own revenues). This is characteristic to only 12% of the towns between 4-40 000 and not at all (a mere 4.9%) for smaller villages. While on the other end of the scale, of the places under 4 000 (where most, nearly 90% of Hungarian LGs belong) 70% have own revenues under 20%, i.e. they are really

grant dependent. These facts highlight why I have found that ***in election years, those municipalities are most likely to receive central grants for investments, who have less of their own to invest from*** – which further demonstrates that central politicians do try to use these intergovernmental grants for re-election purposes of themselves or their parties locally.

These findings led me to answering my research question and slightly enlarge my horizon for further policy related conclusions. Driven from the theoretical and empirical context the basic ***research question*** guiding my work was: whether local infrastructure policies in Hungary are really designed according to efficiency considerations? What politico-economic factors might affect central and local governments' allocations on infrastructure investment?

I deliberately chose to concentrate on municipal capital investment financing in Hungary, since investments are more visible, more prone to political influences at both central and local levels than the operational side of the budgets – my empirical literature survey on the topic reinforced this choice. Related to the main research question, several themes have emerged, based on which I formulated my hypotheses evaluated above. In sum, ***as I expected – some of my efficiency-related hypotheses were indeed rejected,*** *which all the more justified and also reinforced the* ***hypotheses on political factors*** *(election cycles, political color similarity and role of lobbying), all of which are* ***accepted with strongly significant results***.

As it turned out, actual decision-making in local investments does depend on the revenue basis, more own revenues mean somewhat more independence in project selection, yet as a matter of fact most Hungarian local governments are quite grant-dependent in financing their infrastructure investments. There are some true local investment strategies, based on local priorities and local needs – according to survey answers; however their role in the overall process of project selection and management is not completely clear, as there is room for possible unintended distortions of subsidies. Financial management efficiency

clearly does have some relationship with own revenues, but I was not able to show its significance in all hypotheses or cases. Socioeconomic and need indicators are important factors explaining the differences in the project choices and financing constructions of local investments according to surveyed city mayors, yet many of these need variables turned out to be statistically insignificant in my models for municipal investment expenditures and grant recipiency chances. Reliance on more local own revenues does mean somewhat more investment activity in general, as the ratio of own revenues was a strongly significant and positive explanatory variable – although in grant recipiency chances too, which means more grants are given for those with more own revenues (local matching sources).

Grants – if well designed – are an excellent way to alter local recipient choices and correct certain problems, like externalities, vertical equity considerations or to ensure minimum service standards. Yet, grants can be distortive, or have unintended consequences – which the reviewed fiscal federalism literature also discusses in great detail, e.g. as World Bank experts note in a paper assessing fiscal decentralization in transition countries

> "By creating a disincentive for local revenue mobilization tax sharing (and grants) can create *a strong incentive for local and regional officials to pursue informal and nontransparent means* of generating additional discretionary local revenue….. An overly *complex formula leaves grant allocations prone to political manipulation* in Bulgaria, Hungary and Russia. A related problem noted in the case of Hungary and Russia is *frequently shifting parameters that create too much uncertainty or unpredictability* in the size of grants received an obvious *obstacle for effective subnational budget planning*." (Wetzel-Dunn, 2000)

The claim that grant financing does indeed mean less careful financial planning got strongly reinforced by my survey findings. Moreover Hungarian municipalities seem to use several strategies to get those much wanted grants – like project selection led by available grants, oversizing projects in order to get more state funding and last but not least admittedly lobbying both through ministries and parliament, a practice especially prevalent among the larger municipalities.

In addition to these, my major findings provide me with a short answer for the research question: ***though efficiency considerations***, *strategies based on local needs, careful*

project planning and sound financial management ***are part of the game*** *for decisions in local infrastructure investments and also of grant allocations to some extent,* ***political factors (similarities of color and election cycles, lobbying)*** *are also strongly present and* ***explain some*** *portion of the variation in* ***municipal investment grant allocations*** *or in local investment outlays* ***that economic factors by themselves cannot.***

Policy implications

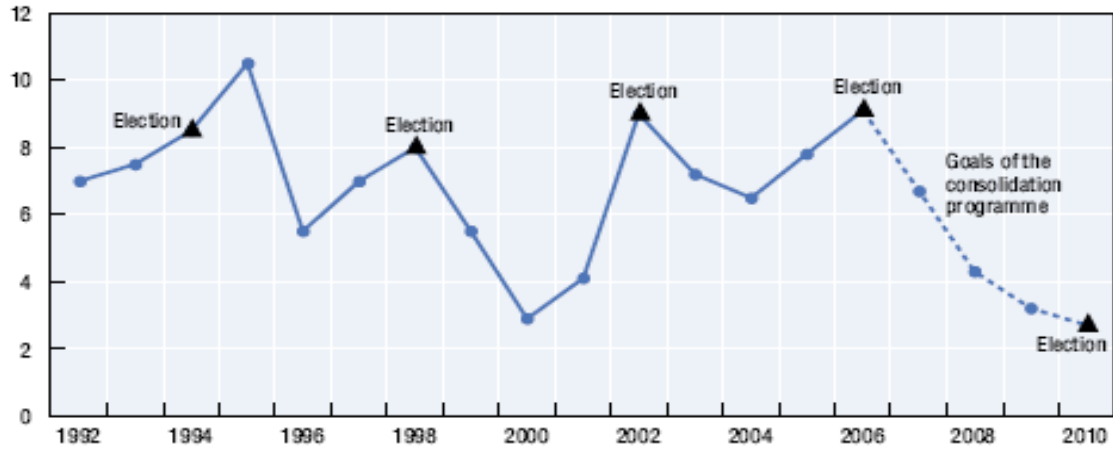
As for policy consequences, or recommendations, my research results can add to the discussion on reforming the local government finance system overall, which has been on the agenda in Hungary for quite a while, but not surprisingly – especially in light of my research results – no government have dared to fully commit itself to implementing it so far. Eventually, the deteriorating macroeconomic conditions (especially of the central budget) might force politicians to act.

Electorally motivated fiscal policy choices

Mentioning the central budget and deficit conditions, I would like to illustrate and strengthen my findings with a chart from a very recent 2007 OECD economic survey on Hungary, which shows the relationship of general government deficit and election cycles very nicely. One has to add a note to this chart though: the budget deficits of 1998 and 2002 both include some one-off items, since newly elected governments had to consolidate into the budget the expenses of some off-budget entities made by the previous governments prior to elections – which to me is just yet another proof of *electorally motivated fiscal policy choices, at the central level*[102]**.**

[102] Some further recent examples of electorally motivated fiscal/administrative choices are news about the *political basis* for the acceptation and allocation of EU structural funds applications by Hungarian parliament (Népszabadság, Hungarian Daily, 06.17.2007) or several speeches made by incumbent politicians referring to pork-barrel type of allocations, or giving state regional positions to the political allies. E.g. that of socialist

11. Chart: Hungary - General government deficit history and goals



Note: The dotted line from 2007 to 2010 shows the deficit path as outlined in the Government's Convergence Programme of December 2006.

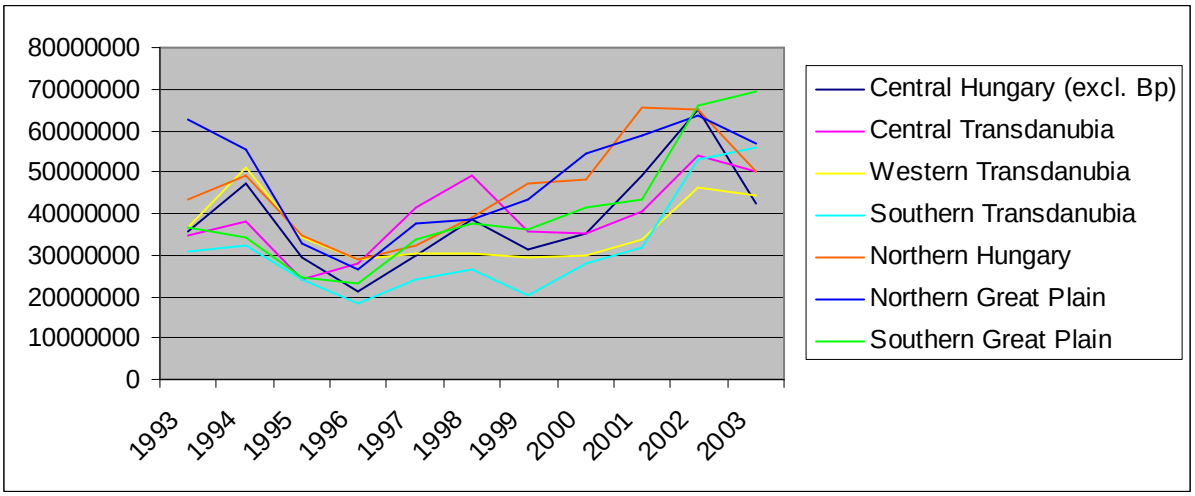
Source: OECD estimates and Convergence Programme of Hungary 2006-2010.

What lends further weight to my findings and to the choice of topic as well is that - apart from the urgent need of implementation of structural reforms for budget consolidation success - OECD experts also stress that

> *"the successful reform of public spending requires the participation of the counties and municipal governments.* … The financing of sub-national government needs simplification and greater transparency and oversight in accounts. Also the benchmarking of services via output and performance indicators needs to become more widespread. Reform of local taxation should include widening of property tax." (OECD, 2007:2)

Minister of Finance János Veress actually publicly stating that local and regional investment grant allocations will depend on election results – www.index.hu 04.18.2006, Or that of also socialist Monika Lamperth, then Minister of Interior right after the sweeping winning results of the opposition rightwing party in the 2006 local elections – stating that the results will have an effect on the composition of regional development councils, allocators of certain investment grants – www.fn.hu, 10.08.2006)

12. Chart: Total investment expenditures (at 2003prices) regionally



Source: Halasz-Kalman, 2006

To add to the previous picture on central government, this one shows local investments regionally. Apart from certain regional dynamics, from this chart one can clearly read the bad years of 1995-95, when the Bokros austerity plan, a general government consolidation took place and its effects on lowered investment, but also the political cycles: it is very visible how election years 1994, 1998 and 2002 are local maximums, i.e. investments in all regions peak just before and in election years, yet always fall back shortly afterwards. It gives the same conclusive evidence of the true existence of political cycles in local investments that my research results demonstrated in numbers.

Lack of substantial own revenues - competition for grants

This feeds into the major policy lesson from my findings: as long as there remains such grant dependence of Hungarian local governments, the presence and strong effect of political factors is likely to be remaining as well – since ultimately it is the availability and magnitude of grants that creates room for all these rent-seeking, politically motivated endeavors of both local and central players in this game. In order to boost local investments and also to eliminate most (as all is not possible) political influences, ***reform of local own revenues seems crucial*** (e.g. with new types of possible local taxes introduced or widening of

property tax usage), giving state guarantees or setup; a local investment fund could also enhance results. Along with increasing the role for own resources in local investments, a slow withdrawal of the pure grants which do not induce any LG loans could take place. The Hungarian government could indeed take steps which have long been recommended by experts, e.g. change regulation[103] concerning service responsibilities of all those small localities, provide more financial incentives for their joint service provision to capture economies of scale; reform the financing system to be truly transparent, stable and predictable– so that local revenues also become more calculable.

A great deal of investments essential to the future development and standard of living in any given locality are not the competence of its local government, but that of other actors (business, central government or households). Public investments (e.g. construction of highways) are rather limited, yet their spatial distribution is crucial for local governments. Though not directly related to their basic service responsibilities, local governments do engage in trying to influence public investments: a strategy which is often described by the term "competition for investments" first introduced by Gábor Vági (1982), describing the behavior of towns in the socialist central planning system, though many of his remarks and conclusions still seem valid. Private sector investments can also be really crucial for their future development chances, hence a similar competition takes place and local governments are often willing to make financial sacrifices to get them (e.g. providing some additional infrastructure or granting tax exemptions – this is referred to as the "race to the bottom" in the literature, though the extent of such competition is not yet detrimental in Hungary[104], partly because of the smaller role of own revenues in local budgets).

[103] Though this is hard to implement, as changes to the local government system need 2/3 of votes in parliament, which the current incumbent coalition government does not have (neither did its predecessors), moreover in this election cycle – for the first time – the opposition won a majority of local government positions.
[104] For more information on the tax-race among Hungarian localities, see Szalai, 2005.

An important element of decentralization and local autonomy is that local governments can also decide to limit certain investments, as they decide it does not serve the interests of the municipality – typical examples are the NIMBY type negative public goods (e.g. landfills for dangerous waste or incinerators).

Yet ***local investment priorities are greatly influenced by*** central investment ***grants*** themselves, which made up at least 30-32% of financing sources of local investments in the past decade in Hungary, and, which - apart from being justified by economic theory - also ***cause some distortions***:

- In order to receive these grants, some local governments seem to undertake new *projects beyond their capacities*
- Existing grant schemes can induce local governments to *oversize projects* and *build larger capacities* than truly needed, which apart from higher initial costs to the public can cause future maintenance problems
- Grant goals can partly or completely override local development priorities leading to *inefficient use of public funds*

Central influence on local demand and thus on investments implemented is not necessarily a problem according to economic theory – indeed the general public might want to alter the local minority's preferences (see justified basic purposes and designs for grants in Chapter III. or a short summary below). The *problem rather lies in the lack of own resources* as I emphasized before (e.g. if local governments cannot get enough loans) – since then they do not have other means to do investments reflecting true local demand and in this case we can expect grants to have significant crowding out effects with regard to priorities. Public Finance Theory provides four basic purposes for grants to subnational governments:

1) together with other transfers they can serve to correct for vertical imbalances created by the mismatch of service responsibilities and local revenues;
2) they can serve horizontal equalization purposes in providing minimum service standards even for those living in places with lower own revenue possibilities;

3) local investments can have positive external effects, which otherwise would be neglected in local decisions and grants correct for these;

4) they can serve regional development goals.

Of these I will concentrate on the first two, since external effects are hard to calculate in practice, thus not really used in policymaking, while regional development goals are not taken into consideration with respect to the targeted and addressed grants schemes analyzed in detail here (though they are obviously linked to development chances), they are moreover completely beyond the scope of this thesis.[105]

1) By international standards, the vertical imbalance in Hungary is quite significant, since local governments have a wide scope of service responsibilities, while local revenue possibilities are limited. Although operational grants are supposed to make up for this difference, investment grants can be shifted for such purposes too – this can be one explanation for the practice (reflected in the survey answers) of oversizing projects and thus aspiring for more state revenues from investment grants as well. 2) In theory the matching type of investment grants – like the examined targeted and addressed grants in Hungary – should not be mixing efficiency and equity goals because of large deadweight losses; however this is a fairly common practice internationally (Bird, 1995). In Hungary too, such a horizontal equalization aspect is an important implicit goal within the system of targeted and addressed grants. As I mentioned before, one of the main critiques of the targeted and addressed grant system is linked to this, i.e. that because of its matching nature (necessary own contributions) the system favors those with a better own resource situation and also those already endowed with some infrastructure that needs e.g. reconstruction. Thus the system is not smoothing but instead enlarging existing differences in infrastructure endowment.

[105] An analysis on the relationship of the targeted and addressed grant system with regional development goals and some development factors can be found in Halasz, A.- Kalman, J. 2006, where also econometric estimations on the crowding out/crowding in effects of this grant scheme on local government investments are provided, though as of now, only in Hungarian.

However, even if some equalization is an implicit goal, it can either target actual differences (of infrastructure endowment in this case) or it can rather aim to assist grantees themselves in correcting these differences. In this latter view, the differences coming from the different local needs are in fact necessary for efficiency.

The needed own contribution coming from the matching nature of the grant is a necessary consequence of it serving centrally determined goals, besides providing a link between grantor and grantee needs, as such decreasing moral hazard and encouraging more responsible need assessment and cost calculations. Nonetheless, *as a result of the grant, local governments perceive the investment costs to be lower than real* and this is what causes inefficiencies generated by grants. This could be avoided with a non-matching, lump sum grant scheme, which better fits the view of providing equal opportunities than trying to equalize outcomes. Since both addressed and targeted grants were/are given for basic infrastructure projects, which every settlement needs for providing basic services, *it is not necessarily a problem if the grant scheme aims for equalization of outcomes* and not merely for providing equal chances. The problem rather is when a grant scheme does not fulfill this aim – due to political or any other reasons. Furthermore, as noted above (references given in Chapter V and VII), up until 2005, local government were able to collect these necessary "own contributions" from different other grant programs, due to overlapping goals, non-coordination among administrator ministries, different deadlines etc. – i.e. the grant system only served equalization purposes, since the counter-effect of the required own matching part was not really there. Several inefficiencies resulted from this practice though, apart from extra funds for LGs, it led to unused grants (if time-coordination was not perfect, or one of their applications did not win) - which in turn led to a regulation on re-payment and time limits set for grant-withdrawal.

In the event that the targeted and addressed grants favor localities with a better financial situation (as they indeed do according to my findings – see tables in Chapter VII) and if this financial situation is influenced by the development of the local economy, we can expect that the system in fact favors the more developed ones. According to the new economic geography literature and to empirical papers on growth, nothing is wrong with this approach. In these faster developing municipalities, local demand for investments can be larger and thus the marginal effect of public investments on local economic development is also larger, hence justified – while later the faster developers can pull others with them.

Fiscal illusions, Institutional effects,

I have also found *some signs of fiscal illusions* – notably in the survey answers – which also can be effects of the current institutional system and lead to e.g. situations like the flypaper effect, which refers to higher local public expenditures than that preferred by citizens. Another possible source of fiscal illusion is when, because of the complexity of the local government financing system, citizens make uninformed decisions, or they perceive central services to be more expensive. With respect to investment expenditures, voters are not necessarily well informed about loans taken; hence their interests match with those of politicians (wanting to get reelection) and the burden of oversized investments is shifted onto future generations. It is these fiscal illusions which make it probable that grants have a larger effect on local expenditures than an increase in local own revenues (taxes) would. Determining the magnitude of these effects as well as their interplay with crowding out effects of grants needs proper empirical investigation (some attempts were made in Halasz, A. – Kalman, J., 2006) hence serve as a direction for further research.

The typical local government infrastructure developments are public-good type projects with long-term rate of returns (if at all) – in the case of Hungarian localities, the largest and most popular investment goals were water and sewage, roads, education,

infrastructure and renovation of public buildings – fairly consistent with the announced goals of grants. However, there are some shorter term investments (like housing projects, and land development) which use local government resources only temporarily. In fact, they could also be done by the private sector, but because of the high risk involved (partly depending on the LG itself) or a lack of experience with public private partnerships, or the underdevelopment of local businesses, municipalities engage in them. A special, yet very important case of local investments – in fact needing much more transparency – is when (*partly or totally) municipally-owned enterprises make infrastructure investments*, for which the financing comes mostly from future fees or previously collected company investment reserves and only to a small extent from local government budgets. Yet magnitudes in real and financial terms as well as the exact *relationship of these with local government funds need further clarification*.

Crowding out/delay of private investment by public activities is most probably not happening (to a large extent) in Hungary (see Halasz, A. - Kalman, J. 2006). In every region of Hungary, 80-85% of total investment is carried out by the private sector, thus, owing to limited resources; it is usually the public investments that get delayed. However, *uncertainty is characteristic of public finances, hence of investments as well*, which might lead to slight modifications in private behavior.

As far as timing is related, the *long cycles of investment grants* (application – acceptance – implementation – funding - withdrawal - monitoring) are characteristic first and foremost of the targeted and addressed grants to municipalities – to which several other programs relate/connect, though experience with pre-accession funds and by now with some of the Structural Funds proves that dealing with the EU bureaucracy (which employs more checkups and monitoring) is also *causing a lot of time-lags and delays in projects*. Several municipal investments have already reported neglect of future maintenance of created capital

stock, over-investment due to incentives coming from higher unit cost criteria, etc. (as evidenced in the survey responses described in Chapter VI). However, due to recent changes in regulations, more and more justifications, feasibility studies and detailed calculations of project finances including future maintenance are required. Recipients usually "manage" to spend all the money, although sometimes only on paper[106] – yet this is very hard to prove and re-payments usually only happen when the State Audit Office finds irregularities ex post. Nevertheless, *non-utilization of funds in any given year is quite high* (at least, with targeted grants), which reinforces the existence of timing problems; hence I can safely presume that such type of problems will persist with the applications for/recipients of EU funds as well. The stakes are large.

With respect to EU funding, there is inevitably a lot of principal-agent type information and incentive problems involved as well, asymmetric, non-transparent system similar to the ones described above – but the EU recognized this long ago, and tries to correct it to a certain extent. The greatest danger, however, is that just as with local goals versus announced central transfer schemes, areas which have EU priority might take funding away from other areas of importance for economic policy, areas which might be crucial for Hungary's competitiveness.

Influence of politics, rent-seeking

Local politicians or the local bureaucracy themselves are not necessarily the best representatives of local needs, but rather act in a Niskanen way to maximize local budgets, or merely pursue their own re-election. For this reason, and also because of the lack of own resources detailed above, they are interested in rent-seeking and *lobby activities* in order to

[106] See a recent news article regarding this practice in the case of normative grants for the 2006 election year at www.nol.hu

maximize grant revenues, which they in fact have *acknowledged in the survey answers*. This is further topped with mayors' view on the highly *decisive influence of ministries on local budget formation* or investment policy.

The heritage of central planning (powerful central agencies trying to regulate, standardize and control even the smallest things) still lingers in attitudes of grant-administering sectoral ministries; moreover there are overlapping competencies, and *multiple principals* who usually lack the willingness to share information or to cooperate. Politically influenced appointments, selection of applicant projects, parallel planning for power-game reasons, objectively unjustified yearly changes in eligibility criteria, dividing interests of actors through a fragmented financing system etc. are all examples for *further public choice considerations* that can cause significant problems.

In the Hungarian system, such rent-seeking and lobby activities were supposed to be avoided by the entitled nature of targeted grants, albeit unsuccessfully, since there was a cap on the overall amount of grants, thus a lining up and not perfectly transparent allocation were unavoidable. There is even more ***room for maneuver*** in the case of ***discrete addressed grants***, decided upon yearly in Parliament, with the relevant pork-barrel activities of MPs. Besides, as my analysis has clearly proved, *there are opportunities for both grant programs to favor municipalities where mayors or local assemblies belong to the same color as that of the central government.* This result is based on panel data across three election cycles, so is significant for both left-wing and right-wing governments.

Moreover, what my research could not have been able to account for, there is anecdotal evidence and rumors about calls for tenders or grant programs with criteria phrased in ways that could match with only certain (pre-determined) applicant(s) – so my estimations can only underestimate real political color influences.

To summarize this policy conclusion and link back to my puzzle and research question, it seems worthwhile to decentralize parts of public infrastructure provision and its financing, precisely because of the overall benefits of matching services with truly diverse, heterogeneous local needs; however it needs to be done with great caution. No grant design could eliminate all these potential political influences and institutional drawbacks; but careful regulations, formulas, and fewer margins for discretion could certainly help to curb the tendencies of central or local politicians to exploit the system for political gain. What all this means is that presently there are serious "leakages" in the system, that e.g. the improvements of infrastructure supply from 1993 to 2003 cited in the introduction could have been much greater, had such political and institutional considerations not been present.

Contributions, possibilities for further research

My results show the prevalence of political effects on the allocation of public expenditures in general, more concretely the political economy viewpoint on grants. In this school of thought, grants are acknowledged to provide more direct political benefits to the recipient government politicians, as they allow them to expand on vote-generating visible expenditure items without the pain of additional taxation, however in exchange, they deliver political capital/votes of supporters and of interest group for the higher level government and its ruling party too. Overall, my estimations feed into the partisan model of political budget cycles and are comparable and similar to other international findings on such cycles and partisan effects for the local government tier (Veiga, 2004, Veiga-Pinho, 2005, Balerias-Costa, 2005, Sole Olle-Navarro, 2006).

Although I did not delve into the new and widening literature on the political economy of failures or delays in socially beneficial reforms (see e.g. Drazen 2002:Ch.10 for a brief review), delays of fiscal consolidation or for that matter the political economy of local government reform[107] (Dollery-Wallis, 2002) – my evidences could readily contribute to that too, which also points to a possible future research line. What this dissertation certainly does contribute to is the fairly small pool of international empirical evidence available on political budget cycles, especially at the sub-national level and to the emerging literature on the political economy of intergovernmental grants – in providing the case of one transition country, it shows that, irrespective of EU membership, Hungary sometimes shows certain similarities to developing countries.

Such results pose new questions for the researcher. For instance, if voters are rational, at the next local elections they may choose to vote for the party in charge of the upper layer in order to make sure that the same party as their local government is elected, thus protecting future flow of grant funds. In this scenario, a party winning the general elections (only when they are held prior to municipal ones) would see its vote share increase at the municipal elections. In the case of Hungary, this seemed to have been the case throughout three election cycles, yet for the first time in 2006 - probably due to the immediate consolidation efforts of the central government – disappointment turned voters to vote for the opposition at local elections held a few months after the general ones. The comparative testing of this hypothesis is definitely a line for future research, apart from ones previously mentioned on fiscal illusions or political economy of reform sequencing. Moreover, not only models of strategic voting, but also those of strategic interaction that give rise to a spatial pattern in local government expenditures and revenues could be further investigated. Another interesting line

[107] Reform of local government system and its financing has been on the agenda in Hungary (along with general government reform and structural reforms) throughout all these years investigated, yet certain important steps have not yet been made, apparently largely due to political concerns.

to test is whether the most visible type of projects are indeed increased prior to elections. Yet another one is to sophisticate models and estimation techniques for crowding out/crowding in effects of grants.

To refer back to the Brennan-Buchanan quote I started with at the very beginning, it can be worthwhile to build a fence, or buy a chain for the dog too – *assumptions about government behavior* and thus appropriate modeling of policies *lie at the heart of things*.

References

Alesina, Alberto - Rosenthal, Howard [1995]: Partisan Politics. Divided Government, and the Economy, Cambridge, MA

Alesina,Alberto[1987]: “Macroeconomic Policy in a Two Party System as a Repeated Game”, Quarterly Journal of Economics 102,August, 651-78

Alesina, Alberto -Drazen, Allan, [1991] "Why Are Stabilizations Delayed?," American Economic Review, American Economic Association, vol. 81(5), December, 1170-88

Alesina, Alberto F - Cohen, Gerald D -Roubini, Nouriel, [1992] "Macroeconomic Policy and Elections in OECD Democracies," CEPR Discussion Papers 608, C.E.P.R. Discussion Papers

Alesina A,- Roubini N, - Cohen G. 1997. Political Cycles and the Macroeconomy. MIT Press

Alt, James E.-Rose, Shannon [2006]: Context Conditional Political Budget Cycles, in: Carles Boix and Susan Stokes (eds.), Handbook of Comparative Politics (Oxford University Press)

Alt, James E. - Lassen, David Dreyer [2005] "The Political Budget Cycle is Where You Can't See It: Transparency and Fiscal Manipulation," EPRU Working Paper Series 05-03, Economic Policy Research Unit (EPRU), University of Copenhagen. Department of Economics

Asztalos et al: Addressing Barriers to Private Sector Participation in Financing Environmental Infrastructure in Hungary, SNDP 2000

Atkinson, A.B. – Stiglitz,J.E.[1980] Lectures on public economics, McGraw-Hill, New York

Bailey, Stephen J. 1999: Local Government Economics, MacMillan, London, UK

Balás, Gábor – Hegedüs, József [2004]: Local government borrowing in Hungary. In: Swaniewicz, Paul (ed.): Local Government Borrowing: Risks and Rewards. A Report on Central and Eastern Europe. OSI/LGI.

Balerias, Rui N. – da Silva Costa, José 2003 "To Be or Not To Be in Office Again: Political Business Cycles with Local Governments," Public Economics 0302009.

Barati Stec, Izabella, 2004: The Practice of Municipal Infrastructure Finance in Hungary, NISPACee Conference paper, mimeo

Barro, R. J., and D. B. Gordon, "A Positive Theory of Monetary Policy in a Natural Rate Model" Journal of Political Economy 91:589-610 1983b

Beck N. 1982. "Parties, administrations, and American macroeconomic outcomes."American Political Science Review 76(1):83-93

Beer, Samuel H. [1977] : A Political Scientist's View of Fiscal Federalism, in: W.E. Oates (ed.) - The Political Economy of Fiscal Federalism, Lexington Books 1977

Besley, Timothy, and Stephen Coate [2003], "Centralized Versus Decentralized Provision of Local Public Goods: A Political Economy Approach," Journal of Public Economics 87, 2611-37

Besley, Timothy - Case, Anne [2003]. "Political Institutions and Policy Choices: Evidence from the United States," Journal of Economic Literature, American Economic Association, vol. 41(1), pages 7-73, March.

Bird, R.M. [1995]: Decentralizing infrastructure: for good or for ill? In: Estache [1995]

Bird, Richard, Robert Ebel, and Christine Wallich(eds.), 1995. Decentralisation of the Socialist State: Intergovernmental Finance in Transition Economies. Washington: The World Bank.

Block, Stephen A.[2002] Elections, Electoral Competitiveness, and Political Budget Cycles in Developing Countries, Working Paper - Fletcher School of Law & Diplomacy, Tufts University

Boadway, Robin - Roberts, Sandra - Shah, Anwar[1994]. "The reform of fiscal systems in developing and emerging market economies : a federalism perspective," Policy Research Working Paper Series 1259, The World Bank

Boadway, R. 2002: 'The role of public choice considerations in normative public economics', in: Political Economy and Public Finance: the role of political economy in the theory and practice of public economics (eds. Stanely L.Winer-Hirofumi Shibata), Edward Elgar 2002

Bokros, L.-Dethier, J-J.: Public Finance Reform during the Transition, The World Bank, Washington D.C., 1998

Boldrin,M. – Canova, F.: Inequality and convergence – Reconsidering European Regional Policies, Presentation at the 31st Panel meeting of "Economic Policy", Lisboa, April, 2000

Boyne,G.A. 1998 :Public Choice Theory and Local Government, Macmillan 1998

Bőhm, A. (ed.) [2006]: A helyi hatalom és az önkormányzati választások Magyarországon 1990-2002, MTA PTI

Brender, Adi - Drazen, Allan, [2005] "Political budget cycles in new versus established democracies," Journal of Monetary Economics, Elsevier, vol. 52(7), pages 1271-1295, October

Brennan, G. 1999 : 'Public Finance and Public Choice', Finanzarchiv, 56, p.1-19

Brennan, G. and Buchanan, J. 1980: The Power to Tax: Analytical Foundations of a Fiscal Constitution, New York, Cambridge University Press

Buti, M.–Van den Noord, P. [2003]: Discretionary Fiscal and Policy and Elections: The Experience of the Early Years of EMU. Economics Department Working Paper, No. 351. OECD, Paris

Cars, G.-Healey, P.-Madanipur, A.-De Magalhaes, C. (eds.) 2002: Urban Governance, Institutional Capacity and Social Milieux, Ashgate 2002

Clark, T.N. - Ferguson,L.C. [1983]:City Money, Columbia University Press, New York

Clark, WR- Reichert, UN- Lomas, SL – Parker, KL [1998] "International and domestic constraints on political business cycles in OECD economies." International Organization 52(1):87-120

Clark, William Roberts – Hallerberg, Mark[2000] ”Mobile Capital, Domestic Institutions, and Electorally Induced Monetary and Fiscal Policy”, The American Political Science Review, Vol. 94, No. 2 (Jun., 2000), pp. 323-346

Cremer, J. - Estache, A. - Seabright, P. 1994: The Decentralization of Public Services: Lessons from the Theory of the Firm, Policy Research Working Paper #1345, The World Bank

Dahl, Robert A 1961 :Who Governs?: Democracy and Power in the American City, New Haven, Yale University Press

de Mello, L. –Barenstein, M. [2001]: Fiscal Decentralization and Governance: a Cross-Country Analysis. IMF Working Paper, WP/01/71

Deli, E. 2003: “A helyi önkormányzatok fejlesztési lehetőségeit meghatározó támogatások, különös tekintettel a címzett és céltámogatások jövőjére” – “Central grants determining investment possibilities of local governments, with special regard to the future of addressed and targeted subsidies” Conference Presentation, Ministry of Interior, IDEA Working Group

Dixit, A.K (1996): The Making of Economic Policy – A Transaction Cost Politics Perspective, Cambridge, Mass., MIT Press, 1996

Dixit, A. - J. Londregan (1996). “The Determinants of Success of Special Interests in Redistributive Politics,” Journal of Politics 58, 1132-55.

Dollery, B.E. – Wallis, J.L. 2001: The Political Economy of Local Government, Edward Elgar, Cheltenham, UK

Donahue, John D. : Tiebout or not Tiebout? The market metaphor and America’s devolution debate, Journal of Economic Perspectives -vol. 11. no.4., Fall 1997, p 73-82.

Drazen, Allan - William Easterly, [2001] "Do Crises Induce Reform? Simple Empirical Tests of Conventional Wisdom," Economics and Politics, Blackwell Publishing, vol. 13(2), pages 129-157, 07.

Drazen, Allan [2000] “The political business cycle after 25 years.” in: Ben S. Bernanke and Kenneth S. Rogoff (eds) NBER Macroeconomic Annual, pp. 75-117. Cambridge, MA: MIT Press

---------- [2002]: Political Economy in Macroeconomics, Princeton University Press, 2002

Drazen, Allan - Eslava, Marcela, [2006] "Pork Barrel Cycles," NBER Working Papers 12190, National Bureau of Economic Research, Inc.

Estache, A. (ed.) [1995]: Decentralizing infrastructure: Advantages and limitations. World Bank Discussion Papers 290.

Fair R. [1978]: “The effect of economic events on votes for president.” Review Economics & Statistics 60:159-72

Ferejohn, John [1986]: “Logrolling in an Institutional Context: A Case Study of Food Stamps Legislation," in *Congress and Policy Change*, Gerald Wright, Leroy Rieselbach and Lawrence Dodd (eds.), (New York City: Agathon Press, 1986

Ferris, James M. - Winkler, Donald R. 1990: Agency theory and intergovernmental relations in: Remy Prud'homme (ed.) - Public finance with Several Levels of Government, Proceedings of the 46th Congress of the International Institute of Public Finance, Brussels, 1990, pp. 155-166

Franzese, RJ [2002]: “Electoral and Partisan Cycles in Economic Policies and Outcomes.” Annual Reviews of Political Science 5:369-421

Frey, Bruno S. - Schneider, Friedrich, 1978. "Economic and Personality Determinants of Presidential Popularity," Empirical Economics, Springer, vol. 3(2), pages 79-89

Frey, Bruno S., 1978. "Politico-economic models and cycles," Journal of Public Economics, Elsevier, vol. 9(2), pages 203-220, April.

Fudenberg, Drew - Tirole, Jean, 1990. "Moral Hazard and Renegotiation in Agency Contracts," Econometrica, Econometric Society, vol. 58(6), pages 1279-1319, November

Garman, Christopher - Haggard, Stephan - Willis, Eliza, 1996: Decentralization in Latin America - paper presented at the 1996 Annual Meeting of the American Political Science Association, San Francisco, August29-Sept1, 1996

Grilli,V.- Masciandaro, D. - Tabellini,G. [1991]: "Political and Monetary Institutions and Public Financial Policies in the Industrial Countries", Economic Policy, n.13, Fall 1991

Glazer, A. - Niskanen, E. - Scotchmer, S. [1997] : “On the uses of club theory”, Journal of Public Economics 65 (1997) p. 3-7.

Gonzalez,P.-Hindriks,J.-Lockwood,B. [2005]: Political Budget Cycles and Fiscal Decentralization, working paper

Gramlich, Edward M.: Intergovernmental Grants - A Review of the Empirical Literature, in: W.E.Oates (ed.) : The Political Economy of Fiscal Federalism, Lexington Books 1977

Greene, William H. [2002]: Econometric Analysis, Fifth Edition, Prentice Hall, New Jersey, 2002

Grier, Kevin B. - Tullock, Gordon, 1989. "An empirical analysis of cross-national economic growth, 1951-1980," Journal of Monetary Economics, Elsevier, vol. 24(2), pages 259-276, September.

Hallerberg, M. – Vinhas de Souza, L.-Clark, W.R. 2002]:”Political Business Cycles in EU Accession Countries”, European Union Politics, Vol. 3, No. 2, 231-250 (2002)

Hegedüs et al. [1996] Municipal Infrastructure Finance in Hungary, Unpublished Background paper prepared for USAID

Hervé,Y.-Holzmann, R. [1998]: Fiscal Transfers and Economic Convergence in The EU – An Analysis of Absorption Problems and Evaluation of The Literature, NOMOS, Baden-Baden, 1998

Hettich W. - Winer S.[1984]: A positive model of tax structure, Journal of Public Economics 24, p. 67-87.

Hibbs, D. [1977]. “Political Parties and Macroeconomic Policy.’ American Political Science Review 71.

----------[1987]. The American Political Economy: Macroeconomics and Electoral Politics in the United States. Cambridge: Harvard University Press.

_____ [1992]. “Partisan Theory After Fifteen Years,” European Journal of Political Economy 8, 361-73.

Hirsch, Werner Z. 1990: Economics of Intergovernmental Mandates, in: Remy Prud'homme (ed.) - Public finance with Several Levels of Government, Proceedings of the 46th Congress of the International Institute of Public Finance, Brussels, 1990, pp. 167-180

Holtz-Eakin, D. – Rosen, H.S. 1989: Municipal Construction Spending – an Emprical Examination, NBER Working Paper no.2989

Hommes, Rudolf, 1996 :Conflicts and Dilemmas of Decentralization, in: Annual World Bank Conference on Development Economics 1995, The World Bank 1996

Horváth, Gy.: Regionális támogatások az Európai Unióban, Osiris, 2001

Horvath, Tamas M., ed. 2000. Decentralisation: Experiments and Reforms. Budapest:OSI/LGI.

Hotelling, H. 1929. “Stability in competition.” Economic Journal 39:41-57

Hulten-Schwab, 1997 : A fiscal federalism approach to infrastructure policy, Regional science and Urban Economics, 27, pp.139-159

Illés, Iván, 2002: A területfejlesztés pénzügyi eszközei az Európai Unióban és Magyarországon in: Közgazdasági Szemle, XLIX. évf., 2002. július–augusztus (677–698. o.)

Inman, Robert P. - Rubinfeld, Daniel L.1997 : Rethinking Federalism, Journal of Economic Perspectives -vol. 11. no.4., Fall 1997, p.43-64.

Inman, Robert P. 1987: Markets, governments, and the "new" political economy, in: Handbook of Public Economics, vol.II., ed. by A.J. Auerbach and M Feldstein

Johansson, E. 2003: Intergovenrmental Grants as Tactical Instruments – some empirical evidence from Swedish municipalities, Journal of Public Economics, forthcoming

Jokay, Ch.-Kalman, J-Kopanyi,M, 2004 : Municipal Infrastructure Financing Cases - in Intergovernmental Finance in Hungary : a Decade of Experience 1990-2000 (ed. by Kopányi –Wetzel-Dahrer) World Bank-LGI

Kalman, J. (2002): Possible Structural Funds Absorption Problems - The Political Economy view with Application to the Hungarian Regional Development Institutions and Financial system in : Marcou,G. (ed.) Regionalization for Development and Accession to the EU – A Comparative Perspective, LGI Studies, pp.29-65. LGI/OSI 2002

Kalman,J.-Soos, G. 2002. "Report on the State of Local Democracy in Hungary." In The State of Local Democracy in Central Europe, ed. by Gabor Soos, Gabor Toka, and Glen Wright. Budapest: OSI/LGI.

Keech, W.R. (1995). Economic Politics: The Costs of Democracy, Cambridge University Press

Keen, Michael, 1998:Vertical Tax Exernalities in the Theory of Fiscal Federalism, IMF Staff Papers Vol. 45. No.3. (September 1998)

Kopanyi, M. (et. al.): Modernizing the Subnational Government System – Hungary, World Bank Discussion Paper no. 417, 2000

Kramer G. 1971. "Short-term fluctuations in US voting behavior." American Political Science Review 65:131-43

Lados, M. (ed.) 1998 – A területfejlesztés térségi finanszírozása, MTA RKK NYUTI, Közlemény no.85.,

Levaggi, Rosella 2002: "Decentralized Budgeting Procedures for Public Expenditure," Public Finance Review 30 (July), 273-95

Lewis-Beck M. (1988). Economics and Elections. University Michigan Press, Ann Arbor

McCubbins, Mathew D. - Noll, Robert G. - Weingast, Barry L. 1987: Administrative Procedures as Instruments in Political Control, Journal of Law, Economics and Organizations, Vol.3 No. 2. p.243-277

McLure, Charles E. Jr.(1974): Revenue sharing: Alternative to rational fiscal federalism? In: Municipal needs, services & financing, ed. by W.Patrick Beaton , Center for Urban Policy Research

Metropolitan Research Institute: Study on Financial Absorption Capacity of Hungary – Final Report, Non-Twinning Technical Assistance to the Special Preparatory Programme for the Structural Funds in Hungary (HU 9808), NEI, 2001

Mink, Mark – DeHaan, Jakob 2005: Has the Stability and Growth Pact Impeded Political Budget Cycles in the European Union?, CESifo Working Paper No. 1532

Moe, T.M. (1989) : The New Economics of Organization, American Journal of Political Science 28, p. 748-777

Musgrave, R.A.(1959) : The Theory of Public Finance, New York, McGraw-Hill

----------1997): Devolution, Grants and Fiscal Competition, Journal of Economic Perspectives -vol. 11. no.4., Fall 1997, p.65-72.

Musgrave, Richard. A and Musgrave, Peggy B. (1989). : Public Finance in Theory and Practice, McGraw-Hill, 1989

Nordhaus W. (1975). "The Political Business Cycle." Review Economic Studies 42(1):169-90

----------(1989). Alternative approaches to the political business cycle. Brookings Papers in Economic Activity 1989(2), 1–49.

Oates, Wallace E.(1977): An economist perspective on Fiscal federalism - in: The Political Economy of Fiscal Federalism (ed.by. W.E.Oates), 1977, Lexington Books, pp. 3-19

---------- (1991): Studies in Fiscal federalism, Edward Elgar Co. 1991

OECD, 2001 Fiscal Design across Levels of Government, Paris 2001, www.oecd.org

OECD, 2007 Economic Survey of Hungary 2007 – Policy Brief, www.oecd.org

Okun, A. (1973) "Comments on Stigler's Paper," American Economic Review 63, 172-77.

Persson, Torsten and Tabellini, Guido. 1992. Federal Fiscal Constitutions: Risk Sharing and Moral Hazard. Discussion Paper 72. Minneapolis: Institute for Empirical Macroeconomics http://www.minneapolisfed.org/research/DP/DP72.pdf

----------1994: "Does decentralization increase the size of government?", European Economic Review 38 (1994), p. 765-773.

---------- 2000. Political Economics: Explaining Economic Policy. Cambridge, MA: MIT Press.

---------- 2002 'Do Electoral Cycles Differ Across Political Systems?', working paper.

---------- 2003a The Economic Effects of Constitutions. Cambridge, MA: MIT Press.

---------- 2003b "Do Electoral Cycles Differ Across Political Systems?" IGIER Working Paper n. 232, March.

---------- 2004 "Fiscal Effects of Constitutions." American Economic Review 94, 25-46

Péteri, G. 2005: Igazodás a piacgazdaság szabályaihoz és megfelelés a helyi elvárásoknak – A városi polgármesterek értékrendje, MTA KTI Discussion Papers 2005/2

Péteri, G.(ed.) 2002. Mastering Decentralisation and Public Administration Reforms in Central and Eastern Europe. Budapest: OSI/LGI.

Pigey, J. 1999 Fiscal Decentralization and Local Government Finance in Hungary 1989 – 1999, prepared for USAID

Pommerehne, W.W. 1978: Institutional Approaches to Public Expenditure, Journal of Public Economics 9, pp.255-280

Prud'homme, Remy 1996 : Comment on Rudolf Hommes' Conflicts and Dilemmas of Decentralization, in: Annual World Bank Conference on Development Economics 1995, The World Bank 1996

Prud'homme, Remy 1997: The Dangers of Decentralization - The World Bank Research Observer, vol.10.no.2. pp.201-220.

Qian, Yingyi - Weingast, Barry R.: Federalism as a Commitment To Preserving Market Incentives, Journal of Economic Perspectives -vol. 11. no.4., Fall 1997, p.83-92.

Quigley, John M. – Rubinfeld, Daniel L.: Federalism and reductions in the federal budget, National Tax Journal, June 1996 49. No.2. p. 289-302.

Rodden, Jonathan A., Gunnar S. Eskeland, and Jennie Litvack, eds. [2003]: Fiscal Decentralization and the Challenge of Hard Budget Constraints (Cambridge, MA: MIT Press)

Rodden, J.-Wibbels,E. [2006] "Business Cycles and the Political Economy of Decentralised Finance: Lessons for Fiscal Federalism in the EU" in Fiscal Policy Surveillance in Europe. 2006. Edited by Wierts, Deroose, Flores and Turrini. New York: Palgrave Macmillan

Rogoff K, Sibert A. 1988. "Elections and macroeconomic policy cycles." Review Economic Studies 55(1):1-16

Rogoff, K. 1990. Equilibrium political budget cycles. American Economic Review 80, 21–36

Rose, Shanna. 2004. "Do Fiscal Rules Dampen the Political Business Cycle?" Manuscript, Harvard University, November.

Sandmo, A. 1984:'Some Insights form the New Theory of Public Finance', Empirica,2. p.111-124

Sappington, David E.M. - Stiglitz, Joseph E. 1987: Privatization, information, incentives, Journal of Policy Analysis and Management, Vol 6. No.4. p. 567-582

Schuknecht, L. (1996), "Political Business Cycles in Developing Countries," Kyklos 49, 155-70.

----------2000

Seabright, Paul 1996: Accountability and decentralization in government: An incomplete contracts model - European Economic Review 40 (1996) p. 61-89

Shah, Anwar, 1998. "Fiscal federalism and macroeconomic governance : for better or for worse?," Policy Research Working Paper Series 2005, The World Bank

---------- 1991. "Perspectives on the design of intergovernmental fiscal relations," Policy Research Working Paper Series 726, The World Bank

---------- 2005: Fiscal Decentralization and Fiscal Performance, World Bank Policy Research Working Paper 3786, December 2005

Shi, M. and J. Svensson (2000), "Political Business Cycles in Developed and Developing Countries," working paper, The World Bank, February.

Shi, Min. and J. Svensson [2004] Political budget cycles: a review of recent developments. Institute for International Economic Studies, Stockholm University.

----------[2002a] Political budget cycles in developed and developing countries. Institute for International Economic Studies, Stockholm University.

---------- [2002b], "Conditional Political Business Cycles," CEPR Discussion Paper #3352.

Soós, G. – Tóka,G.-Wright, G. (ed.) 2002 : The State of Local Democracy in Central Europe, LGI Books, Local Government and Public Service Reform Initiative-Open Society Institute

Sorensen, R.J. 1995: The Demand for Local Government Goods – the impact of parties, committees and public sector politicians, European Journal of Political Research 27.(1995) pp.119-141

Stein, E.-Talvi,E.-Grisanti, A.1998: Institutional arrangements and fiscal performance in the Latin American experience, NBER Working Paper no. 6358

Stigler, G. (1973), "General Economic Conditions and National Elections," American Economic Review 63, 160-67

Szalai, Á. 2005 Adóverseny az iparűzési adóban - az 5000 fő fölötti települések adópolitikája a 2000-es években, MTA KTI Discussion Papers 2005/3

Tanzi, Vito : Fiscal federalism and decentralization: a review of some efficiency and macroeconomic aspects - in: Annual World Bank Conference on Development Economics 1995, The World Bank 1996, pp.295-316

TERRA Studio Kft. (2000) Report to the Ministry of Agriculture and Regional Development on Local Investment Resources

Territorial Review at National Level – Hungary, OECD, DT/TDPC (2000) 26

Tiebout : The Pure Theory of Local Expenditures, Journal of Political Economy, 64, 1956.

Tommasi, Mariano (2003), "Centralization vs. Decentralization: A Principal-Agent Analysis," unpublished paper.

Tufte, E. 1978. Political Control of the Economy. Princeton, NJ: Princeton University Press.

Tujula, Mika – Wolswijk, Guido (2004) 'What determines fiscal balances? An empirical investigation in determinants of changes in OECD budget balances', ECB Working Paper, No 422.

Vági, Gábor [1982]: Versengés a fejlesztési forrásokért. Közgazdasági és Jogi Könyvkiadó, Budapest, 1982,

Veiga, Linda and Pinho, Maria Manuel (2007), "The Political Economy of Intergovernmental Grants: Evidence from a Maturing Democracy," Public Choice, forthcoming

Veiga, Linda - Veiga, Francisco [2007], "Political Business Cycles at the Municipal Level," Public Choice, 131 (1/2): 45-64

Von Hagen, Jürgen (2003) 'Fiscal discipline and growth in Euroland. Experiences with the Stability and Growth Pact', ZEI Working Paper, No. B062003.

Weingast - Shepsle - Johnsen, 1989 : The Political Economy of Benefits and Costs: a neoclassical approach to distributive politics, Journal of Political Economy 89:4

Weingast, Barry R. 1995, "The Economic Role of Political Institutions: Market-Preserving Federalism and Economic Development," Journal of Law and Economic Organization 11, 1-31.

Wildasin, David E. 2004: "The Institutions of Federalism: Toward an Analytical Framework," National Tax Journal 57, 247-72.

Wildavsky, Aaron. 1984. The Politics of the Budgetary Process. 4th ed. Boston: Little, Brown and Company.

Wooldridge, J.M. 2002: Econometric Analysis of Cross Section and Panel Data, MIT Press, Cambridge, MA

World Bank: Subnational Development in Hungary - country study 2000, published in I*ntergovernmental Finance in Hungary* : a Decade of Experience 1990-2000 (ed. by Kopányi –Wetzel-Dahrer) World Bank-LGI, 2004

Worthington, A.C. – Dollery, B.E.1998: The political determination of intergovernmental grants in Australia, Public Choice 94.(1998) pp.299-315

Wright, Glen 1994: Tanulmány a központi és helyi funkciók megosztásáról in: Péteri G.(ed.) Központi - helyi költségvetési kapcsolatok, USAID 1994

Wyckoff, P.G. 1988 : A Bureaucratic Theory of Flypaper Effects, Journal of Urban Economics 23, pp. 115-129

APPENDIX

Tables for ChapterVI - Table 6.1: Pairwise correlations among survey answers

Correlations

			does your LG have some kind of long term strategy or only play for survival?	what drives local inv. decisions the most?	Your project sizes are planned for meeting true needs or to maximize transfer revenues?	Do you know and differentiate citizen contribution to investment types or it is usually very low?	Are local matching sources/credit hard to have but needed or you have some and only apply with that?	Do you have operation cost problems with running previous investments?	Do you copy similar LGs or go your way in your investment decisions?	per capita capital grants	per capita local investment (incl.financial)	per capita local PIT base,2003 prices	% of own current+capital revenues in total budget	% of coated roads
Spearman's rho	does your LG have some kind of long term strategy or only play for survival?	Correlation Coefficient	1,000	,091	,218**	-,198*	-,132	,124	,260**	-,066	,041	,196*	,303**	-,052
		Sig. (2-tailed)	.	,270	,008	,016	,108	,132	,001	,441	,630	,022	,000	,530
		N	149	149	149	147	149	149	149	137	137	137	149	149
	what drives local inv. decisions the most?	Correlation Coefficient	,091	1,000	-,156	,218**	,077	,110	,122	-,039	,036	-,010	,062	,136
		Sig. (2-tailed)	,270	.	,058	,008	,348	,182	,138	,651	,674	,907	,455	,098
		N	149	149	149	147	149	149	149	137	137	137	149	149
	Your project sizes are planned for meeting true needs or to maximize transfer revenues?	Correlation Coefficient	,218**	-,156	1,000	-,326**	-,285**	-,178*	,237**	-,056	,041	,172*	,178*	,093
		Sig. (2-tailed)	,008	,058	.	,000	,000	,030	,004	,514	,632	,045	,030	,259
		N	149	149	149	147	149	149	149	137	137	137	149	149
	Do you know and differentiate citizen contribution to investment types or it is usually very	Correlation Coefficient	-,198*	,218**	-,326**	1,000	,389**	,161	-,148	-,025	,073	,072	-,008	,108
		Sig. (2-tailed)	,016	,008	,000	.	,000	,052	,074	,777	,401	,404	,928	,195
		N	147	147	147	147	147	147	147	135	135	135	147	147
	Are local matching sources/credit hard to have but needed or you have some and only apply	Correlation Coefficient	-,132	,077	-,285**	,389**	1,000	,302**	-,243**	,020	-,024	-,154	-,061	,082
		Sig. (2-tailed)	,108	,348	,000	,000	.	,000	,003	,820	,782	,072	,460	,322
		N	149	149	149	147	149	149	149	137	137	137	149	149
	Do you have operation cost problems with running previous investments?	Correlation Coefficient	,124	,110	-,178*	,161	,302**	1,000	-,116	-,176*	-,066	-,186*	,045	-,151
		Sig. (2-tailed)	,132	,182	,030	,052	,000	.	,157	,040	,443	,029	,582	,065
		N	149	149	149	147	149	149	149	137	137	137	149	149
	Do you copy similar LGs or go your way in your investment decisions?	Correlation Coefficient	,260**	,122	,237**	-,148	-,243**	-,116	1,000	-,079	,035	-,023	,057	-,023
		Sig. (2-tailed)	,001	,138	,004	,074	,003	,157	.	,359	,687	,791	,491	,780
		N	149	149	149	147	149	149	149	137	137	137	149	149
	per capita capital grants	Correlation Coefficient	-,066	-,039	-,056	-,025	,020	-,176*	-,079	1,000	,555**	,159	,088	,024
		Sig. (2-tailed)	,441	,651	,514	,777	,820	,040	,359	.	,000	,063	,304	,781
		N	137	137	137	135	137	137	137	138	138	138	138	138
	per capita local investment (incl.financial)	Correlation Coefficient	,041	,036	,041	,073	-,024	-,066	,035	,555**	1,000	,248**	,235**	,151
		Sig. (2-tailed)	,630	,674	,632	,401	,782	,443	,687	,000	.	,003	,006	,077
		N	137	137	137	135	137	137	137	138	138	138	138	138
	per capita local PIT base,2003 prices	Correlation Coefficient	,196*	-,010	,172*	,072	-,154	-,186*	-,023	,159	,248**	1,000	,743**	,160
		Sig. (2-tailed)	,022	,907	,045	,404	,072	,029	,791	,063	,003	.	,000	,061
		N	137	137	137	135	137	137	137	138	138	138	138	138
	% of own current+capital revenues in total budget	Correlation Coefficient	,303**	,062	,178*	-,008	-,061	,045	,057	,088	,235**	,743**	1,000	,147
		Sig. (2-tailed)	,000	,455	,030	,928	,460	,582	,491	,304	,006	,000	.	,073
		N	149	149	149	147	149	149	149	138	138	138	150	150
	% of coated roads	Correlation Coefficient	-,052	,136	,093	,108	,082	-,151	-,023	,024	,151	,160	,147	1,000
		Sig. (2-tailed)	,530	,098	,259	,195	,322	,065	,780	,781	,077	,061	,073	.
		N	149	149	149	147	149	149	149	138	138	138	150	150

**. Correlation is significant at the .01 level (2-tailed).

*. Correlation is significant at the .05 level (2-tailed).

Correlations

			in successful grant receival_role of professionalism of local staff	in successful grant receival_role of good project planning, reflecting local needs	in successful grant receival_larger than required own contribution	in successful grant receival_lobbying in difft.ministries	in successful grant receival_lobbying in parliament through parties	in successful grant receival_lobbying by local companies	in successful grant receival_local govt. same political color as central govt.	in successful grant receival_size and type of municipality	in successful grant receival_regional position of municipality	per capita capital grants	per capita local investment (incl.financial)	per capita local PIT base,2003 prices	% of flats connected to gas,electr. and water networks	% of own current+capital revenues in total budget	% of coated roads
Spearman's rho	in successful grant receival_role of professionalism of local staff	Correlation Coefficient	1,000	,482**	,127	,108	,060	,078	,053	,296**	,177*	-,025	-,032	-,029	,005	,085	-,164*
		Sig. (2-tailed)	.	,000	,122	,191	,464	,347	,519	,000	,031	,769	,713	,737	,954	,300	,046
		N	149	149	149	149	149	149	149	149	149	137	137	137	137	149	149
	in successful grant receival_role of good project planning, reflecting local needs	Correlation Coefficient	,482**	1,000	-,057	,226**	,242**	,082	-,015	,281**	,177*	-,016	,031	,108	,195*	,138	,029
		Sig. (2-tailed)	,000	.	,488	,006	,003	,319	,859	,001	,031	,855	,722	,208	,022	,093	,721
		N	149	149	149	149	149	149	149	149	149	137	137	137	137	149	149
	in successful grant receival_larger than required own contribution	Correlation Coefficient	,127	-,057	1,000	,055	-,009	,246**	,270**	,045	,096	-,066	-,013	,086	,053	,014	,109
		Sig. (2-tailed)	,122	,488	.	,504	,910	,003	,001	,587	,243	,447	,879	,320	,536	,866	,186
		N	149	149	149	149	149	149	149	149	149	137	137	137	137	149	149
	in successful grant receival_lobbying in difft.ministries	Correlation Coefficient	,108	,226**	,055	1,000	,673**	,154	,373**	,243**	,188*	,033	-,008	-,103	-,120	-,064	,164*
		Sig. (2-tailed)	,191	,006	,504	.	,000	,062	,000	,003	,022	,698	,929	,229	,161	,439	,046
		N	149	149	149	149	149	149	149	149	149	137	137	137	137	149	149
	in successful grant receival_lobbying in parliament through parties	Correlation Coefficient	,060	,242**	-,009	,673**	1,000	,095	,387**	,243**	,144	,176*	-,016	-,252**	-,198*	-,089	,155
		Sig. (2-tailed)	,464	,003	,910	,000	.	,250	,000	,003	,080	,039	,852	,003	,020	,282	,060
		N	149	149	149	149	149	149	149	149	149	137	137	137	137	149	149
	in successful grant receival_lobbying by local companies	Correlation Coefficient	,078	,082	,246**	,154	,095	1,000	,156	-,051	-,061	,067	,110	,202*	,091	,092	,021
		Sig. (2-tailed)	,347	,319	,003	,062	,250	.	,058	,539	,456	,440	,200	,018	,291	,265	,797
		N	149	149	149	149	149	149	149	149	149	137	137	137	137	149	149
	in successful grant receival_local govt. same political color as central govt.	Correlation Coefficient	,053	-,015	,270**	,373**	,387**	,156	1,000	,123	,095	,095	,044	-,039	-,141	,000	,090
		Sig. (2-tailed)	,519	,859	,001	,000	,000	,058	.	,136	,247	,271	,608	,654	,101	,996	,278
		N	149	149	149	149	149	149	149	149	149	137	137	137	137	149	149
	in successful grant receival_size and type of municipality	Correlation Coefficient	,296**	,281**	,045	,243**	,243**	-,051	,123	1,000	,645**	,013	-,088	-,132	-,093	,070	-,024
		Sig. (2-tailed)	,000	,001	,587	,003	,003	,539	,136	.	,000	,882	,304	,124	,279	,393	,772
		N	149	149	149	149	149	149	149	149	149	137	137	137	137	149	149
	in successful grant receival_regional position of municipality	Correlation Coefficient	,177*	,177*	,096	,188*	,144	-,061	,095	,645**	1,000	-,023	-,068	-,010	,005	-,031	-,030
		Sig. (2-tailed)	,031	,031	,243	,022	,080	,456	,247	,000	.	,794	,427	,905	,950	,703	,715
		N	149	149	149	149	149	149	149	149	149	137	137	137	137	149	149
	per capita capital grants	Correlation Coefficient	-,025	-,016	-,066	,033	,176*	,067	,095	,013	-,023	1,000	,555**	,159	,069	,088	,024
		Sig. (2-tailed)	,769	,855	,447	,698	,039	,440	,271	,882	,794	.	,000	,063	,421	,304	,781
		N	137	137	137	137	137	137	137	137	137	138	138	138	138	138	138
	per capita local investment (incl.financial)	Correlation Coefficient	-,032	,031	-,013	-,008	-,016	,110	,044	-,088	-,068	,555**	1,000	,248**	,269**	,235**	,151
		Sig. (2-tailed)	,713	,722	,879	,929	,852	,200	,608	,304	,427	,000	.	,003	,001	,006	,077
		N	137	137	137	137	137	137	137	137	137	138	138	138	138	138	138
	per capita local PIT base,2003 prices	Correlation Coefficient	-,029	,108	,086	-,103	-,252**	,202*	-,039	-,132	-,010	,159	,248**	1,000	,558**	,743**	,160
		Sig. (2-tailed)	,737	,208	,320	,229	,003	,018	,654	,124	,905	,063	,003	.	,000	,000	,061
		N	137	137	137	137	137	137	137	137	137	138	138	138	138	138	138
	% of flats connected to gas,electr. and water networks	Correlation Coefficient	,005	,195*	,053	-,120	-,198*	,091	-,141	-,093	,005	,069	,269**	,558**	1,000	,475**	,204*
		Sig. (2-tailed)	,954	,022	,536	,161	,020	,291	,101	,279	,950	,421	,001	,000	.	,000	,016
		N	137	137	137	137	137	137	137	137	137	138	138	138	138	138	138
	% of own current+capital revenues in total budget	Correlation Coefficient	,085	,138	,014	-,064	-,089	,092	,000	,070	-,031	,088	,235**	,743**	,475**	1,000	,147
		Sig. (2-tailed)	,300	,093	,866	,439	,282	,265	,996	,393	,703	,304	,006	,000	,000	.	,073
		N	149	149	149	149	149	149	149	149	149	138	138	138	138	150	150
	% of coated roads	Correlation Coefficient	-,164*	,029	,109	,164*	,155	,021	,090	-,024	-,030	,024	,151	,160	,204*	,147	1,000
		Sig. (2-tailed)	,046	,721	,186	,046	,060	,797	,278	,772	,715	,781	,077	,061	,016	,073	.
		N	149	149	149	149	149	149	149	149	149	138	138	138	138	150	150

**. Correlation is significant at the .01 level (2-tailed).

*. Correlation is significant at the .05 level (2-tailed).

Correlations

			region	per capita capital grants	per capita municipal income	per capita local investment (incl.financial)	per capita local PIT base,2003 prices	per capita municipal current own income	per capita municipal investment income	Party position of mayor (parliamentary parties)	Party majority in the local assembly	% of own current+capital revenues in total budget	per capita PIT revenues 2003	recoded project cost compare	project planning efficiency	long term thinking, strategic planning	financial management efficiency	importance of lobbying	importance of political factors in LG finance	importance of local priorities	population of municipality	size category (sample strata)
Spearman's rho	region	Correlation Coefficient	1,000	-,120	-,298**	-,240**	-,245**	-,204*	-,208*	-,161	,077	-,248**	,049	,104	,009	-,344**	-,004	,127	,287**	,238**	-,012	,13
		Sig. (2-tailed)	,	,159	,000	,004	,004	,016	,015	,055	,365	,002	,568	,209	,912	,000	,963	,128	,001	,004	,892	,10
		N	149	138	138	138	138	138	138	142	142	149	139	149	147	148	146	146	143	143	139	14
	per capita capital grants	Correlation Coefficient	-,120	1,000	,410**	,500**	,143	,306**	,365**	,087	-,124	,093	-,018	-,060	-,121	-,053	-,002	,007	,120	,095	,311**	-,31 *
		Sig. (2-tailed)	,159	,	,000	,000	,094	,000	,000	,311	,147	,276	,833	,484	,161	,538	,984	,934	,168	,275	,000	,00
		N	138	138	138	138	138	138	138	138	138	138	138	138	136	137	135	135	133	133	138	13
	per capita municipal income	Correlation Coefficient	-,298**	,410**	1,000	,691**	,284**	,645**	,672**	,207*	-,125	,131	,184*	-,135	-,082	-,083	,050	-,011	,029	,083	,176*	-,19
		Sig. (2-tailed)	,000	,000	,	,000	,001	,000	,000	,015	,145	,126	,031	,114	,343	,335	,564	,896	,742	,343	,038	,02
		N	138	138	138	138	138	138	138	138	138	138	138	138	136	137	135	135	133	133	138	13
	per capita local investment (incl.financial)	Correlation Coefficient	-,240**	,500**	,691**	1,000	,164	,500**	,781**	,067	-,251**	,165	,052	-,123	-,069	,061	,016	,076	,099	,160	,085	-,09
		Sig. (2-tailed)	,004	,000	,000	,	,055	,000	,000	,432	,003	,054	,543	,151	,428	,482	,850	,380	,255	,066	,324	,25
		N	138	138	138	138	138	138	138	138	138	138	138	138	136	137	135	135	133	133	138	13
	per capita local PIT base,2003 prices	Correlation Coefficient	-,245**	,143	,284**	,164	1,000	,651**	,211*	,385**	-,086	,676**	-,561**	-,083	-,094	,147	,300**	-,122	-,048	-,003	,524**	-,45 *
		Sig. (2-tailed)	,004	,094	,001	,055	,	,000	,013	,000	,314	,000	,000	,334	,274	,087	,000	,158	,581	,972	,000	,00
		N	138	138	138	138	138	138	138	138	138	138	138	138	136	137	135	135	133	133	138	13
	per capita municipal current own income	Correlation Coefficient	-,204*	,306**	,645**	,500**	,651**	1,000	,496**	,281**	-,185*	,793**	-,393**	-,138	-,023	,045	,135	,077	,117	,161	,408**	-,34 *
		Sig. (2-tailed)	,016	,000	,000	,000	,000	,	,000	,001	,030	,000	,000	,106	,790	,599	,120	,372	,182	,065	,000	,00
		N	138	138	138	138	138	138	138	138	138	138	138	138	136	137	135	135	133	133	138	13
	per capita municipal investment income	Correlation Coefficient	-,208*	,365**	,672**	,781**	,211*	,496**	1,000	,133	-,131	,233**	,113	-,108	,041	,124	,067	,159	,117	,197*	,017	-,06
		Sig. (2-tailed)	,015	,000	,000	,000	,013	,000	,	,120	,125	,006	,189	,209	,635	,148	,441	,066	,179	,023	,840	,44
		N	138	138	138	138	138	138	138	138	138	138	138	138	136	137	135	135	133	133	138	13
	Party position of mayor (parliamentary parties)	Correlation Coefficient	-,161	,087	,207*	,067	,385**	,281**	,133	1,000	-,111	,237**	-,141	-,034	,112	-,029	,207*	-,019	-,125	,053	,508**	-,50 *
		Sig. (2-tailed)	,055	,311	,015	,432	,000	,001	,120	,	,188	,005	,099	,684	,189	,732	,015	,825	,144	,536	,000	,00
		N	142	138	138	138	138	138	138	142	142	142	138	142	140	141	139	139	137	137	138	14
	Party majority in the local assembly	Correlation Coefficient	,077	-,124	-,125	-,251**	-,086	-,185*	-,131	-,111	1,000	-,152	,128	-,074	-,098	,021	,034	-,079	-,027	-,067	-,234**	,20
		Sig. (2-tailed)	,365	,147	,145	,003	,314	,030	,125	,188	,	,070	,135	,381	,250	,802	,693	,355	,750	,434	,006	,01
		N	142	138	138	138	138	138	138	142	142	142	138	142	140	141	139	139	137	137	138	14
	% of own current+capital revenues in total budget	Correlation Coefficient	-,248**	,093	,131	,165	,676**	,793**	,233**	,237**	-,152	1,000	-,659**	-,171*	,022	,207*	,137	,109	,061	,021	,367**	-,34 *
		Sig. (2-tailed)	,002	,276	,126	,054	,000	,000	,006	,005	,070	,	,000	,037	,788	,011	,100	,192	,469	,805	,000	,00
		N	149	138	138	138	138	138	138	142	142	149	139	149	147	148	146	146	143	143	139	14
	per capita PIT revenues 2003	Correlation Coefficient	,049	-,018	,184*	,052	-,561**	-,393**	,113	-,141	,128	-,659**	1,000	,071	,042	-,183*	-,145	-,011	,021	,054	-,352**	,21
		Sig. (2-tailed)	,568	,833	,031	,543	,000	,000	,189	,099	,135	,000	,	,406	,630	,031	,093	,901	,810	,538	,000	,01
		N	139	138	138	138	138	138	138	138	138	139	139	139	137	138	136	136	134	134	139	13
	recoded project cost compare	Correlation Coefficient	,104	-,060	-,135	-,123	-,083	-,138	-,108	-,034	-,074	-,171*	,071	1,000	,193*	,017	-,083	-,231**	-,023	,081	-,002	-,00
		Sig. (2-tailed)	,209	,484	,114	,151	,334	,106	,209	,684	,381	,037	,406	,	,019	,841	,322	,005	,787	,333	,985	,92
		N	149	138	138	138	138	138	138	142	142	149	139	149	147	148	146	146	143	143	139	14
	project planning efficiency	Correlation Coefficient	,009	-,121	-,082	-,069	-,094	-,023	,041	,112	-,098	,022	,042	,193*	1,000	,005	,042	,024	,074	,151	,089	-,08
		Sig. (2-tailed)	,912	,161	,343	,428	,274	,790	,635	,189	,250	,788	,630	,019	,	,947	,613	,779	,383	,073	,301	,29
		N	147	136	136	136	136	136	136	140	140	147	137	147	147	145	145	142	142	142	137	14
	long term thinking, strategic planning	Correlation Coefficient	-,344**	-,053	-,083	,061	,147	,045	,124	-,029	,021	,207*	-,183*	,017	,005	1,000	-,082	-,041	-,140	-,136	-,010	-,00
		Sig. (2-tailed)	,000	,538	,335	,482	,087	,599	,148	,732	,802	,011	,031	,841	,947	,	,326	,623	,095	,105	,905	,92
		N	148	137	137	137	137	137	137	141	141	148	138	148	147	148	146	146	143	143	138	14
	financial management efficiency	Correlation Coefficient	-,004	-,002	,050	,016	,300**	,135	,067	,207*	,034	,137	-,145	-,083	,042	-,082	1,000	,028	,095	,085	,206*	-,18
		Sig. (2-tailed)	,963	,984	,564	,850	,000	,120	,441	,015	,693	,100	,093	,322	,613	,326	,	,739	,261	,312	,016	,02
		N	146	135	135	135	135	135	135	139	139	146	136	146	145	146	146	144	141	142	136	14
	importance of lobbying	Correlation Coefficient	,127	,007	-,011	,076	-,122	,077	,159	-,019	-,079	,109	-,011	-,231**	,024	-,041	,028	1,000	,363**	,251**	-,137	,10
		Sig. (2-tailed)	,128	,934	,896	,380	,158	,372	,066	,825	,355	,192	,901	,005	,779	,623	,739	,	,000	,003	,112	,19
		N	146	135	135	135	135	135	135	139	139	146	136	146	145	146	144	146	142	142	136	14
	importance of political factors in LG finance	Correlation Coefficient	,287**	,120	,029	,099	-,048	,117	,117	-,125	-,027	,061	,021	-,023	,074	-,140	,095	,363**	1,000	,461**	-,078	,20
		Sig. (2-tailed)	,001	,168	,742	,255	,581	,182	,179	,144	,750	,469	,810	,787	,383	,095	,261	,000	,	,000	,367	,01
		N	143	133	133	133	133	133	133	137	137	143	134	143	142	143	141	142	143	142	134	14
	importance of local priorities	Correlation Coefficient	,238**	,095	,083	,160	-,003	,161	,197*	,053	-,067	,021	,054	,081	,151	-,136	,085	,251**	,461**	1,000	-,007	,04
		Sig. (2-tailed)	,004	,275	,343	,066	,972	,065	,023	,536	,434	,805	,538	,333	,073	,105	,312	,003	,000	,	,934	,56
		N	143	133	133	133	133	133	133	137	137	143	134	143	142	143	142	142	142	143	134	14
	population of municipality	Correlation Coefficient	-,012	,311**	,176*	,085	,524**	,408**	,017	,508**	-,234**	,367**	-,352**	-,002	,089	-,010	,206*	-,137	-,078	-,007	1,000	-,89 *
		Sig. (2-tailed)	,892	,000	,038	,324	,000	,000	,840	,000	,006	,000	,000	,985	,301	,905	,016	,112	,367	,934	,	,00
		N	139	138	138	138	138	138	138	138	138	139	139	139	137	138	136	136	134	134	139	13
	size category (sample strata)	Correlation Coefficient	,133	-,319**	-,192*	-,097	-,450**	-,345**	-,066	-,504**	,203*	-,348**	,216*	-,007	-,088	-,008	-,186*	,108	,207*	,048	-,892**	1,00
		Sig. (2-tailed)	,105	,000	,024	,258	,000	,000	,443	,000	,016	,000	,011	,929	,291	,926	,024	,194	,013	,565	,000	
		N	149	138	138	138	138	138	138	142	142	149	139	149	147	148	146	146	143	143	139	14

**. Correlation is significant at the .01 level (2-tailed).

*. Correlation is significant at the .05 level (2-tailed).

Tables for Chapter VII.

Table 7.1:Regression results: political cycles in per capita municipal investment expenditures

Dep.var.: per capita municipal investment expenditures	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12	-13	-14
	OLS								Fixed Effects Panel Estimations					
			with more controls for need		*with decentr measure*		*without possibly endogen controls*						*with decentr measure*	
political variables of interest:														
election year	3.704		3.794		2.835		3.951		3.261		3.235		2.226	
	[0.519]**		[0.523]**		[0.685]**		[0.723]**		[0.489]**		[0.489]**		[0.629]**	
year before elections	2.813		2.778		0.733		2.980		2.292		2.311		0.732	
	[0.537]**		[0.536]**		[0.655]		[0.664]**		[0.489]**		[0.492]**		[0.633]	
distance from next election year		-0.947		-0.965		-0.292		-1.008		-0.834		-0.830		-0.257
		[0.194]**		[0.195]**		[0.244]		[0.258]**		[0.174]**		[0.174]**		[0.225]
mayor political color same as central government	-0.580	-0.690	-0.590	-0.703	1.414	1.302	2.616	2.765	1.571	1.462	1.717	1.608	3.999	3.881
	[0.919]	[0.919]	[0.928]	[0.928]	[1.381]	[1.379]	[1.443]	[1.443]	[1.079]	[1.079]	[1.089]	[1.089]	[1.394]**	[1.394]**
control variables for LG revenues:														
per capita local personal income tax base	-0.011	-0.010	-0.013	-0.013	-0.026	-0.025	0.028	0.041	0.022	0.025	0.021	0.024	0.036	0.038
	[0.005]*	[0.005]*	[0.004]**	[0.004]**	[0.005]**	[0.005]**	[0.004]**	[0.003]**	[0.005]**	[0.005]**	[0.005]**	[0.005]**	[0.006]**	[0.006]**
per capita capital grants received	1.289	1.289	1.291	1.291	1.724	1.725	1.751	1.753	1.283	1.283	1.286	1.286	1.698	1.698
	[0.055]**	[0.055]**	[0.055]**	[0.055]**	[0.065]**	[0.065]**	[0.066]**	[0.066]**	[0.006]**	[0.006]**	[0.006]**	[0.006]**	[0.007]**	[0.007]**
per capita municipal investment income	0.934	0.933	0.935	0.935					0.903	0.903	0.902	0.902		
	[0.047]**	[0.047]**	[0.047]**	[0.047]**					[0.007]**	[0.007]**	[0.007]**	[0.007]**		
per capita municipal current own income	0.411	0.412	0.409	0.409					0.461	0.462	0.457	0.458		
	[0.063]**	[0.063]**	[0.060]**	[0.060]**					[0.010]**	[0.010]**	[0.009]**	[0.009]**		
% of own (current+capital) resources in LG budget (decentralization measure)					143.760	143.811							166.302	166.491
					[7.820]**	[7.814]**							[3.385]**	[3.388]**
controls for need:														
indicator of local infrastructure endowment	-5.961	-6.330	-8.589	-8.977	-0.675	-0.896	17.067		-14.114	-14.845	-16.109	-16.934	3.511	3.018
	[1.907]**	[1.902]**	[1.906]**	[1.900]**	[1.990]	[1.979]	[1.898]**		[2.163]**	[2.152]**	[2.119]**	[2.105]**	[2.718]	[2.697]
indicator of local education demand			0.001	0.001							0.001	0.001		
			[0.000]**	[0.000]**							[0.001]	[0.001]		
indicator of local health service demand			-0.000	-0.000							0.000	0.000		
			[0.000]**	[0.000]**							[0.000]	[0.000]		
indicator of local social service demand			0.012	0.012							0.003	0.003		
			[0.004]**	[0.004]**							[0.008]	[0.008]		
share of young population	16.109	17.651							22.553	25.546				
	[10.998]	[11.004]							[13.438]	[13.430]				
share of old population	51.709	52.417			56.028	56.075	61.771		103.563	104.997			58.234	58.876
	[8.803]**	[8.805]**			[8.840]**	[8.844]**	[8.991]**		[14.861]**	[14.864]**			[17.719]**	[17.720]**
population	-0.000	-0.000	-0.001	-0.001	-0.000	-0.000	-0.000	-0.000	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003
	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.001]**	[0.001]**	[0.001]**	[0.001]**	[0.001]**	[0.001]**
Constant	-3.227	-0.697	14.213	17.344	-7.424	-6.126	-8.220	13.610	-16.161	-14.917	14.772	17.233	-22.519	-21.886
	[4.559]	[4.572]	[0.809]**	[0.776]**	[2.215]**	[2.245]**	[2.264]**	[0.869]**	[6.142]**	[6.160]*	[3.080]**	[3.077]**	[5.512]**	[5.514]**
Observations	34109	34109	34256	34256	34244	34244	34253	34260	34109	34109	34256	34256	34244	34244
Number of LGs									3130	3130	3130	3130	3129	3129
R-squared	0.83	0.83	0.83	0.83	0.70	0.70	0.67	0.67	0.82	0.82	0.82	0.82	0.70	0.70

Robust standard errors in brackets
* significant at 5%; ** significant at 1%

Tables for Chapter VII.

Table 7.2: Results of Panel Regression with AR : political cycles in per capita municipal investment expenditures

Dep.var.: per capita municipal investment expenditures	**-17**	**-18**	**-19**	**-20**	**-21**	**-22**	**-23**	**-24**
	FE+AR				**with decentr measure**		**without possibly endogen controls**	
political variables of interest:								
election year	3.654		3.529		2.028		3.570	
	[0.484]**		[0.482]**		[0.618]**		[0.638]**	
year before elections	-0.785		-0.843		-2.219		0.277	
	[0.543]		[0.545]		[0.704]**		[0.726]	
distance from next election year		-0.722		-0.698		-0.040		-1.001
		[0.172]**		[0.172]**		[0.221]		[0.227]**
mayor political color same as central government	1.967	1.709	2.127	1.872	4.489	4.157	4.925	4.747
	[1.115]	[1.115]	[1.129]	[1.130]	[1.496]**	[1.497]**	[1.575]**	[1.575]**
control variables for LG revenues:								
per capita local personal income tax base	0.014	0.021	0.015	0.021	0.030	0.035	0.067	0.072
	[0.005]**	[0.005]**	[0.005]**	[0.005]**	[0.007]**	[0.007]**	[0.007]**	[0.007]**
per capita capital grants received	1.288	1.289	1.290	1.290	1.693	1.693	1.713	1.713
	[0.006]**	[0.006]**	[0.006]**	[0.006]**	[0.007]**	[0.007]**	[0.007]**	[0.007]**
per capita municipal investment income	0.918	0.916	0.917	0.915				
	[0.007]**	[0.007]**	[0.007]**	[0.007]**				
per capita municipal current own income	0.400	0.402	0.396	0.399				
	[0.010]**	[0.010]**	[0.010]**	[0.010]**				
% of own (current+capital) resources in LG budget					172.343	171.969		
					[3.538]**	[3.544]**		
controls for need:								
indicator of local infrastructure endowment	-4.428	-6.483	-5.665	-7.874	14.565	12.021	29.539	28.039
	[2.483]	[2.470]**	[2.481]*	[2.466]**	[3.339]**	[3.320]**	[3.526]**	[3.502]**
indicator of local education demand			0.002	0.002				
			[0.002]	[0.002]				
indicator of local health service demand			0.000	0.000				
			[0.000]	[0.000]				
indicator of local social service demand			0.008	0.007				
			[0.008]	[0.008]				
share of young population	6.927	16.177						
	[14.731]	[14.692]						
share of old population	87.473	93.983			35.507	39.625	56.817	59.137
	[16.437]**	[16.428]**			[20.838]	[20.845]	[22.080]*	[22.075]**
population	-0.002	-0.002	-0.003	-0.003	-0.003	-0.003	-0.003	-0.003
	[0.001]*	[0.001]*	[0.001]*	[0.001]*	[0.001]*	[0.001]*	[0.001]*	[0.001]*
Constant	-10.739	-13.079	11.924	13.694	-21.925	-22.943	-15.565	-14.098
	[6.553]	[6.544]*	[3.356]**	[3.360]**	[5.991]**	[5.994]**	[6.195]*	[6.195]*
Observations	30979	30979	31126	31126	31115	31115	31123	31123
Number of LGs	3129	3129	3129	3129	3128	3128	3129	3129

Standard errors in brackets
* significant at 5%; ** significant at 1%

Tables for Chapter VII.

Table 7.3: Regression results for local investments and election cycles by size categories

dep.var.: per capita municipal investment expenditures	**Pooled OLS**														
	cities above 40000				**cities between 15-40000**				**between 4-15000**				**under 4000**		
political variables of interest:															
election year	3.699		4.850	5.061	5.770		6.370	6.549	7.108		9.097	9.004	3.265		2.168
	[2.452]		[2.559]	[2.591]	[2.132]**		[2.536]*	[2.604]*	[1.174]**		[1.645]**	[1.713]**	[0.568]**		[0.749]**
year before elections	-0.038		1.412	1.739	-0.497		0.887	1.699	0.451		1.980	4.059	3.193		0.895
	[1.808]		[1.860]	[1.901]	[1.845]		[2.260]	[2.227]	[1.084]		[1.308]	[1.273]**	[0.585]**		[0.719]
distance from next election year		-0.889				-1.457				-1.811				-0.860	
		[0.907]				[0.752]				[0.394]**				[0.212]**	
mayor political color same as central government	4.361	4.398	4.030	3.764	3.293	3.380	7.302	6.794	0.158	0.166	0.717	1.337	1.518	1.420	3.975
	[1.871]*	[1.886]*	[1.909]*	[1.935]	[1.722]	[1.735]	[2.240]**	[2.258]**	[1.236]	[1.249]	[1.347]	[1.387]	[1.304]	[1.305]	[2.141]
control variables for LG revenues:															
per capita local personal income tax base	0.015	0.018	0.046	0.064	0.009	0.010	0.033	0.089	-0.023	-0.022	-0.009	0.038	-0.007	-0.006	-0.027
	[0.015]	[0.015]	[0.016]**	[0.013]**	[0.013]	[0.013]	[0.021]	[0.010]**	[0.007]**	[0.007]**	[0.011]	[0.007]**	[0.004]	[0.004]	[0.005]**
per capita capital grants received	1.536	1.535	1.829	1.778	1.497	1.507	1.690	1.611	1.440	1.442	1.983	2.026	1.282	1.282	1.718
	[0.201]**	[0.200]**	[0.248]**	[0.262]**	[0.129]**	[0.130]**	[0.140]**	[0.160]**	[0.127]**	[0.128]**	[0.163]**	[0.176]**	[0.056]**	[0.056]**	[0.066]**
per capita municipal investment income	0.425	0.422			0.378	0.373			0.713	0.711			0.947	0.947	
	[0.129]**	[0.130]**			[0.157]*	[0.156]*			[0.071]**	[0.072]**			[0.049]**	[0.049]**	
per capita municipal current own income	0.412	0.404			0.317	0.317			0.636	0.633			0.414	0.415	
	[0.059]**	[0.057]**			[0.055]**	[0.055]**			[0.078]**	[0.078]**			[0.070]**	[0.070]**	
% of own (current+capital) resources in LG budget (decentr. measure)			39.948				89.432				90.242				156.997
			[14.875]**				[26.365]**				[13.271]**				[8.894]**
controls for need:															
indicator of local infrastructure endowment	-29.743	-29.743	8.641	12.660	-2.319	-1.776	14.976	17.130	-6.141	-5.804	3.711	11.726	-3.962	-4.440	5.122
	[13.138]*	[13.162]*	[12.143]	[13.289]	[8.436]	[8.420]	[9.267]	[10.131]	[4.255]	[4.248]	[4.637]	[4.748]*	[2.103]	[2.097]*	[2.149]*
share of young population	9.117	13.536			-22.206	-24.379			105.239	102.950			14.649	16.090	
	[57.176]	[56.577]			[62.027]	[61.183]			[32.329]**	[32.616]**			[11.270]	[11.278]	
share of old population	167.323	179.421	227.483	240.519	73.388	79.148	-51.477	-13.020	32.464	32.983	-8.414	31.182	43.948	44.659	33.838
	[76.347]*	[75.819]*	[58.949]**	[59.845]**	[52.962]	[53.031]	[65.658]	[63.834]	[25.399]	[25.628]	[22.931]	[20.862]	[9.422]**	[9.426]**	[9.770]**
population	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.001	-0.001	-0.001	-0.001	-0.000	-0.000	-0.002	-0.002	-0.005
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]	[0.000]	[0.000]**	[0.000]**	[0.000]**
Constant	-17.710	-19.373	-57.847	-59.527	3.235	5.317	-2.753	-6.888	-19.854	-15.227	-0.567	-6.324	-1.521	0.915	-0.944
	[28.751]	[28.984]	[13.562]**	[14.137]**	[25.848]	[26.082]	[12.160]	[12.358]	[12.431]	[12.624]	[5.994]	[5.839]	[4.743]	[4.766]	[2.463]
Observations	253	253	253	253	744	744	744	744	2885	2885	2885	2885	30227	30227	30362
R-squared	**0.47**	**0.47**	**0.40**	**0.38**	**0.66**	**0.66**	**0.50**	**0.46**	**0.77**	**0.77**	**0.64**	**0.62**	**0.83**	**0.83**	**0.70**
Number of LGs	CEU Cluster														

Robust standard errors in brackets
* significant at 5%; ** significant at 1%

Tables for Chapter VII.

Table 7.4: Regression results for local investments and election cycles by size categories - Panel FE

dep.var.: per capita municipal investment expenditures	Panel FE														
	cities above 40000				cities between 15-40000				between 4-15000				under 4000		
political variables of interest:															
election year	3.659		4.655	4.703	5.716		6.515	7.035	6.187		8.006	8.331	2.848		1.455
	[2.174]		[2.208]*	[2.199]*	[1.873]**		[2.163]**	[2.213]**	[1.089]**		[1.333]**	[1.366]**	[0.538]**		[0.695]*
year before elections	0.527		1.578	1.651	0.102		1.043	2.143	0.416		1.229	3.560	2.571		0.700
	[2.240]		[2.253]	[2.236]	[1.881]		[2.182]	[2.227]	[1.117]		[1.366]	[1.385]*	[0.537]**		[0.699]
distance from next election year		-1.033				-1.666				-1.670				-0.721	
		[0.791]				[0.671]*				[0.390]**				[0.191]**	
mayor political color same as central government	1.627	1.638	1.097	0.984	5.892	6.131	10.034	9.362	1.342	1.346	2.723	3.957	2.040	1.936	4.359
	[2.115]	[2.121]	[2.190]	[2.157]	[1.874]**	[1.883]**	[2.126]**	[2.175]**	[1.521]	[1.526]	[1.866]	[1.909]*	[1.414]	[1.415]	[1.837]*
control variables for LG revenues:															
per capita local personal income tax base	0.014	0.017	0.064	0.065	0.052	0.055	0.069	0.096	-0.001	0.003	0.065	0.083	0.023	0.026	0.037
	[0.027]	[0.027]	[0.020]**	[0.020]**	[0.018]**	[0.018]**	[0.020]**	[0.020]**	[0.011]	[0.011]	[0.013]**	[0.013]**	[0.006]**	[0.006]**	[0.007]**
per capita capital grants received	1.615	1.615	1.799	1.796	1.443	1.450	1.607	1.605	1.403	1.406	1.937	1.987	1.279	1.279	1.694
	[0.214]**	[0.214]**	[0.215]**	[0.214]**	[0.070]**	[0.070]**	[0.080]**	[0.081]**	[0.029]**	[0.030]**	[0.031]**	[0.031]**	[0.006]**	[0.006]**	[0.007]**
per capita municipal investment income	0.344	0.338			0.340	0.336			0.652	0.648			0.922	0.922	
	[0.126]**	[0.126]**			[0.029]**	[0.029]**			[0.025]**	[0.025]**			[0.007]**	[0.007]**	
per capita municipal current own income	0.348	0.335			0.367	0.370			0.905	0.903			0.445	0.447	
	[0.118]**	[0.119]**			[0.046]**	[0.046]**			[0.035]**	[0.035]**			[0.010]**	[0.010]**	
% of own (current+capital) resources in LG budget (decentr. measure)			5.622				91.664				90.678				174.344
			[17.819]				[15.806]**				[7.892]**				[3.690]**
controls for need:															
indicator of local infrastructure endowment	29.114	31.321	20.603	19.796	-1.055	0.345	-0.084	20.182	-18.827	-18.266	-16.842	-6.655	-14.110	-15.093	4.217
	[34.826]	[34.819]	[35.273]	[35.109]	[15.391]	[15.388]	[17.137]	[17.185]	[6.470]**	[6.485]**	[6.962]*	[7.078]	[2.325]**	[2.313]**	[2.952]
share of young population	92.318	106.677			-144.041	-138.935			-111.264	-127.414			22.999	25.970	
	[129.807]	[129.152]			[107.622]	[107.889]			[59.461]	[59.042]*			[14.315]	[14.308]	
share of old population	224.527	258.284	147.478	158.677	-160.184	-135.977	-69.238	-57.033	6.111	-10.256	107.447	160.157	107.780	109.246	61.772
	[260.217]	[256.224]	[147.176]	[142.540]	[195.108]	[195.227]	[142.511]	[145.955]	[95.303]	[95.458]	[95.649]	[97.920]	[15.588]**	[15.591]**	[18.758]**
population	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.002	-0.002	-0.004	-0.004	-0.009	-0.007	-0.004	-0.004	-0.020
	[0.001]*	[0.001]*	[0.001]*	[0.001]*	[0.001]	[0.001]	[0.001]	[0.002]	[0.002]*	[0.002]*	[0.002]**	[0.002]**	[0.005]	[0.005]	[0.006]**
Constant	30.747	21.419	66.672	66.341	66.237	62.658	21.268	12.707	49.870	59.547	33.468	17.380	-19.106	-17.775	-10.193
	[92.380]	[91.552]	[70.655]	[70.504]	[63.714]	[63.751]	[46.648]	[47.757]	[30.280]	[30.350]*	[23.183]	[23.717]	[7.765]*	[7.784]*	[8.402]
Observations	253	253	253	253	744	744	744	744	2885	2885	2885	2885	30227	30227	30362
R-squared	**0.44**	**0.44**	**0.40**	**0.40**	**0.60**	**0.60**	**0.47**	**0.44**	**0.76**	**0.76**	**0.64**	**0.62**	**0.82**	**0.82**	**0.70**
Number of LGs	23	23	23	23	72	72	72	72	281	281	281	281	2791	2791	2790

Robust standard errors in brackets

* significant at 5% ; ** significant at 1%

Tables for Chapter VII.

Table 7.5: Regression results for local investments and election cycles by categories of % of own revenues in LG budgets (a measure of fiscal decentralization)

dep.var.:per capita municipal investment expenditure	**-1**	**-2**	**-3**	**-4**	**-5**	**-6**	**-7**	**-8**	**-9**	**-10**	**-11**	**-12**	**-13**	**-14**	**-15**
	Pooled OLS														
political variables of interest:	**own revenues above 40%**				**own revenues between 20-40%**				**own revenues between 10-20%**				**own revenues under 10%**		
election year	5.154		11.776	6.251	4.070		4.860	4.272	2.036		4.108	4.217	0.166		4.966
	[3.957]		[7.090]	[7.296]	[0.825]**		[1.184]**	[1.195]**	[0.633]**		[0.601]**	[0.602]**	[1.250]		[1.068]**
year before elections	-2.788		-7.180	-14.279	0.010		-1.675	-1.875	2.934		5.438	5.594	1.616		6.786
	[3.555]		[6.329]	[6.471]*	[0.809]		[1.128]	[1.138]	[0.599]**		[0.659]**	[0.659]**	[1.325]		[1.167]**
distance from next election year		-0.985				-1.052				-0.874				0.037	
		[1.386]				[0.310]**				[0.207]**				[0.462]	
mayor political color same as central government	-6.203	-6.595	0.961	2.241	-1.144	-1.100	3.090	2.966	-1.318	-1.387	0.683	0.692	3.625	3.622	2.068
	[3.877]	[3.930]	[10.028]	[11.157]	[1.600]	[1.605]	[2.280]	[2.290]	[1.021]	[1.031]	[0.899]	[0.899]	[1.970]	[1.972]	[1.970]
controls for LG revenues:															
per capita local personal income tax base	-0.028	-0.027	-0.101	-0.063	-0.010	-0.009	-0.019	-0.009	-0.003	-0.002	0.007	0.009	-0.010	-0.010	0.025
	[0.015]	[0.015]	[0.023]**	[0.024]**	[0.005]	[0.005]	[0.007]**	[0.007]	[0.005]	[0.005]	[0.005]	[0.005]	[0.007]	[0.007]	[0.007]**
per capita capital grants received	1.081	1.080	2.080	2.088	1.082	1.081	1.831	1.839	1.219	1.218	1.832	1.833	1.030	1.030	1.181
	[0.079]**	[0.079]**	[0.117]**	[0.121]**	[0.078]**	[0.078]**	[0.112]**	[0.113]**	[0.120]**	[0.120]**	[0.118]**	[0.118]**	[0.040]**	[0.039]**	[0.034]**
per capita municipal investment income	0.989	0.990			1.398	1.401			2.064	2.065			3.898	3.898	
	[0.065]**	[0.065]**			[0.092]**	[0.092]**			[0.282]**	[0.282]**			[0.983]**	[0.982]**	
per capita municipal current own income	0.338	0.339			0.780	0.780			1.396	1.401			2.881	2.890	
	[0.083]**	[0.083]**			[0.074]**	[0.074]**			[0.222]**	[0.221]**			[0.414]**	[0.411]**	
% of own (current+capital) resources in LG budget			501.179				121.986				31.834				-54.011
			[70.405]**				[10.870]**				[9.568]**				[24.653]*
controls for need:															
indicator of local infrastructure endowment	11.071	10.534	-22.089	-28.475	-2.799	-2.707	5.934	8.991	-0.482	-0.955	-2.113	-1.862	5.056	4.839	-0.539
	[11.520]	[11.569]	[15.395]	[16.161]	[2.446]	[2.428]	[3.188]	[3.216]**	[1.903]	[1.942]	[2.192]	[2.179]	[2.733]	[2.721]	[3.244]
share of young population	49.373	44.311			20.457	20.524			-26.063	-24.855			-27.592	-27.477	
	[86.732]	[86.367]			[18.473]	[18.320]			[18.332]	[18.394]			[16.879]	[16.956]	
share of old population	28.365	26.797	74.140	85.840	11.983	12.890	74.828	83.298	-2.596	-2.064	31.866	31.880	15.575	15.626	71.827
	[50.123]	[50.003]	[50.573]	[51.650]	[11.630]	[11.618]	[16.684]**	[16.617]**	[10.986]	[11.028]	[8.890]**	[8.893]**	[13.444]	[13.460]	[13.942]**
population	0.000	0.000	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.001	-0.001	-0.000	-0.000	-0.003	-0.003	-0.000
	[0.000]	[0.000]	[0.000]*	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]*	[0.000]**	[0.000]**	[0.000]	[0.000]	[0.000]**	[0.000]**	[0.000]
Constant	-18.729	-15.252	-143.487	99.133	-15.596	-13.722	-19.722	6.646	-5.057	-2.855	2.091	6.080	-4.535	-4.154	-2.229
	[33.083]	[33.581]	[36.502]**	[19.072]**	[6.474]*	[6.601]*	[5.426]**	[5.380]	[5.629]	[5.644]	[2.683]	[2.390]*	[6.552]	[6.444]	[3.400]
Observations	1954	1954	1962	1968	8953	8953	8990	8990	13469	13469	13501	13501	9733	9733	9791
R-squared	**0.91**	**0.91**	**0.71**	**0.67**	**0.89**	**0.89**	**0.80**	**0.79**	**0.85**	**0.84**	**0.75**	**0.75**	**0.68**	**0.68**	**0.56**
Number of LGs															

Robust standard errors in brackets

* significant at 5%; ** significant at 1%

Tables for Chapter VII.

Table 7.6: Regression results for local investments and election cycles by categories of % of own revenues in LG budgets (a measure of fiscal decentralization)

dep.var.:per capita municipal investment	**-17**	**-18**	**-19**	**-20**	**-21**	**-22**	**-23**	**-24**	**-25**	**-26**	**-27**	**-28**	**-29**	**-30**	**-31**	**-32**
	Panel FE															
political variables of	**own revenues above 40%**				**own revenues between 20-40%**				**own revenues between 10-20%**				**own revenues under 10%**			
election year	1.976		8.250	5.877	3.026		4.647	4.572	0.262		3.591	3.752	-0.369		4.833	4.418
	[3.881]		[5.677]	[5.856]	[0.794]**		[1.035]**	[1.040]**	[0.468]		[0.622]**	[0.620]**	[0.899]		[1.004]**	[0.999]**
year before elections	-3.696		-0.193	-1.025	-0.846		1.111	1.338	-0.104		3.935	4.166	0.366		5.265	4.801
	[4.089]		[5.884]	[6.076]	[0.786]		[1.027]	[1.032]	[0.471]		[0.627]**	[0.623]**	[0.914]		[1.032]**	[1.025]**
distance from next		-0.177				-0.695				-0.122				0.358		
		[1.390]				[0.291]*				[0.170]				[0.308]		
mayor political color same as central government	-5.779	-5.817	-0.313	3.573	1.405	1.493	2.682	2.769	1.617	1.637	1.132	1.051	4.967	4.990	0.900	1.244
	[7.534]	[7.536]	[11.107]	[11.462]	[1.444]	[1.446]	[1.895]	[1.904]	[1.121]	[1.121]	[1.496]	[1.497]	[2.354]*	[2.354]*	[2.653]	[2.653]
controls for LG revenues:																
per capita local personal income tax base	0.038	0.038	-0.015	0.002	-0.009	-0.006	0.064	0.067	-0.028	-0.028	0.059	0.060	-0.015	-0.015	0.068	0.067
	[0.031]	[0.031]	[0.046]	[0.048]	[0.007]	[0.007]	[0.009]**	[0.010]**	[0.005]**	[0.005]**	[0.007]**	[0.006]**	[0.011]	[0.011]	[0.012]**	[0.012]**
per capita capital grants received	1.127	1.124	1.998	2.013	0.983	0.984	1.861	1.868	0.980	0.981	1.864	1.864	1.033	1.033	1.150	1.154
	[0.051]**	[0.050]**	[0.064]**	[0.066]**	[0.016]**	[0.016]**	[0.013]**	[0.013]**	[0.012]**	[0.012]**	[0.009]**	[0.009]**	[0.011]**	[0.011]**	[0.012]**	[0.012]**
per capita municipal investment income	0.893	0.893			1.429	1.429			2.814	2.813			3.057	3.059		
	[0.024]**	[0.024]**			[0.023]**	[0.023]**			[0.035]**	[0.035]**			[0.148]**	[0.148]**		
per capita municipal current own income	0.310	0.311			1.084	1.083			2.159	2.157			3.422	3.435		
	[0.028]**	[0.028]**			[0.024]**	[0.024]**			[0.027]**	[0.027]**			[0.084]**	[0.084]**		
% of own (current+capital) resources in LG budget			293.173				77.399				32.961				-85.745	
			[33.135]**				[9.613]**				[10.247]**				[22.186]**	
controls for need:																
indicator of local infrastructure endowment	24.098	23.072	23.904	45.678	-10.126	-9.566	3.401	7.991	-12.992	-12.758	-12.897	-12.840	5.074	4.942	-14.386	-13.197
	[23.083]	[23.052]	[33.006]	[33.992]	[3.926]**	[3.916]*	[4.913]	[4.904]	[2.143]**	[2.125]**	[2.668]**	[2.669]**	[4.103]	[4.099]	[4.475]**	[4.467]**
share of young population	264.029	236.008			-6.412	-8.018			-16.491	-16.938			-54.905	-55.574		
	[143.486]	[141.583]			[18.184]	[18.177]			[16.317]	[16.295]			[24.308]*	[24.301]*		
share of old population	249.839	226.818	295.499	364.880	112.170	113.651	188.491	192.419	-27.066	-27.062	37.558	37.926	-10.127	-10.461	87.813	83.739
	[169.179]	[167.758]	[209.924]	[216.647]	[30.569]**	[30.606]**	[37.113]**	[37.289]**	[16.158]	[16.152]	[19.682]	[19.690]	[24.303]	[24.298]	[24.587]**	[24.584]**
population	-0.004	-0.004	-0.007	-0.003	-0.000	-0.000	-0.001	-0.001	-0.001	-0.001	-0.010	-0.011	0.012	0.013	0.023	0.022
	[0.005]	[0.005]	[0.008]	[0.008]	[0.001]	[0.001]	[0.001]	[0.001]	[0.002]	[0.002]	[0.003]**	[0.003]**	[0.010]	[0.010]	[0.012]*	[0.012]
Constant	-112.811	-102.354	-112.074	-24.310	-35.239	-34.873	-51.009	-34.196	-2.634	-2.362	10.786	15.033	-5.752	-6.471	-25.594	-29.555
	[65.941]	[65.680]	[65.049]	[66.329]	[9.963]**	[9.984]**	[10.764]**	[10.610]**	[7.530]	[7.549]	[7.409]	[7.294]*	[12.871]	[12.890]	[11.759]*	[11.721]*
Observations	1954	1954	1962	1968	8953	8953	8990	8990	13469	13469	13501	13501	9733	9733	9791	9794
R-squared	**0.76**	**0.76**	**0.49**	**0.45**	**0.87**	**0.87**	**0.78**	**0.77**	**0.88**	**0.88**	**0.79**	**0.79**	**0.65**	**0.66**	**0.56**	**0.56**
Number of LGs	790	790	793	799	2376	2376	2382	2382	2805	2805	2807	2807	2148	2148	2149	2149

Robust standard errors in brackets
* significant at 5%; ** significant at 1%

Tables for Chapter VII.

Table 7.7: Election cycles in per capita municipal investment - among those who received central investment grants

dep-var.: per capita municipal investment expenditures	**-1**	**-2**	**-3**	**-4**	**-5**	**-6**	**-7**	**-8**
	Pooled OLS				**Panel FE**			
political variables of interest:								
election year	5.035		1.290	-0.636	4.696		0.455	1.524
	[1.397]**		[1.887]	[2.045]	[1.489]**		[1.973]	[2.042]
year before elections	4.972		1.973	4.235	4.011		1.126	3.437
	[1.770]**		[2.255]	[2.322]	[1.560]*		[2.061]	[2.130]
distance from next election year		-1.627				-1.419		
		[0.526]**				[0.534]**		
mayor political color same as central government	-1.889	-2.113	-2.195	-0.883	3.278	3.133	4.860	6.004
	[2.097]	[2.115]	[2.538]	[2.592]	[2.446]	[2.447]	[3.233]	[3.347]
controls for LG revenue:								
per capita local personal income tax base	-0.023	-0.021	-0.062	0.018	0.021	0.026	0.027	0.079
	[0.014]	[0.013]	[0.012]**	[0.009]	[0.016]	[0.016]	[0.022]	[0.022]**
per capita capital grants received	1.278	1.278	1.694	1.720	1.232	1.232	1.628	1.655
	[0.050]**	[0.050]**	[0.073]**	[0.075]**	[0.012]**	[0.012]**	[0.012]**	[0.013]**
per capita municipal investment income	0.911	0.910			0.824	0.823		
	[0.069]**	[0.069]**			[0.016]**	[0.016]**		
per capita municipal current own income	0.407	0.408			0.496	0.497		
	[0.093]**	[0.093]**			[0.023]**	[0.023]**		
% of own (current+capital) resources in LG budget			201.150				202.353	
			[15.051]**				[11.342]**	
controls for need:								
indicator of local infrastructure endowment	-2.604	-3.632	19.820	51.327	-4.732	-6.033	17.911	45.079
	[4.602]	[4.453]	[5.918]**	[6.420]**	[7.700]	[7.623]	[9.352]	[9.556]**
share of young population	16.361	20.271			65.529	76.546		
	[41.288]	[40.944]			[62.087]	[61.732]		
share of old population	21.434	23.967	-35.725	-30.776	21.020	23.964	-69.840	23.494
	[37.840]	[37.715]	[38.174]	[39.670]	[83.998]	[84.011]	[95.231]	[98.471]
population	-0.000	-0.000	-0.000	-0.000	-0.002	-0.002	-0.002	-0.002
	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.001]	[0.001]	[0.002]	[0.002]
Constant	8.510	12.229	3.151	3.918	-1.533	-0.954	-1.972	-10.581
	[18.311]	[18.418]	[9.753]	[10.202]	[29.719]	[29.753]	[25.199]	[26.092]
Observations	6435	6435	6454	6454	6435	6435	6454	6454
R-squared	**0.91**	**0.91**	**0.84**	**0.82**	**0.89**	**0.89**	**0.81**	**0.80**
Number of ksh					2057	2057	2066	2066

Robust standard errors in brackets
* significant at 5%; ** significant at 1%

Tables for Chapter VII.

Table 7.8: Probability models for receiving central investment grants and political colors - Linear Probability Model

Dep var: received targeted and adressed investment grants from central govt.	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12	-13	-14	-15	-16	-17	-18	-19	-20	-21	-22	-23	-24	-25	-26
political variables of major interest:	**LPM-Pooled OLS**						**with decentr measure**						**controls for need**						**incl. region dummies**				**LPM-without controls**			
local government political color same as central (abs.or rel. majority)	0.075 [0.010]**	0.075 [0.010]**	0.075 [0.010]**				0.097 [0.010]**	0.097 [0.010]**	0.097 [0.010]**				0.069 [0.009]**	0.070 [0.009]**	0.069 [0.009]**				0.062 [0.010]**	0.062 [0.010]**			0.119 [0.010]**	0.119 [0.010]**		
local government political color same as central (abs. majority)				0.105 [0.026]**	0.105 [0.026]**	0.105 [0.026]**				0.204 [0.029]**	0.204 [0.029]**	0.204 [0.029]**				0.098 [0.026]**	0.099 [0.026]**	0.099 [0.026]**			0.095 [0.026]**	0.096 [0.026]**			0.228 [0.030]**	0.228 [0.030]**
mayor political color same as central government	0.084 [0.015]**	0.084 [0.015]**	0.084 [0.015]**	0.100 [0.015]**	0.100 [0.015]**	0.100 [0.015]**	0.142 [0.016]**	0.142 [0.016]**	0.142 [0.016]**	0.147 [0.016]**	0.146 [0.016]**	0.146 [0.016]**	0.080 [0.015]**	0.080 [0.015]**	0.080 [0.015]**	0.094 [0.015]**	0.094 [0.015]**	0.094 [0.015]**	0.078 [0.015]**	0.078 [0.015]**	0.087 [0.015]**	0.087 [0.015]**	0.157 [0.017]**	0.157 [0.017]**	0.169 [0.017]**	0.169 [0.017]**
election year	0.026 [0.005]**			0.025 [0.005]**			0.023 [0.005]**			0.023 [0.005]**			0.026 [0.005]**			0.026 [0.005]**			0.026 [0.005]**		0.025 [0.005]**		0.031 [0.005]**		0.031 [0.005]**	
year before elections		-0.033 [0.003]**			-0.032 [0.003]**			-0.034 [0.003]**			-0.034 [0.003]**			-0.033 [0.003]**			-0.033 [0.003]**			-0.033 [0.003]**			-0.032 [0.003]**		-0.031 [0.003]**
distance from next election year			0.001 [0.002]			0.000 [0.002]			0.002 [0.002]			0.002 [0.002]			0.001 [0.002]			0.001 [0.002]								
control variables:																										
indicator of local infrastructure endowment	0.124 [0.018]**	0.128 [0.018]**	0.127 [0.018]**	0.139 [0.018]**	0.143 [0.018]**	0.142 [0.018]**	0.170 [0.021]**	0.172 [0.021]**	0.173 [0.021]**	0.182 [0.022]**	0.184 [0.022]**	0.185 [0.021]**	0.083 [0.019]**	0.085 [0.019]**	0.086 [0.019]**	0.092 [0.019]**	0.094 [0.019]**	0.095 [0.019]**	0.077 [0.019]**	0.079 [0.019]**	0.086 [0.019]**	0.088 [0.019]**				
per capita local personal income tax base,2003prices	-0.000 [0.000]**	-0.000 [0.000]**	-0.000 [0.000]**	-0.000 [0.000]**	-0.000 [0.000]**	-0.000 [0.000]**																				
population	0.000 [0.000]**	0.000 [0.000]**	0.000 [0.000]**	0.000 [0.000]**	0.000 [0.000]**	0.000 [0.000]**																				
per capita municipal current own income	0.001 [0.000]**	0.001 [0.000]**	0.001 [0.000]**	0.001 [0.000]**	0.001 [0.000]**	0.001 [0.000]**																				
per capita municipal investment income	0.001 [0.000]**	0.001 [0.000]**	0.001 [0.000]**	0.001 [0.000]**	0.001 [0.000]**	0.001 [0.000]**																				
% of own (current+capital) resources in budget (decentralization measure)							0.237 [0.055]**	0.242 [0.056]**	0.238 [0.055]**	0.244 [0.057]**	0.249 [0.058]**	0.246 [0.057]**	0.232 [0.053]**	0.237 [0.054]**	0.234 [0.053]**	0.239 [0.055]**	0.244 [0.055]**	0.241 [0.055]**	0.230 [0.054]**	0.235 [0.055]**	0.236 [0.055]**	0.242 [0.056]**				
other need indicators:																										
indicator of local education demand													0.000 [0.000]**	0.000 [0.000]**	0.000 [0.000]**	0.000 [0.000]**	0.000 [0.000]**	0.000 [0.000]**	0.000 [0.000]**	0.000 [0.000]**	0.000 [0.000]**	0.000 [0.000]*				
indicator of local health service demand													0.000 [0.000]**	0.000 [0.000]**	0.000 [0.000]**	0.000 [0.000]**	0.000 [0.000]**	0.000 [0.000]**	0.000 [0.000]**	0.000 [0.000]**	0.000 [0.000]**	0.000 [0.000]**				
indicator of local social service demand													0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]				
share of young population													0.235 [0.084]**	0.232 [0.084]**	0.235 [0.084]**	0.236 [0.086]**	0.233 [0.085]**	0.236 [0.085]**	0.087 [0.082]	0.082 [0.082]	0.078 [0.083]	0.073 [0.083]				
share of old population													-0.335 [0.063]**	-0.338 [0.063]**	-0.336 [0.063]**	-0.368 [0.064]**	-0.371 [0.064]**	-0.369 [0.064]**	-0.394 [0.065]**	-0.396 [0.065]**	-0.425 [0.066]**	-0.427 [0.066]**				
region dummies:																										
Central Transdanubia																			-0.003 [0.012]	-0.002 [0.012]	-0.004 [0.012]	-0.004 [0.012]				
Western Transdanubia																			-0.062 [0.011]**	-0.061 [0.011]**	-0.064 [0.011]**	-0.064 [0.011]**				
Southern Transdanubia																			-0.031 [0.011]**	-0.030 [0.011]**	-0.031 [0.011]**	-0.031 [0.011]**				
Northern Hungary																			0.006 [0.011]	0.006 [0.011]	0.009 [0.011]	0.010 [0.011]				
Northern Plain																			0.024 [0.013]	0.025 [0.013]	0.029 [0.013]*	0.030 [0.013]*				
Southern Plain																			0.002 [0.015]	0.002 [0.015]	0.010 [0.015]	0.010 [0.015]				
Constant	0.033 [0.009]**	0.044 [0.009]**	0.036 [0.009]**	0.036 [0.009]**	0.048 [0.009]**	0.039 [0.009]**	-0.014 [0.008]	-0.003 [0.008]	-0.013 [0.009]	-0.010 [0.008]	0.001 [0.008]	-0.010 [0.009]	0.047 [0.034]	0.060 [0.034]	0.050 [0.034]	0.057 [0.035]	0.070 [0.034]*	0.060 [0.035]	0.108 [0.036]**	0.120 [0.036]**	0.118 [0.037]**	0.130 [0.037]**	0.106 [0.003]**	0.120 [0.003]**	0.120 [0.003]**	0.134 [0.003]**
Observations	28076	28076	28076	28076	28076	28076	28074	28074	28074	28074	28074	28074	27929	27929	27929	27929	27929	27929	27929	27929	27929	27929	28077	28077	28077	28077
R-squared	0.13	0.13	0.12	0.12	0.12	0.12	0.07	0.07	0.06	0.06	0.06	0.06	0.12	0.12	0.12	0.12	0.12	0.11	0.12	0.12	0.12	0.12	0.04	0.04	0.04	0.04
Number of ksh																										

Robust standard errors in brackets
* significant at 5%; ** significant at 1%

Tables for Chapter VII.

Table 7.9: Probability models for receiving central investment grants and political colors - Linear Probability Model - Panel FE estimations

Dep var: received targeted and adressed investment grants from central govt.	-27	-28	-29	-30	-31	-32	-33	-34	-35	-36	-37	-38	-39	-40	-41	-42	-43	-44	-45	-46	-47	-48	-49	-50
political variables of major interest:	**LPM - Fixed effects Panel estimation**						**with decentr. measure**						**controls for need**						**without controls**					
local government political color same as central (abs.or rel. majority)	0.010	0.010	0.010				0.008	0.008	0.008				0.006	0.007	0.006				0.005	0.006	0.006			
	[0.007]	[0.007]	[0.007]				[0.007]	[0.007]	[0.007]				[0.007]	[0.007]	[0.007]				[0.007]	[0.007]	[0.007]			
local government political color same as central (abs. majority)				0.071	0.072	0.072				0.075	0.076	0.075				0.066	0.068	0.067				0.077	0.078	0.077
				[0.016]**	[0.016]**	[0.017]**				[0.017]**	[0.017]**	[0.017]**				[0.017]**	[0.017]**	[0.017]**				[0.017]**	[0.017]**	[0.017]**
mayor political color same as central government	0.032	0.032	0.032	0.024	0.025	0.025	0.036	0.037	0.036	0.027	0.028	0.027	0.035	0.035	0.035	0.027	0.027	0.027	0.038	0.038	0.038	0.027	0.028	0.028
	[0.010]**	[0.010]**	[0.010]**	[0.010]*	[0.010]*	[0.010]*	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**
election year	0.040			0.040			0.041			0.041			0.040			0.040			0.032			0.032		
	[0.004]**			[0.004]**			[0.004]**			[0.004]**			[0.004]**			[0.004]**			[0.004]**			[0.004]**		
year before elections		-0.034			-0.034			-0.031			-0.031			-0.030			-0.030			-0.031			-0.031	
		[0.004]**			[0.004]**			[0.004]**			[0.004]**			[0.004]**			[0.004]**			[0.004]**			[0.004]**	
distance from next election year			-0.002			-0.002			-0.004			-0.004			-0.004			-0.003			-0.002			-0.002
			[0.002]			[0.002]			[0.002]*			[0.002]*			[0.002]*			[0.002]*			[0.002]			[0.002]
control variables:																								
indicator of local infrastructure endowment	-0.243	-0.218	-0.228	-0.243	-0.218	-0.228	-0.314	-0.291	-0.294	-0.313	-0.290	-0.293	-0.286	-0.267	-0.268	-0.285	-0.266	-0.268						
	[0.023]**	[0.023]**	[0.023]**	[0.023]**	[0.023]**	[0.023]**	[0.020]**	[0.020]**	[0.020]**	[0.020]**	[0.020]**	[0.020]**	[0.021]**	[0.021]**	[0.021]**	[0.021]**	[0.021]**	[0.021]**						
per capita local personal income tax base,2003prices	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000																		
	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**																		
population	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000																		
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]																		
per capita municipal current own income	0.001	0.001	0.001	0.001	0.001	0.001																		
	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**																		
per capita municipal investment income	0.001	0.001	0.001	0.001	0.001	0.001																		
	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**																		
% of own (current+capital) resources in budget (decentralization measure)							0.030	0.041	0.031	0.031	0.042	0.032	0.043	0.053	0.044	0.043	0.054	0.044						
							[0.018]	[0.018]*	[0.018]	[0.018]	[0.018]*	[0.018]	[0.019]*	[0.019]**	[0.019]*	[0.019]*	[0.019]**	[0.019]*						
other need indicators:																								
indicator of local education demand													0.000	0.000	0.000	0.000	0.000	0.000						
													[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]*	[0.000]*						
indicator of local health service demand													-0.000	-0.000	-0.000	-0.000	-0.000	-0.000						
													[0.000]*	[0.000]*	[0.000]*	[0.000]**	[0.000]**	[0.000]*						
indicator of local social service demand													-0.000	-0.000	-0.000	-0.000	-0.000	-0.000						
													[0.000]**	[0.000]*	[0.000]**	[0.000]*	[0.000]*	[0.000]*						
share of young population													0.951	0.904	0.926	0.942	0.895	0.917						
													[0.126]**	[0.127]**	[0.127]**	[0.126]**	[0.126]**	[0.127]**						
share of old population													-0.137	-0.168	-0.129	-0.137	-0.168	-0.129						
													[0.148]	[0.148]	[0.148]	[0.148]	[0.148]	[0.148]						
region dummies:																								
Central Transdanubia																								
Western Transdanubia																								
Southern Transdanubia																								
Northern Hungary																								
Northern Plain																								
Southern Plain																								
Constant	0.363	0.370	0.365	0.365	0.372	0.367	0.283	0.286	0.289	0.283	0.285	0.288	0.084	0.105	0.094	0.086	0.108	0.096	0.134	0.148	0.145	0.134	0.148	0.144
	[0.027]**	[0.027]**	[0.027]**	[0.027]**	[0.027]**	[0.027]**	[0.010]**	[0.010]**	[0.011]**	[0.010]**	[0.010]**	[0.011]**	[0.052]	[0.052]*	[0.052]	[0.052]	[0.052]*	[0.052]	[0.002]**	[0.002]**	[0.003]**	[0.002]**	[0.002]**	[0.003]**
Observations	28076	28076	28076	28076	28076	28076	28074	28074	28074	28074	28074	28074	27929	27929	27929	27929	27929	27929	28077	28077	28077	28077	28077	28077
R-squared	0.03	0.03	0.03	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Number of ksh	3130	3130	3130	3130	3130	3130	3129	3129	3129	3129	3129	3129	3129	3129	3129	3129	3129	3129	3130	3130	3130	3130	3130	3130

Robust standard errors in brackets
* significant at 5%; ** significant at 1%

Tables for Chapter VII.

Table 7.10: Probability models for receiving central investment grants and political colors - Pooled Probit estimations -Marginal Effects

Dep var: received targeted and adressed investment grants from central govt.	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12	-13	-14	-15	-16	-17	-18	-19	-20	-21	-22	-23	-24	-25	-26
	Pooled Probit - Marginal Effects						**with decentr. measure**						**controls for need**						**Probit-incl. region dummies**				**without controls**			
political variables of major interest:																										
local government political color same as central (abs.or rel. majority)	0,064	0,064	0,064				0,09	0,09	0,09				0,058	0,058	0,058				0,076	0,076			0,117	0,117		
	[0.007]**	[0.007]**	[0.007]**				[0.007]**	[0.007]**	[0.007]**				[0.006]**	[0.006]**	[0.006]**				[0.006]**	[0.006]**			[0.007]**	[0.007]**		
local government political color same as central (abs. majority)				0,063	0,064	0,063				0,164	0,164	0,168				0,059	0,06	0,06			0,154	0,154			0,197	0,198
				[0.016]**	[0.016]**	[0.016]**				[0.018]**	[0.018]**	[0.018]**				[0.016]**	[0.016]**	[0.016]**			[0.018]**	[0.018]**			[0.019]**	[0.019]**
mayor political color same as central government	0,061	0,061	0,061	0,081	0,081	0,081	0,116	0,116	0,116	0,132	0,132	0,136	0,056	0,056	0,056	0,075	0,075	0,075	0,108	0,108	0,116	0,115	0,137	0,137	0,165	0,166
	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.011]**	[0.011]**	[0.011]**	[0.009]**	[0.009]**	[0.009]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.011]**	[0.011]**	[0.011]**	[0.011]**
election year	0,029			0,029			0,026			0,025			0,029			0,029			0,024		0,024		0,032		0,032	
	[0.005]**			[0.005]**			[0.005]**			[0.005]**			[0.005]**			[0.005]**			[0.005]**		[0.005]**		[0.005]**		[0.005]**	
year before elections		-0,037			-0,036			-0,035			-0,035			-0,036			-0,035			-0,035		-0,035		-0,032		-0,032
		[0.005]**			[0.005]**			[0.005]**			[0.005]**			[0.005]**			[0.005]**			[0.004]**		[0.004]**		[0.005]**		[0.005]**
distance from next election year			0			0			0,001			0,001			0			0								
			[0.002]			[0.002]			[0.002]			[0.002]			[0.002]			[0.002]								
control variables:																										
indicator of local infrastructure endowment	0,132	0,137	0,135	0,145	0,151	0,149	0,171	0,173	0,174	0,184	0,186	0,178	0,079	0,082	0,083	0,086	0,089	0,09	0,18	0,182	0,192	0,194				
	[0.013]**	[0.013]**	[0.013]**	[0.013]**	[0.013]**	[0.013]**	[0.011]**	[0.011]**	[0.011]**	[0.011]**	[0.011]**	[0.011]**	[0.012]**	[0.012]**	[0.012]**	[0.012]**	[0.012]**	[0.012]**	[0.011]**	[0.011]**	[0.011]**	[0.011]**				
per capita local personal income tax base,2003prices	0	0	0	0	0	0	0																			
	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**																				
population	0	0	0	0	0	0																				
	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**																				
per capita municipal current own income	0,001	0,001	0,001	0,001	0,001	0,001																				
	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**																				
per capita municipal investment income	0	0	0	0	0	0																				
	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**																				
% of own (current+capital) resources in budget (decentralization measure)							0,193	0,197	0,193	0,202	0,207	0,217	0,182	0,187	0,181	0,189	0,194	0,189	0,201	0,206	0,21	0,215				
							[0.013]**	[0.013]**	[0.013]**	[0.013]**	[0.013]**	[0.014]**	[0.014]**	[0.014]**	[0.014]**	[0.014]**	[0.014]**	[0.014]**	[0.013]**	[0.013]**	[0.013]**	[0.013]**				
other need indicators:																										
indicator of local education demand													0	0	0	0	0	0								
													[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**								
indicator of local health service demand													0	0	0	0	0	0								
													[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**								
indicator of local social service demand													0	0	0	0	0	0								
													[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]								
share of young population													0,278	0,277	0,28	0,275	0,275	0,278								
													[0.069]**	[0.069]**	[0.069]**	[0.069]**	[0.069]**	[0.069]**								
share of old population													-0,432	-0,432	-0,43	-0,465	-0,465	-0,463								
													[0.054]**	[0.054]**	[0.054]**	[0.054]**	[0.054]**	[0.054]**								
region dummies:																										
Central Transdanubia																			0,008	0,008	0,007	0,007				
																			[0.008]	[0.008]	[0.008]	[0.008]				
Western Transdanubia																			-0,062	-0,062	-0,065	-0,064				
																			[0.006]**	[0.006]**	[0.006]**	[0.006]**				
Southern Transdanubia																			-0,014	-0,013	-0,012	-0,012				
																			[0.007]*	[0.007]	[0.007]	[0.007]				
Northern Hungary																			0,02	0,021	0,025	0,025				
																			[0.007]**	[0.007]**	[0.008]**	[0.008]**				
Northern Plain																			0,06	0,061	0,068	0,069				
																			[0.009]**	[0.009]**	[0.009]**	[0.009]**				
Southern Plain																			0,033	0,034	0,043	0,044				
																			[0.010]**	[0.010]**	[0.010]**	[0.010]**				
Observations	28076	28076	28076	28076	28076	28076	28074	28074	28074	28074	28074	28074	27929	27929	27929	27929	27929	27929	28074	28074	28074	28074	28077	28077	28077	28077
% correctly classified	86%																									
pseudo R^2																										

Standard errors in brackets
* significant at 5%; ** significant at 1%

Tables for Chapter VII.

Table 7.11: Probability models for receiving central investment grants and political colors - Probit estimations - Panel RE Marginal Effects

Dep var: received targeted and adressed investment grants from central govt.	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12	-13	-14	-15	-16	-17	-18	-19	-20	-21	-22	-23	-24	-25	-26
	Panel Probit - Marginal Effects						**with decentralization measure**						**more controls for need**						**incl. Region dummies**				**without controls**			
political variables of major interest:																										
local government political color same as central (abs.or rel. majority)	0.035		0.036		0.036		0.044		0.045		0.045		0.031	0.031	0.031				0.039	0.039			0.046	0.046		
	[0.006]**		[0.006]**		[0.006]**		[0.007]**		[0.007]**		[0.007]**		[0.006]**	[0.006]**	[0.006]**				[0.006]**	[0.006]**			[0.007]**	[0.007]**		
local government political color same as central (abs. majority)		0.064		0.065		0.064		0.111		0.113		0.112				0.055	0.057	0.056			0.108	0.110			0.109	0.111
		[0.016]**		[0.016]**		[0.016]**		[0.018]**		[0.018]**		[0.018]**				[0.016]**	[0.016]**	[0.016]**			[0.018]**	[0.018]**			[0.018]**	[0.018]**
mayor political color same as central government	0.043	0.048	0.042	0.048	0.043	0.048	0.070	0.071	0.069	0.070	0.070	0.071	0.041	0.041	0.041	0.046	0.046	0.046	0.067	0.066	0.065	0.065	0.069	0.068	0.071	0.070
	[0.009]**	[0.009]**	[0.009]**	[0.009]**	[0.009]**	[0.009]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.009]**	[0.009]**	[0.009]**	[0.009]**	[0.009]**	[0.009]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**	[0.010]**
election year	0.034	0.034					0.034	0.033					0.034			0.034			0.033		0.032		0.036		0.036	
	[0.005]**	[0.005]**					[0.005]**	[0.005]**					[0.005]**			[0.005]**			[0.005]**		[0.005]**		[0.005]**		[0.005]**	
year before elections			-0.037	-0.037					-0.037	-0.037				-0.036			-0.036			-0.037		-0.037		-0.035		-0.035
			[0.004]**	[0.004]**					[0.004]**	[0.004]**				[0.004]**			[0.004]**			[0.004]**		[0.004]**		[0.004]**		[0.004]**
distance from next election year					-0.001	-0.001					-0.001	-0.001			-0.001			-0.001								
					[0.002]	[0.002]					[0.002]	[0.002]			[0.002]			[0.002]								
control variables:																										
indicator of local infrastructure endowment	0.038	0.041	0.050	0.054	0.047	0.050	0.028	0.030	0.037	0.039	0.039	0.042	-0.018	-0.010	-0.008	-0.016	-0.008	-0.006	0.036	0.045	0.040	0.049				
	[0.016]*	[0.016]*	[0.016]**	[0.016]**	[0.016]**	[0.016]**	[0.015]	[0.015]*	[0.015]*	[0.015]**	[0.015]**	[0.015]**	[0.015]	[0.015]	[0.015]	[0.015]	[0.015]	[0.015]	[0.015]*	[0.015]**	[0.015]**	[0.015]**				
per capita local personal income tax base,2003prices	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000																				
	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**																				
population	0.000	0.000	0.000	0.000	0.000	0.000																				
	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**																				
per capita municipal current own income	0.001	0.001	0.001	0.001	0.001	0.001																				
	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**																				
per capita municipal investment income	0.000	0.000	0.000	0.000	0.000	0.000																				
	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**																				
% of own (current+capital) resources in LG budget (decentralization measure)							0.175	0.177	0.186	0.187	0.176	0.178	0.184	0.194	0.185	0.185	0.195	0.186	0.183	0.194	0.185	0.196				
							[0.019]**	[0.019]**	[0.019]**	[0.019]**	[0.019]**	[0.019]**	[0.019]**	[0.019]**	[0.019]**	[0.019]**	[0.019]**	[0.019]**	[0.019]**	[0.019]**	[0.019]**	[0.019]**				
other need indicators:																										
indicator of local education demand													0.000	0.000	0.000	0.000	0.000	0.000								
													[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**								
indicator of local health service demand													0.000	0.000	0.000	0.000	0.000	0.000								
													[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**	[0.000]**								
indicator of local social service demand													-0.000	-0.000	-0.000	-0.000	-0.000	-0.000								
													[0.000]**	[0.000]**	[0.000]**	[0.000]*	[0.000]*	[0.000]*								
share of young population													0.417	0.411	0.413	0.417	0.411	0.413								
													[0.080]**	[0.080]**	[0.080]**	[0.080]**	[0.080]**	[0.080]**								
share of old population													-0.376	-0.376	-0.373	-0.393	-0.393	-0.390								
													[0.066]**	[0.066]**	[0.066]**	[0.066]**	[0.066]**	[0.066]**								
region dummies:																										
Central Transdanubia																			0.008	0.008	0.008	0.008				
																			[0.012]	[0.012]	[0.012]	[0.012]				
Western Transdanubia																			-0.081	-0.081	-0.083	-0.082				
																			[0.009]**	[0.009]**	[0.009]**	[0.009]**				
Southern Transdanubia																			-0.026	-0.024	-0.026	-0.024				
																			[0.010]*	[0.010]*	[0.010]*	[0.010]*				
Northern Hungary																			0.020	0.021	0.022	0.024				
																			[0.012]	[0.012]	[0.012]	[0.012]*				
Northern Plain																			0.059	0.062	0.062	0.065				
																			[0.014]**	[0.014]**	[0.015]**	[0.015]**				
Southern Plain																			0.026	0.027	0.030	0.032				
																			[0.015]	[0.015]	[0.015]*	[0.015]*				
Observations	28076	28076	28076	28076	28076	28076	28068	28068	28068	28068	28068	28068	27923	27923	27923	27923	27923	27923	28068	28068	28068	28068	28077	28077	28077	28077
Number of groups	3130	3130	3130	3130	3130	3130	3129	3129	3129	3129	3129	3129	3129	3129	3129	3129	3129	3129	3129	3129	3129	3129	3130	3130	3130	3130

Standard errors in brackets

* significant at 5%; ** significant at 1%

Tables for Chapter VII.

Table 7.12:Probability models for receiving central inv. grants and political colors by size categories

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
dep. var.: received addressed and targeted invest. grant	**LPM**												**Probit-marg.eff.**											
	cities above 15000				**between 4-15000**				**under 4000**				**cities above 15000**				**between 4-15000**				**under 4000**			
	OLS		**panel FE**		**OLS**		**panel FE**				**panel FE**				**panel probit**		**Probit-marg.eff.**		**panel probit**		**Probit-marg.eff.**		**panel probit**	
local government political color same as central (abs. majority)	-0.031	-0.022	0.008	-0.012	0.116	0.170	0.137	0.138	0.020	0.035	0.054	0.054	-0.031	-0.024	-0.009	-0.011	0.117	0.170	0.120	0.148	0.015	0.032	0.027	0.043
	[0.034]	[0.034]	[0.040]	[0.040]	[0.042]**	[0.043]**	[0.046]**	[0.047]**	[0.021]	[0.022]	[0.023]*	[0.023]*	[0.037]	[0.037]	[0.037]	[0.037]	[0.045]**	[0.044]**	[0.042]**	[0.044]**	[0.017]	[0.019]	[0.020]	[0.023]
mayor political color same as central government	0.151	0.141	0.118	0.107	0.053	0.097	0.014	0.011	0.007	0.031	0.003	0.005	0.156	0.146	0.134	0.125	0.058	0.098	0.029	0.049	0.004	0.029	0.003	0.018
	[0.032]**	[0.032]**	[0.033]**	[0.033]**	[0.027]*	[0.028]**	[0.030]	[0.031]	[0.011]	[0.011]**	[0.012]	[0.012]	[0.032]**	[0.032]**	[0.031]**	[0.032]**	[0.028]*	[0.028]**	[0.026]	[0.027]	[0.009]	[0.010]**	[0.009]	[0.010]
election year	-0.080	-0.087	-0.064	-0.044	-0.008	-0.006	0.020	0.031	0.038	0.035	0.046	0.045	-0.080	-0.090	-0.074	-0.068	-0.010	-0.005	-0.000	0.008	0.040	0.035	0.045	0.041
	[0.037]*	[0.038]*	[0.033]	[0.033]	[0.023]	[0.023]	[0.020]	[0.021]	[0.005]**	[0.005]**	[0.004]**	[0.004]**	[0.040]*	[0.040]*	[0.033]*	[0.033]*	[0.024]	[0.024]	[0.020]	[0.021]	[0.005]**	[0.005]**	[0.005]**	[0.005]**
per capita local personal income tax base,2003prices	-0.001		-0.001		-0.001		-0.001		-0.000		-0.000		-0.001		-0.001		-0.001		-0.001		-0.000		-0.000	
	[0.000]**		[0.000]**		[0.000]**		[0.000]**		[0.000]**		[0.000]**		[0.000]**		[0.000]**		[0.000]**		[0.000]**		[0.000]**		[0.000]**	
per capita municipal investment income	-0.000		0.000		0.002		0.002		0.001		0.001		-0.000		-0.000		0.002		0.002		0.000		0.000	
	[0.001]		[0.001]		[0.001]**		[0.000]**		[0.000]**		[0.000]**		[0.001]		[0.001]		[0.000]**		[0.000]**		[0.000]**		[0.000]**	
per capita municipal current own income	-0.001		-0.001		0.003		0.004		0.001		0.001		-0.000		-0.000		0.003		0.004		0.001		0.001	
	[0.001]		[0.001]		[0.001]**		[0.001]**		[0.000]**		[0.000]**		[0.001]		[0.001]		[0.001]**		[0.001]**		[0.000]**		[0.000]**	
% of own (current+capital) resources in LG budget		-0.846		-0.348		0.319		0.427		0.240		0.064		-0.834		-0.612		0.322		0.358		0.206		0.147
		[0.167]**		[0.248]		[0.095]**		[0.121]**		[0.020]**		[0.022]**		[0.173]**		[0.194]**		[0.094]**		[0.101]**		[0.016]**		[0.018]**
indicator of local infrastructure endowment	0.476	0.503	-0.103	0.099	0.064	-0.092	-0.670	-0.869	-0.020	0.036	-0.252	-0.247	0.436	0.530	0.354	0.480	0.067	-0.092	-0.129	-0.397	-0.008	0.035	-0.055	-0.021
	[0.173]**	[0.159]**	[0.318]	[0.321]	[0.080]	[0.076]	[0.144]**	[0.145]**	[0.012]	[0.011]**	[0.023]**	[0.020]**	[0.173]*	[0.174]**	[0.213]	[0.213]*	[0.085]	[0.079]	[0.101]	[0.101]**	[0.012]	[0.011]**	[0.015]**	[0.013]
share of young population		-1.028		1.187		0.011		2.677		0.334		0.816		-0.916		2.478		0.015		0.715		0.296		0.367
		[1.377]		[2.572]		[0.590]		[1.345]*		[0.062]**		[0.120]**		[1.428]		[1.733]		[0.601]		[0.797]		[0.058]**		[0.071]**
share of old population		-0.204		-7.768		-0.807		-3.304		-0.193		0.037		-0.242		-0.022		-0.826		-1.281		-0.273		-0.247
		[1.022]		[3.565]*		[0.525]		[2.000]		[0.040]**		[0.140]		[1.009]		[1.377]		[0.534]		[0.766]		[0.046]**		[0.058]**
population	0.000		0.000		0.000		-0.000		0.000		0.000		0.000		0.000		0.000		0.000		0.000		0.000	
	[0.000]**		[0.000]		[0.000]**		[0.000]**		[0.000]**		[0.000]		[0.000]**		[0.000]**		[0.000]**		[0.000]**		[0.000]**		[0.000]**	
Constant	0.532	0.807	1.046	1.884	0.243	0.473	1.996	0.834	0.042	0.009	0.232	0.015												
	[0.109]**	[0.534]	[0.622]	[1.183]	[0.046]**	[0.245]	[0.274]**	[0.624]	[0.006]**	[0.024]	[0.049]**	[0.049]												
Observations	813	813	813	813	2387	2387	2387	2387	24876	24723	24876	24723	813	813	813	813	2387	2387	2387	2387	24876	24723	24876	24723
R-squared	0.08	0.07	0.06	0.08	0.09	0.03	0.10	0.05	0.07	0.02	0.03	0.01												
Number of LGs			94	94			279	279			2787	2786			94	94			279	279			2787	2786
brackets																								

*** significant at 5%; ** significant at 1%**

Tables for Chapter VII.

Table 7.13: Probability models for receiving central inv. grants and political colors by financial independence - LPM

	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12	-13	-14	-15	-16
	LPM															
dep.var.:received addressed and targeted invest. grant	own rev.>40%				own rev.20-40%				own rev.10-20%				own rev. under 10%			
	OLS		panel FE		OLS		panel FE		OLS		panel FE		OLS		panel FE	
local government political color same as central (abs. majority)	0.005	0.089	-0.141	-0.133	0.108	0.206	0.053	0.053	0.074	0.196	0.114	0.116	0.013	0.053	-0.013	-0.009
	[0.070]	[0.067]	[0.092]	[0.094]	[0.029]**	[0.029]**	[0.029]	[0.030]	[0.031]*	[0.034]**	[0.030]**	[0.030]**	[0.037]	[0.040]	[0.040]	[0.040]
mayor political color same as central government	0.151	0.179	0.052	0.061	0.141	0.209	0.030	0.032	0.059	0.121	0.025	0.026	-0.013	0.003	0.000	-0.006
	[0.041]**	[0.042]**	[0.055]	[0.055]	[0.020]**	[0.020]**	[0.020]	[0.021]	[0.017]**	[0.018]**	[0.017]	[0.018]	[0.016]	[0.017]	[0.019]	[0.018]
election year	-0.077	-0.076	-0.069	-0.068	0.009	0.009	0.004	0.001	0.036	0.030	0.051	0.051	0.066	0.060	0.086	0.084
	[0.022]**	[0.022]**	[0.024]**	[0.024]**	[0.011]	[0.011]	[0.010]	[0.011]	[0.008]**	[0.008]**	[0.007]**	[0.007]**	[0.009]**	[0.009]**	[0.007]**	[0.007]**
per capita local personal income tax base,2003prices	-0.000		-0.001		-0.000		-0.001		-0.000		-0.000		-0.000		0.000	
	[0.000]		[0.000]**		[0.000]**		[0.000]**		[0.000]**		[0.000]**		[0.000]		[0.000]*	
per capita municipal investment income	0.000		0.001		0.002		0.002		0.001		0.001		0.004		0.001	
	[0.000]**		[0.000]**		[0.000]**		[0.000]**		[0.001]		[0.000]**		[0.002]*		[0.001]	
per capita municipal current own income	0.000		0.000		0.003		0.003		0.004		0.006		0.005		0.006	
	[0.000]*		[0.000]		[0.000]**		[0.000]**		[0.001]**		[0.000]**		[0.001]**		[0.001]**	
% of own (current+capital) resources in LG budget		-0.582		-0.284		0.370		-0.047		0.572		-0.127		0.083		-0.805
		[0.093]**		[0.147]		[0.088]**		[0.102]		[0.111]**		[0.124]		[0.124]		[0.157]**
indicator of local infrastructure endowment	0.165	0.049	-0.197	-0.429	0.257	0.200	-0.331	-0.510	0.058	0.091	-0.249	-0.241	-0.028	0.033	-0.174	-0.112
	[0.060]**	[0.059]	[0.161]	[0.153]**	[0.028]**	[0.026]**	[0.065]**	[0.057]**	[0.021]**	[0.018]**	[0.041]**	[0.037]**	[0.022]	[0.018]	[0.035]**	[0.031]**
share of young population		-0.250		1.633		-0.113		0.914		0.563		1.505		0.298		0.363
		[0.341]		[1.063]		[0.124]		[0.254]**		[0.108]**		[0.277]**		[0.073]**		[0.196]
share of old population		-1.562		-1.837		-1.024		-1.670		-0.306		0.700		-0.049		0.285
		[0.238]**		[1.105]		[0.091]**		[0.477]**		[0.070]**		[0.301]*		[0.051]		[0.202]
population	0.000		-0.000		0.000		-0.000		0.000		0.000		0.000		0.000	
	[0.000]**		[0.000]		[0.000]**		[0.000]		[0.000]**		[0.000]		[0.000]**		[0.000]**	
Constant	0.136	0.912	0.851	0.780	-0.023	0.215	0.609	0.700	0.014	-0.080	0.159	-0.239	0.023	-0.005	-0.199	0.014
	[0.036]**	[0.143]**	[0.260]**	[0.415]	[0.018]	[0.053]**	[0.075]**	[0.130]**	[0.017]	[0.043]	[0.063]*	[0.112]*	[0.012]	[0.029]	[0.067]**	[0.077]
Observations	1826	1807	1826	1807	7288	7251	7288	7251	10325	10293	10325	10293	8637	8572	8637	8572
Number of LGs			784	770			2255	2248			2700	2698			2113	2110

Robust standard errors in brackets
*** significant at 5%; ** significant at 1%**

Tables for Chapter VII.

Table 7.14: Probability models for receiving central inv. grants and political colors by financial independence -Probit

	-17	-18	-19	-20	-21	-22	-23	-24	-25	-26	-27	-28	-29	-30	-31	-32
	Probit-marg.eff.															
dep.var.:received addressed and targeted invest. grant	own rev.>40%				own rev.20-40%				own rev.10-20%				own rev. under 10%			
			panel probit				panel probit				panel probit				panel probit	
local government political color same as central (abs. majority)	0.010	0.084	0.007	0.047	0.073	0.184	0.050	0.103	0.034	0.149	0.054	0.142	-0.026	0.047	-0.022	0.026
	[0.063]	[0.067]	[0.060]	[0.064]	[0.029]*	[0.030]**	[0.024]*	[0.027]**	[0.024]	[0.030]**	[0.026]*	[0.032]**	[0.021]	[0.036]	[0.025]	[0.037]
mayor political color same as central government	0.146	0.170	0.111	0.129	0.132	0.194	0.071	0.100	0.040	0.110	0.027	0.084	-0.009	0.003	-0.008	0.003
	[0.043]**	[0.042]**	[0.040]**	[0.040]**	[0.021]**	[0.020]**	[0.017]**	[0.018]**	[0.014]**	[0.017]**	[0.014]	[0.017]**	[0.012]	[0.014]	[0.014]	[0.016]
election year	-0.082	-0.079	-0.065	-0.065	0.010	0.011	0.006	0.007	0.041	0.032	0.043	0.039	0.067	0.059	0.077	0.073
	[0.023]**	[0.023]**	[0.019]**	[0.020]**	[0.012]	[0.012]	[0.009]	[0.010]	[0.008]**	[0.008]**	[0.007]**	[0.008]**	[0.009]**	[0.009]**	[0.009]**	[0.009]**
per capita local personal income tax base,2003prices	-0.000		-0.000		-0.000		-0.000		-0.000		-0.000		-0.000		-0.000	
	[0.000]		[0.000]*		[0.000]**		[0.000]**		[0.000]**		[0.000]**		[0.000]		[0.000]	
per capita municipal investment income	0.000		0.000		0.002		0.002		0.001		0.000		0.002		0.002	
	[0.000]**		[0.000]**		[0.000]**		[0.000]**		[0.000]**		[0.000]*		[0.001]**		[0.001]*	
per capita municipal current own income	0.000		0.000		0.003		0.003		0.003		0.003		0.003		0.003	
	[0.000]*		[0.000]**		[0.000]**		[0.000]**		[0.000]**		[0.000]**		[0.000]**		[0.000]**	
% of own (current+capital) resources in LG budget		-0.670		-0.488		0.342		0.178		0.537		0.338		0.088		-0.212
		[0.126]**		[0.117]**		[0.089]**		[0.083]*		[0.109]**		[0.114]**		[0.124]		[0.146]
indicator of local infrastructure endowment	0.190	0.061	0.189	0.027	0.289	0.210	0.161	0.051	0.063	0.084	0.022	0.037	-0.036	0.030	-0.051	0.019
	[0.071]**	[0.067]	[0.077]*	[0.072]	[0.035]**	[0.031]**	[0.034]**	[0.034]	[0.020]**	[0.018]**	[0.023]	[0.022]	[0.018]*	[0.017]	[0.021]*	[0.022]
share of young population		-0.328		0.014		-0.122		0.157		0.545		0.626		0.282		0.318
		[0.438]		[0.474]		[0.197]		[0.182]		[0.118]**		[0.144]**		[0.083]**		[0.113]**
share of old population		-1.909		-1.863		-1.434		-1.454		-0.437		-0.431		-0.076		-0.112
		[0.323]**		[0.351]**		[0.149]**		[0.162]**		[0.088]**		[0.110]**		[0.064]		[0.084]
population	0.000		0.000		0.000		0.000		0.000		0.000		0.000		0.000	
	[0.000]**		[0.000]**		[0.000]**		[0.000]**		[0.000]**		[0.000]**		[0.000]**		[0.000]**	
Constant																
Observations	1826	1807	1826	1807	7288	7251	7288	7251	10325	10293	10325	10293	8637	8572	8637	8572
Number of LGs			784	770			2255	2248			2700	2698			2113	2110

Robust standard errors in brackets
* significant at 5%; ** significant at 1%