Fiscal Decentralization for Local Development

An Integral study

Republic of Macedonia
Ministry of Finance

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May 2012

Acknowledgment:
The Ministry of Finance expresses gratitude to the United Nations Development Programme (UNDP) for the technical and financial support in the preparation of this study.

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May 2012
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ABBREVIATIONS

AYSPS	Andrew Young School of Policy Studies
EU	European Union
GDP	Gross Domestic Product
GMP	Gross Municipal Product
GSU	Georgia State University
M&E	Monitoring and Evaluation
MKD	Macedonian Denar
MTEF	Medium Term Expenditure Framework
OECD	Organisation for Economic Co-operation and Development
PIP	Public Investment Program
PIT	Personal Income Tax
PRO	Public Revenue Office
RRS	Representative Revenue System
UNDP	United Nations Development Programme
VAT	Value Added Tax

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EXECUTIVE SUMMARY

This report is part of UNDP's support in reviewing the models of inter-governmental transfers requested by Macedonia's Ministry of Finance. It is focused on transposing the fiscal equalization framework into the legislative system of the country. The ultimate aim of the project is a more responsive and effective local social service delivery system that takes into account vulnerable groups' needs. The study team has prepared a series of studies to provide its government counterparts with critical background information as well as technical details on the design of inter-governmental transfer systems. This report provides a synthesis of all the studies produced under this project, finalized based on the feedback received from all the relevant stakeholders. The production and dissemination of these studies should assure that all stakeholders in Macedonia "speak the same language" as the country moves forward with advancing through revamping of a formula-based transfer system.

On the assignment of revenue sources to the local government level

The main problem with revenue assignments in the country is the need to restore the share of locally-raised revenues in local budgets, which significantly declined as a result of the second phase of decentralization. While the yield of available sources of local revenues has been steadily increasing, it was outpaced by increases in devolved expenditures. Even though local governments have discretion to change the rates of property taxes, recently extended to non-residential structures, this and other local taxes still fall short of providing adequate financing for dramatically increased local expenditures. As a general rule, own revenue sources should provide the richest jurisdictions with close to 100 percent of their expenditure needs. While local governments within the City of Skopje on average finance over eighty percent of their principal budgets from own sources, these revenues cover less than forty percent of their total expenditures, once you include education, child daycare, culture and firefighting.

Another problem is that the bulk of own-source revenues comes from one-time charges such as development fees and property transactions as opposed to annual property taxes. The revenue yield for the (annual) property tax is still quite low at 0.18 percent of GDP even though it has more than doubled compared to 2006; this yield should be increased to at least the average in other transitional countries, which means that the yield needs to be multiplied almost by a factor of three. At the same time the taxation of property transactions is heavier than in other countries, yielding 0.23 percent of GDP, although down from 0.26 percent of GDP in 2006. While taxing property transactions is easier from the administrative perspective, at the same time it is more detrimental for the real estate markets as optimal taxation requires lighter taxation of more elastic tax bases. Today one-time development fees yield 0.59 percent of GDP, up from 0.36 percent of GDP in 2006. As expected, development fees and to a lesser extent taxes on property sales are vul-

nerable to declines in economic activities, showing a dramatic drop in 2009, while other sources of local revenues held up pretty well. Because of the imbalance in the local revenue structure between the proportions of stable and one-time revenues, the overall own-source revenues dropped by 20 percent in 2009.

Given the tax burden of the national taxes, the only tax room that would be available for extending local revenue capacity appears to be in direct taxation, including taxes on income and wealth/property. In the short-term, local taxing powers can be mostly broadened in the areas of economy untapped by national taxes: self-employed and informal micro-businesses. To avoid double taxation, these local taxes should be allowed as non-refundable credits towards tax liabilities on national taxes on income paid by those taxpayers who comply with national taxes. Thus, essentially the proposed local taxes will act as minimum taxes on the hard-to-tax sources of income. The same applies to allowing credits for local taxes on non-residential property.

Besides further increasing the revenue yield of annual property taxes, by a more efficient administration and by raising the range of rates applicable by the municipalities, a more promising avenue for raising local revenue autonomy is the introduction of new tax handles for local governments, such as:

- Local PIT surtax
- Special assessment/Betterment levies
- Personal Property/Motor Vehicle Tax
- Presumptive/Imputed Tax

On fiscal equalization

At this stage of the reform, an important concern is to ensure adequate funding for service delivery in municipalities and realign incentives for efficient fiscal behavior, as the policy emphasis moves on to equitable access to public service for all citizens. As the reform moves through this phased transition, the general-purpose (VAT/PIT) and capital investment grants will come to be based on technically sound notions of expenditure needs and revenue capacities.

In sectors still lacking an objective formula for grant allocation, expenditure needs for each locality are proposed to be computed by multiplying the per client expenditure norm by the cost adjustment coefficient and the

number of clients in the locality. Where services are provided to residents of other municipalities (e.g., in firefighting, high schools, culture), client population should be appropriately defined.

Another key ingredient in the reform will be inclusion of revenue capacity measures in the grant formula(e). Revenue assignments have provided municipalities with varying levels of revenue bases. Some municipalities generate high levels of revenue while others can hardly pay their essential administrative costs from their own revenue. The current general-purpose grant (VAT) does not address differences in own-source revenue capacity. Due to these factors, differences in level of services and available resources at the municipal level abide. At the policy level therefore, it is recognized that revenue disparities should be addressed through a reform of the grant formula (e). This study takes an important step toward this objective by delineating methods for calculation of revenue capacity for municipalities and providing technical tools to focus the discussion on differences in revenue capacities.

In light of these revenue disparities, any further increase of local taxing powers or the size of the pool of grants has to be conditioned on the reform of grant allocation formulae so that the increase in the flow of grants would be more pronounced for municipalities with a below average level of the revenue base. As the existing grant allocation formulae do not include any indicators to capture disparities in the own revenue base, supplementing own revenues with intergovernmental grants merely scales up the disparities in per capita revenues of different localities.

A sticky point for any discussion of revenue disparity is whether a measure of own revenue base reflects differences in economic well-being as opposed to differences in the share of officially reported economic activity. The most feasible way to address this concern is to measure local revenue capacity based on average personal expenditures recorded through the Household Budget Survey. However, this would require increasing the size of the survey sample by oversampling households in the smallest municipalities to have a representative sample for each municipality.

To address the disparity in local revenue bases in the meantime, we propose to employ a

combination of proxy indicators correlated with a locality's capacity to collect revenues from own revenue sources. To measure the impact of formal economic activities, we propose to use the local yield of the national personal income tax, while to capture the wealth generated in the informal sector, we propose to use data on the size of housing stock from the survey of dwellings carried out as part of the population surveys. As comprehensive data become available specifying local revenue bases, more accurate calculations of local revenue capacity can be made and instituted in the equalization formula.

On financing local capital development

The variety of specific details in the design of capital transfers found around the world is a reflection of the many institutional features associated with capital transfers and the multitude of objectives that may be pursued by governments in this area. The range of objectives for capital transfers includes closing disparities in local infrastructure endowments, subsidizing capital projects with cross-jurisdictional spillovers of benefits, addressing vertical imbalance in the assignment of revenue sources, and addressing lack of credit availability. Therefore, the choice of policy options for Macedonia would depend on the selection of objectives that are to be pursued by means of capital grants. One of the conclusions from our analysis is that different policy objectives would imply quite different incidence of capital grants allocation.

On the normative grounds, it is recommendable that the reform of the capital grants be primarily driven by addressing their role in achieving the national objectives. Providing financing to local governments should take a secondary role in the reforms. With respect to the national objectives, there are a number of serious conceptual issues with the current arrangement for capital grants. Presently, the allocation of capital grants constitutes ring-fencing of a portion of public funds for investment purposes and allocating it based on submitted project applications. This violates several principles of public finance management. First, it essentially creates dual budgeting by excluding a portion of public funds from policy-based prioritization. Second, the allocation of funds by economic item (i.e., investment) shifts the focus of budgeting

away from implementing government policies to funding projects. Government policies can be implemented through programs involving both capital and current outlays. The distinction between the two particularly blurs in the multi-year framework incorporating operation and maintenance costs. By artificially separating programs aiming at the same policy objective from competing against each other within the total resource envelope, these arrangements can bias budgetary allocations toward more capital intensive approaches or vice versa.

Building on the existing practice, the national Public Investment Program (PIP)_framework could be used to direct local projects toward national priorities. In this case there is no need to worry about territorial incidence of these programs. If local capital expenditures continue to be predominantly funded by general purpose revenue of local governments, as is the case in many countries, disparities in local infrastructure developments should be addressed elsewhere in the grant system, including equalization grants, general revenue sharing, and so on. The best way to proceed here is to develop explicit policy priorities for different sectors within the) and get the current PIP integrated into the MTEF. The MTEF can provide a linking framework for policy making, planning and budgeting. Sector reviews under the MTEF can facilitate formulation of clear roles of national ministries in the sector vis-à-vis local government. With respect to local government investments outside the areas of national priority, the role of the PIP unit could be providing technical support and establishing and enforcing a set of procedures that enhance rigorous capital planning at the local level.

In order to ensure that capital grants induce additional public investments in the areas of national priority, as opposed to merely replacing local resources that would have been invested otherwise, capital grants should require a matching contribution from own sources of local government revenue. In order to ensure the "additionality" of investments without further aggravating disparities in the level of development by channeling resources to more developed localities, matching rates should be inversely related to the per capita level of own revenue capacity of recipient jurisdictions.

Now that almost every municipality has advanced to phase II of decentralization reform, there is a need for another mechanism to provide local governments with incentives to improve their performance. Performance-based capital grants could play that role, especially in the form of minimum conditions for receiving capital grants because there is a high risk of errors of omission and commission in local investments. From the experiences of other countries, the operation and maintenance implications of local investments is still an area, which leaves some room for improvement, and which sometimes requires reforms in the systems of local government own-source revenues in some countries. As a minimum access condition, in the project planning local governments can be required to show the source of additional own-source revenues necessary to maintain new infrastructure. Then, performance-based increments of the grant can take into account how these pledged additional own-source revenues materialize.

INTRODUCTION: SCOPE OF THE CURRENT STUDY

This report is part of UNDP's support in reviewing the models of inter-governmental transfers requested by Macedonia's Ministry of Finance. It is focused on transposing the fiscal equalization framework into the legislative system of the country. The ultimate aim of the project is a more responsive and effective local social service delivery system that takes into account vulnerable groups' needs. It builds on the past experiences of UNDP in supporting the Government of Macedonia through the policy reform processes and facilitating policy dialogue and takes this support one step further by developing local expertise in research and analytical skills to support future fiscal and financial reforms. The overall project has aimed to deliver three key outputs: Improved Policy Making for Social Service Delivery; Capacity Development for Research and Monitoring; and Inclusive Participatory Planning.

For the first two outputs the project has engaged a team of experts from the Andrew Young School of Policy Studies (AYSPS) at Georgia State University (GSU). The Andrew Young School was established at Georgia State University with the objective of promoting excellence in the design, implementation, and evaluation of public policy. Within this mission, the Andrew Young School's International Center for Public Policy provides academic and technical training, research and technical assistance in developing and transitional economies in the areas of fiscal policy,

fiscal decentralization and fiscal management. The Andrew Young School's experts have been involved in supporting Macedonia's decentralization process since 2005.

While this study builds on the results of the previous projects, it does not merely repeat previous policy recommendations. Decentralization is a living evolving system, and to the extent that the overall context has evolved over the last five years, it requires certain adjustments to the proposed solutions. While not meaning going back to square one, a reassessment of the current status of decentralization provides a useful opportunity for the stakeholders to step back and have another look at the bigger picture that could provide directions for the specific steps of reforms to be undertaken in the next year and beyond. Such reassessment also provides some lessons from the experience of decentralization up to date.

For the success of this project, it is crucially important that the stakeholders agree on and clearly articulate the ultimate goals of the further decentralization reforms. This is important for two reasons. First, only clear goals can secure political support, which in turn can help work out the technicalities of implementation through the regular political consultation process. Second, without a clear goal for an intergovernmental grants program it is hard to choose the right design of the grant that would achieve that goal. Different goals require very different grant designs.

In order to achieve consensus and make progress on the decentralization agenda, it is important to take into account the different viewpoints held by the various stakeholders. Interviews with various stakeholders have been conducted by the study team to identify positions of the respective institutions regarding the system of transfers. Based in the consultations with the stakeholders, a two-pronged approach has been developed for this project. First, proposals have been developed for the medium term vision, ultimately expected to be formulated as a policy statement. Second, immediate changes to the VAT grant formula have been proposed to be applied within the current legal framework, while being consistent with the overall direction of reforms expressed in the medium term policy statement. For the short term, the only legal constraint on feasible reforms is the statutory provision that at least

half of the weight be attached to the municipal population in the distribution formula. However, as far as the other half of the formula weight, any allocation factors can be accommodated within the current legal framework, including indicators capturing differences in own-revenue capacity.

To support this reform agenda, the study team has prepared a series of studies to provide its government counterparts with critical background information as well as technical details on the design of intergovernmental transfer systems. This report provides a synthesis of all the studies produced under this project, finalized based on the feedback received from all the relevant stakeholders. The production and dissemination of these studies should assure that all stakeholders in Macedonia "speak the same language" as the country moves forward with advancing through revamping of a formula-based transfer system.

As the reform moves through this phased transition, the general-purpose and capital investment grants will come to be based on technically sound notions of expenditure needs and revenue capacities. To plan and implement this transition, the project activities have aimed to establish a new equalization framework, providing new formulas and policy options for re-distribution of funds and demonstrating their viability through simulations. These project outputs are expected to promote policy dialogue in support of reform by focusing the discussion on key parameters amenable to policy choices.

1. EXPENDITURE NEEDS STUDY

Introduction

Macedonia with a population of 2 million has a two-tier government system. Decentralization has been implemented under the Ohrid Framework (Peace) Agreement at a measured pace since 2005, with increasingly wider roles and responsibilities passing on to subnational governments. The subnational level consists of 84 municipalities and the city of Skopje as a special unit of local self-government. Macedonia is aiming for EU membership. This has been another catalyst of reform. Primarily, decentralization was perceived as part of the political reforms pursued to improve political cohesiveness and strengthen democratic representative institutions in the country. As local self-governments took on more responsibilities with the implementation of the reform, the focus of policy discussion in Macedonia has moved on from expenditure and revenue assignments and procedural concerns relating to financial regulations to the issues of quality and access to public services as well as the overall efficiency of the local institutions.

At this stage of the reform, an important concern is to ensure adequate funding for service delivery in municipalities and realign incentives for efficient fiscal behavior, as the policy emphasis moves on to equitable access to public service for all citizens. To emphasize this concern further, the reform discussion in Macedonia often refers to the constitutional principle of guaranteeing equitable access to services to all citi-

zens. The implementation of the fiscal decentralization component of the Ohrid Agreement started in earnest six years ago. The Ministry of Finance, based on the accumulated experience of implementation, recognizes it is time to build on the successes and address the emerging policy issues. UNDP is providing technical assistance to the Ministry of Finance to work under this recognition and support reform of intergovernmental fiscal relations. As result the project titled Social Services in Support of Social Development and Cohesion commenced in December 2010 with the specific objectives of providing the technical assistance to reform. The project aims to deliver three key outputs: (i) improved policy making for social service delivery; (ii) capacity development for research and monitoring; and (iii) inclusive participatory planning. This report has been prepared to focus discussion on reform options under the first project output. It attempts to focus the discussion on technical considerations for calculation of expenditure needs and demonstrates how such calculations could be carried out for municipalities with the available data.

Despite the general perception that the process of decentralization in Macedonia has been satisfactory and it has crossed important milestones, there is a widely shared recognition among the government and key stakeholders that the existing intergovernmental fiscal arrangement, with its intergovernmental grant scheme, does not ensure an equitable level of public service provision for all citizens across the country. The intergovernmental relations, primarily providing a general-purpose (VAT) grant and block grants for financing essential services, are not seen as sustainable or equitable.[1] The current local tax and fee structure is such that rural municipalities are endowed with low revenue capacity creating a perpetual dependence on central transfers for service provision. The expenditure needs proxies used to allocate the equalization grant are very broad and not refined enough to address need differentials across jurisdictions, weakening the impact of transfers for the objective of equitable access to public services across all jurisdictions. The block transfers are made with the objective of financing existing facilities. This leaves out rural and remote areas where more of the poor live, and which have historically lacked facilities to provide services. On the other hand some municipalities

[1] Detailed discussions on these issues are provided in UNDP reports titled *An Assessment of Fiscal Decentralization, July 2007* and *Financing Equitable Service Delivery for All Citizens, December 2008.* These reports laid out reform options for resetting the intergovernmental relations in Macedonia.

continue to receive higher per capita allocations with no regard to their respective client population. This arrangement results is a twofold problem namely, many rural municipalities are underfunded and all municipalities tend to continue to use inefficient delivery mechanisms. Service delivery is also seen as non-responsive to the challenge of equitable access for the marginalized communities.

In 2009, the Midterm Millennium Development Goals Progress Report and the EU Progress Report highlighted that there was need for greater accountability and responsiveness to poverty and social inequalities especially to address differences in access due to gender, rural-urban location and ethnicity. The recent economic crisis has exacerbated these discrepancies in service delivery for the marginalized communities and groups by adversely affecting municipal capacity to provide inclusive social services. A National Strategy for Decreasing Poverty and Social Exclusion adopted in 2010 calls for expanding the reach of social services, such as education and social care services. At the same time, it does not spell out the ways in which the increased emphasis on service can be translated into actions with respect to fiscal arrangements. Due to the earlier work on decentralization supported by UNDP, it is recognized that changes to the intergovernmental fiscal system, including the general-purpose grant and capital grants, are needed to support equitable access to services and to make sure that they are responsive to poverty, vulnerabilities and exclusion.

As a follow up of the assessment of decentralization in Macedonia and feasibility study for reform of intergovernmental relations carried out in 2008, the Ministry of Finance requested for UNDP's support in reviewing the models of inter-governmental transfers, with emphasis on the fiscal equalization framework, to be incorporated into the legislative system of the country. To achieve these objectives the project titled Support of Social Development and Cohesion has initiated work at the policy level to reform the intergovernmental fiscal system with the aim of a more responsive and effective local social service delivery system that takes into account needs of marginalized and vulnerable groups. Under the project, the aim of the intergovernmental fiscal transfer system reform is to usher in a transition in the equalization framework in

Macedonia. As the reform moves through this phased transition, the general-purpose and capital investment grants will come to be based on technically sound notions of expenditure needs and revenue capacities. To implement the transition, the project activities will establish a new equalization framework, provide new formulas and policy options for re-distribution of funds and demonstrate their viability through simulation. The latter will also be used to promote policy dialogue in support of reform by focusing the discussion on key parameters amenable to policy choices. To focus the discussion on key policy parameters during the initial phase of project implementation, two studies have been carried out for estimating local expenditure needs for established service standards and local revenue capacity using available data and standard approaches. The reports serve as documents to support a technical informed policy dialogue with municipalities and key offices in the government.

This report is being presented to serve as an instrument for an evidence-based discussion at the policy making level on the priorities and policy choices that the reform entails. The project intends to pursue change in a gradual manner. The report presents the interim method for computation of expenditure needs as a first step toward incorporating a fully-fledged expenditure needs based equalization grant. Section 2 presents alternative approaches to measuring expenditure needs found in the international experience. Section 3 provides a detailed discussion of specific issues in the calculation of expenditure needs based on the lessons from other countries. In section 4 we review the current expenditure patterns across municipalities in Macedonia and attempt to relate it to international practice for setting expenditures norms.

Expenditure needs and methods for their calculation

This report takes the discussion on reform further by introducing a technical discussion of expenditure needs and a method for their calculation. Expenditure needs are an essential component of formulas to operate intergovernmental grants. They are used to ascertain expenditure needs for each jurisdiction and compute its grant allocation. Expenditure norms are a method to arrive at expenditure needs and are a reflection of policy choices, as we explain below. The method of using expenditure norms provides an important tool to central government to influence service delivery outcomes given its budgetary, technical and human resources. This section explains the choice of expenditure need measures in the policy context.

Grant objectives and the choice of expenditures need measures

Expenditure need measures are related to policy objectives behind the intergovernmental grant scheme. Grant systems can pursue a broad range of objectives:

- Improving the vertical fiscal balance of the system of intergovernmental relations
- Improving the horizontal fiscal balance between local governments (in other words, equalization)
- Compensating for the presence of spillovers or "externalities" between jurisdictions in the provision of local public services
- Funding national priorities or "merit goods"
- Creating a level-playing field for evaluating performance of appointed heads of deconcentrated government units

Sharing revenue to address vertical fiscal imbalances. Even in the most decentralized countries, local jurisdictions cannot operate like sovereign states because they are constrained by the national legislation, which among other things, limits taxing powers of local governments. As economic development has made economic activities increasingly footless, there has been a trend of centralization of taxation of businesses to the national level in order to

reduce distortions to business location. Even in the taxation of consumption (the most productive subnational tax handle in many countries), the recent trend has been substitution of the national VAT for local sales taxes. As a result, throughout the world the bulk of revenue-raising powers has been concentrating at the central level, which has been providing grants to local government to accommodate the mismatch. Sharing of revenue from national taxes is a common remedy for a vertical imbalance, a situation when the revenue sources available to subnational governments as a group do not correspond to their expenditure responsibilities.

Fiscal equalization to address horizontal imbalances. Horizontal imbalances occur when the spatial distribution of local revenue sources do not match the spatial distribution of local government expenditures. National governments attempt to mitigate horizontal imbalances both on the grounds of social solidarity and economic efficiency by preventing fiscally-induced misallocation of economic resources. In relation to expenditure needs, economic efficiency concerns emerge in the situation where benefits from local services vary across different population strata rather than being uniform for all local residents. In this case, an efficiency-inducing grant formula should take into account the differences in the proportion of entitled population (e.g. school-age children) in various localities.

Compensation for the presence of spillovers or "externalities" between jurisdictions. When local governments are left to make their own decisions, they may under-spend on certain services where there are substantial external benefits to third parties, such as surrounding local governments. Economic theory suggests that local governments should receive a unit subsidy equal to the marginal value of the inter-jurisdictional spillovers created in the provision of one unit of local public services. Based on this rationale one would expect such subsidies to be driven by the magnitude of external benefits but not by local costs required to produce these benefits. On the contrary, under reciprocal externalities per unit subsidies should be inversely related to the unit costs in the recipient locality so that the national government could induce maximum externalities per unit of national grants.

Funding national priorities or "merit goods". The concept of merit (or demerit) good is mostly related to the situation when societal values override personal choice even though no spillover of benefits occurs. In particular, this includes paternalism in distribution, when society cares more about the distribution of certain goods, such as basic necessities of life, health, and citizenship rights than income distribution in general. Similar to the case of externalities, economic theory suggests that conditional grants could stimulate local spending on such goods or services. For merit goods involving equal access or an assured universal minimum, such conditional grants should take into account differences in the local costs and might also require determining the adequate level of funding in order to secure this assured minimum.

The relative importance of these objectives defines the nature of a particular grant scheme. Therefore it is important that intergovernmental relations are designed with clear policy priorities. In Appendix I we provide a more detailed discussion, summarize the existing normative guidance and policy wisdom on the design approaches that are most suitable for each of the aforementioned objectives of a grant system. A key point of this discussion is that grants pursuing different objectives might require different designs of the allocation mechanism, including different expenditure needs measures. Therefore, the choice of specific design options for expenditure needs measure should be made with an eye on the ultimate objective of measuring expenditure needs.

Approaches to calculation of expenditure needs

For the purpose of comparing alternative approaches to measuring expenditure needs, in most of formulae used in the international experience, the measure of expenditure needs of locality ***i***, or $\boldsymbol{Exp_i}$, can be represented using the following typical formula.

$$\mathbf{Exp_i = c_i * Norm * p_i} \qquad (1)$$

where p_i is the client population in locality *i*, *Norm* is the (standard) expenditure per client, and c_i is the parameter measuring the higher (more than one) or lower (less than one) costs in the locality relative to the average cost of providing that service in the country. Thus differences among the alternative approaches used

in international experiences boil down to the differences in defining the three ingredients: Norm, c_i, and p_i.

Immediately below we discuss the specifics of those three ingredients for each of the seven alternative approaches found in international experiences:

1. Lagged expenditure values
2. Absolute equality of needs
3. Equal per capita expenditure norm
4. Weighted indexes of expenditure factors
5. Per-client (top-down) financial expenditure norms
6. Traditional (bottom-up) costing of physical service standards
7. Regression-based Representative Expenditure Systems (RES).

Lagged expenditure values

In the absence of data and a conceptual framework for quantifying expenditure needs, the use of past values of expenditures in individual jurisdictions is the simplest and most parsimonious approach to quantifying local expenditure needs. Several countries have used and continue to use this approach; but the number of countries that work with this methodology has gone down over time. Over time, this method can create perverse incentives for subnational governments to keep expenditures at inefficient levels.

Under this approach, the adjustment coefficient c_i is equal to the ratio of actual past per client expenditure in locality i and the average past per client expenditures across all localities (Norm). It essentially assumes that historical differences in per client expenditures reflect objective cost differences.

Absolute equality of needs (fixed amount per jurisdiction)

In the absence of any data on local government characteristics whatsoever, one possibility is to assume that each local government jurisdiction has an identical level of need. In this case the formula applied is that of equality (also known as fixed allocation), by which each local government authority receives exactly the same amount of resources, regardless of its population or any other characteristics. This approach fails to encourage formation of jurisdictions of minimum efficient scale; in fact, it is likely to provide an incentive for further jurisdictional fragmentation.

In this case, the adjustment coefficient c_i is equal to the inverse of the total population in locality *i*. It essentially assumes that less populous localities have higher per client costs.

Equal per capita expenditure norm

Examples of equal per capita allocation, although not exact, are provided by some grants in the systems of transfers in Canada and Germany.

In this case, the adjustment coefficient c_i is equal to one for each locality. It essentially assumes that to provide one resident with the same level of public services it requires the same amount of money regardless of the place of residence.

Weighted indexes of expenditure factors

While some countries explicitly define such an index of expenditure needs, in others, transfer schemes implicitly achieve the same when a weighted-factor mechanism is used for the purpose of allocating equalization grants (see the Feasibility Study showing the equivalence to the weighted index for the case of Macedonia's VAT grant formula).[2]

In this case the cost adjustment coefficient c_i for jurisdiction *i* can be generally computed as

$$c_i = (1 - a^1 - a^2 - \ldots - a^K) + a^1 \cdot (x^1_i / X^1) + a^2 \cdot (x^2_i / X^2) + \ldots + a^K \cdot (x^K_i / X^K),$$

where:

- a^k signifies the relative weight of each cost factor; and
- x_i / X represents the value of each factor that is recorded in locality *i* relative to the value of the same factor for all localities combined.[3]

Per-client (top-down) financial expenditure norms (adjusted for cost differences)

Some countries avoid the challenges of finding and manipulating data to arrive at expenditure norm by adopting a system where the local government sectoral allocation is devised in a "top-down" manner.

In this case the expenditure needs formula is explicitly defined in the typical form (1) presented above, where *Norm* is equal to the total budget envelop (or the grant pool) divided by the total number of client population in the country.

[2] Feasibility Study (2008)

[3] The local and national values (xi and X) of each factor have to be expressed in per capita (per client terms, in order for the Norm to be a population- (clientele-) weighted average of individual expenditures needs.

Traditional (bottom-up) costing of physical service standards

The essence of the traditional approach to expenditure norms or standards is to compute a detailed costing of the inputs needed to deliver a standard (national or minimum) level of public services.

Not all bottom-up expenditure needs can be expressed in the typical form (1). However, if the physical norms are prescribed or can be expressed in per client terms, then it can be represented in the typical form. Thus, in the USA, education finance adequacy studies cost out on per student basis a model school that is believed to be capable to achieve the desired education outcomes. The panel of experts also determines weights that should be given to characteristics of a school district (special needs students, economies of scale, isolation) that would determine the coefficients c_i, to adjust costs relative to the model situation.

Regression-based Representative Expenditure Systems (RES)

Under this, approach, the actual determination of the significance of expenditure factors and the estimation of weights for those factors and the costs of inputs is done jointly by estimating a demand function of a median local resident for local government services. What is particularly import in light of the equalization theory discussed in Appendix I is that this statistical analysis controls for the tax price (the degree to which better services are financed through higher local taxes as opposed to more grants) as captured by the local revenue capacity but also tastes for local services as determined by the median income level and other population characteristics.

Under RES, a translog regression estimates factor weights a^k translating percentage differentials in proportion of factors x^k_i into percentage differentials in per client needs.

$$c_i = 1 + a^1 \cdot (x^1_i - X^1) / X^1 + a^2 \cdot (x^2_i - X^2) / X^2) + \ldots + a^K \cdot (x^K_i - X^K) / X^K.$$

The percentage response in expenditures resulting from a percentage change in a given factor is called elasticity of expenditures with respect to that factor, which can be estimated from actual expenditure data.

Synthesis of international experiences: lessons for Macedonia

Based on the presented survey of international experiences, one can ask the question if there is a best approach to calculation of expenditure needs. Except for the most simplistic approaches (lagged historical expenditures or equal absolute shares), all the approaches reviewed in the previous section have certain advantages and disadvantages. Fundamentally, all the viable approaches follow some good logic in how to arrive at the expenditure needs:

- Establishing needs by proxy
- Establishing needs from the top according to what is deemed affordable and desirable
- Establishing needs by costing some desirable physical standards of service
- Establishing needs by searching factors that determine actual expenditures

Within these logics we can detect the attainments of several desirable properties, including: simplicity and transparency, computational intensity, ensuring budget affordability, flexibility, responsiveness to policy priorities, and computational accuracy.

Each of the approaches scores well with some of the desirable properties and not so well with others. Arriving at a conclusion of which is the most preferred approach would depend on how one rates the relative desirability of each of those properties. Naturally, that will depend on how the government values each of those properties at the given moment of time. It will depend also on the availability of data and technology which, of course, will differ among countries and over time.

Therefore, the choice of specific design options for the expenditure needs measure should be made with an eye on the ultimate objective of measuring expenditure needs. Breaking down the design of an expenditure needs measure into three basic elements suggested above can be helpful in evaluating alternative types of expenditure need measures commonly found in other countries. Immediately below we use this three-element framework to evaluate different design choices in terms of specific policy objectives.

On determining a per client norm

Out of all approaches practiced in the world, only few have something to say about determining the equalization standard or the adequate level of funding. Most approaches assume this standard as given and focus on adjusting this standard norm to the varying circumstances of different localities. Thus, when the most sophisticated expenditure need measure (RES), was first introduced by Robert Rafuse, at that time Deputy Assistant Secretary of the U.S. Treasury for state and local finances, he stated the following: [4]

> The levels of services that are the reference standard, or the criterion of fiscal need, are a matter of value judgment within a state. In one state, they may be minimally acceptable levels. In another, the specified levels may be the average for all localities in the state, or some fraction or multiple (say, 1.25) of the average.

[4] Rafuse, Robert W. J. 1990. "Representative Expenditures: Addressing the Neglected Dimension of Fiscal Capacity." Washington, DC: U.S. Advisory Commission on Intergovernmental Relations. (p. 105)

The only approaches in practice that deal with determining the level of standard itself are the historical expenditure approach and the bottom-up approach. In fact the bottom-up costing of adequate school provision in the United States is the only more or less transparent methodology that is known to allow mapping of expenditure responsibilities into expenditure needs. Conceptually, a regression-based RES can produce a need criterion by plugging certain standard (or average) values of local characteristics into the estimated demand function for local government services. However, this would require a perfect guess about the functional specification of the demand function. More to the point, while the ordinary least squares can consistently estimate the slope parameters of a cost function, a special treatment would have to be applied to the estimated residuals if we are interested in the nature of deviations from this "average" technology and want to distinguish between symmetric random shocks and systematic slack or inefficiency in the production of services. In other words it is easier to explain deviations from the standard cost (i.e. differences in expenditure needs) due to observable characteristics than determining the standard level itself.

All in all, there are two basic approaches to computing a per-client norm: bottom-up and top down. The bottom-up approach departs from a specific service target in terms of service outcome

and estimates per client amount of financial resources necessary to achieve the desired outcomes. This however is a challenging endeavor. Despite its theoretical appeal it requires substantive effort to put in into practice. If experience of other countries is any indication of how daunting this task is, Russia's Budget Code of 1998 envisioned a set of "minimum social standards" as the basis for budgeting. Due to the complexity of the task involved, the standards have not been developed even ten years later. Even when such service standards are put in place, translating them into financial amounts is a very demanding exercise. It is data intensive and requires technical calculations, with demands on the skills sets and time of public officials. For example, in the USA, most states commission these calculations to external consulting companies rather than doing it in house.[5] The bottom-up approach can produce norms that are unrealistic or unaffordable from a budget viewpoint, so that the actual funding would need to be reduced to make it affordable, thus frustrating government officials and citizens.

By contrast to the bottom-up approach, the top-down approach ensures affordability because it starts from the feasible level of aggregate appropriations. When the top-down approach is used to develop affordable norms, the basic figures for the norms are not necessarily estimated from actual budget data. The data may be given by the budget authorities and derived from budget aggregates. However, the top-down approach requires that the adequate level of the aggregate funding for subnational functions be already given. For example, to arrive at the basic norm per student in primary education, the Ministry of Finance might decide while initiating budget preparation that education should represent a particular share of total government expenditures, and that primary education should represent a particular share of total education expenditures. From this fraction, the total funds to be allocated to the sector can be easily worked out. The resulting funds divided by the number of primary school students provide the basic expenditure norm per student in primary education. This basic norm can be adjusted up and down for cost differences, special needs, conditions, and so on.

[5] Michael Griffith. *A Survey of Finance Adequacy Studies,* May 2007; National Access Network. *Status of Education Cost Studies in the 50 States,* May 2007.

On the choice between a composite of disaggregate needs

Another design choice is the range of expenditure functions over which to measure the needs. This is also connected to the objective of simplicity and transparency. The computation of expenditures needs can be done separately by category of expenditures or for the composite of several local services. Under either approach, all the assigned public services should in principle be included in order to avoid bias against those local governments where an excluded service might be especially important. However, it would be impractical and even misleading to try to define a per client norm for every single expenditure program undertaken at the local level. A large number of expenditure standards would reduce transparency in the system and enhance the likelihood of complex discussions about the proper client bases. In general, it makes sense to group under "general public services" some functions that are unimportant in budgetary terms, and use the local population to estimate the number of clients for this composite category.

The international experiences with the number of separate categories of expenditures having separate norms vary among countries. Some countries use one composite norm covering all local expenditures as in Switzerland, Denmark, and Indonesia. Other countries have several norms for separate groups of expenditures: six in Japan (police, public works, education, welfare and labor, industry and economy, public administration), seven in the United Kingdom (education, social services, highway maintenance, police, fire protection, capital expenditures, and the residual services), eleven in Australia (welfare, culture and recreation, community development, general public services, services to industry, education, health, law and order, transport, economic affairs, trading enterprises).[6]

Medium-Term Planning of the Aggregate Funding/Expenditure Norms

When determining per client expenditure norms in a top-down fashion, the unpredictability and non-transparency of the ad-hoc determination of the aggregate budget envelope can be addressed using a multi-year basis in the

[6] Jun Ma (1997) "Intergovernmental Fiscal Transfer in Nine Countries: Lessons for Developing Countries," World Bank Policy Research Working Paper 1822.

framework of medium-term expenditure framework (MTEF).

A particularly useful MTEF tool is fiscal architecture analysis.[7] The goal of the fiscal architecture analysis is to systematically determine (on a spending category-by-spending category basis and then, in parallel, on a revenue type-by-revenue type basis) the effect of various factors on "fiscal health"—the projected expenditures based on the needs of the population and the projected revenue available to comply with these needs.

Future changes in aggregate expenditure needs can be modeled as a function of the changes in service outputs (via changes in demand) and changes in costs of government services (which could be due to internal or external factors). For example, deregulation of prices for energy or utilities could increase the cost of production in the public (as well as private) sector.

Effects of medium-term projections on aggregate expenditure needs (Exp_g) of the municipal sector can be expressed with a simple relationship:

$$\mathbf{Exp_g = Q_g * C_g} \quad (2)$$

$$\mathbf{dExp_g = dQ_g C_g + Q_g * dC_g,} \quad (3)$$

where

Q_g= f (client population), are the service outputs driven by needs of the population

C_g are the costs per unit of output (public wages, energy costs)

Formula (3) can guide planning increments to the aggregate expenditure needs for out years based on the projected aggregate changes in outputs and costs (dQ_g and dCg**).**

For example, in Kyrgyzstan a pilot formula for per student funding of education uses the following formula for projecting changes to the per student norm:

%ΔNorm=
wage_share*Pay_rise+
non_wage_share*Inflation,

Where wage_share and non_wage_share stand for the shares of the per student norm accounted for by wage and non-wage costs respectively.

On the choice of cost and need factors

In general, the choice of exact indicators/proxies of expenditure needs to be used depends on the cost structure of the specific functions assigned to the local gov-

7 Wallace, Sally, 2001. "Fiscal Architecture and the Analysis of Public Expenditure Needs and Revenue Capacity," International Studies Program Working Paper Series, at AYSPS, GSU paper0111, International Studies Program, Andrew Young School of Policy Studies, Georgia State University.

ernment in a given country. Even though varying with specific local functions, the utilized factors should (Bahl et al 2001):[8]

- Accurately reflect the targeted characteristics. The number of children with special needs captures better the costs for education than the actual enrollment in schools/classes for children with special needs.
- Be regularly updated in the future (every year or every two years). Data originating from one-of-a-time study should not be used.
- Come from an independent source respected by all stakeholders. A national bureau of statistics often has more credibility than a line ministry.
- Be drawn from a source that cannot be manipulated by one or more local governments. Self-reporting of data by local governments cannot be trusted if local governments are well aware of the link between what they report and the amount of resources they receive in the future.
- Reflect objective drivers of costs (for example, the number of clients) rather than the chosen mode of service provision. Population density is more objective in capturing education cost drivers than the actual class size.

Given that variety of functions assigned to local governments in different countries, there is a great variety of factors included in the grant formulae of those countries. These factors can be classified into two broad categories:

1. Indicators of service need: illiteracy rate, poverty rate, sickness rate, and infant mortality; aggregate projections of some of these variables can be also used for multi-year planning of expenditure needs Q_g in Equation (3);

2. Cost indicators: price index, land area, average temperature, mountainous and forested areas; aggregate projections of these variables can be also used for multi-year projections of unit costs C_g in Equation (3).

One of the most important practical issues is how to determine factor weights that relatively capture the contribution of each cost factor to the relative

[8] Bahl, Roy, Jamie Boex and Jorge Martinez-Vazquez., 2001. The Design and Implementation of Intergovernmental Fiscal Transfers, Atlanta: Andrew Young School of Policy Studies, Georgia State University.

disparities in service costs across municipalities. Several approaches can be used to arrive at a particular set of factor weights in a more or less objective manner. A more scientific approach is to utilize local budget data to establish how the cost of delivering standard services varies across local jurisdictions, and, in particular, how these costs are responsive to variations in socio-economic characteristics of localities.[9] Alternatively, the factor cost weights can emerge from consensus building consultations where all parties agree that it would be fair to allocate that much more resources per capita to municipalities with, for example, that much larger land area per capita. The third alternative to determining factor weight is through examining shares of various expense items in the aggregate sectoral expenditures. If, for example, 70 percent of costs are accounted for by personnel, which increases with population, while 30 percent accounted by transport, which increases with land area, then we might assign weight 0.7 to population and weight 0.3 to land area.

[9] Because this kind of analyses is based on statistical averaging, it assumes that the identified general pattern reflects objective impact of socio-economic characteristics on unit costs while all subjective and idiosyncratic factors represent deviations for this general pattern and are captured in the residuals of the regression equation so that on average positive deviations are offset by negative deviations.

Calculation of expenditure needs for Macedonia—an illustration

Expenditures assignment

Applying the method described above, we demonstrate how calculation of expenditure needs for municipalities in Macedonia can be carried out, using the available data.

As "finance should follow the function," measurement of expenditure needs should be based on a clear understanding of local government competences and costs. Figure 1 shows the evolution of local expenditures both before and after the decentralization reforms launched in 2005. Before the reforms, there was a clear trend of decreasing outlays on subsidies and rapidly increasing capital investments, which more than doubled over 2002-04. During the first phase of decentralization in 2005-2007, local governments were given responsibilities for the maintenance of facilities such as schools and day care centers. In four sectors (education, social welfare, culture, and firefighting) this was accompanied by allocation of earmarked grants from line ministries to cover recurrent non-wage costs in those institutions. As can be seen from Figure 1, local expenditure as a share of GDP increased from 1.72 percent in 2004 to 2.26 percent in 2006, mostly due to doubling of expenses on goods and services. However, capital outlays were declining during this phase.

Since September 2007, local governments have been gradually accepted to the second phase of decentralization. Besides the formal recognition, the only difference that it makes is that salaries for staff of the transferred facilities are funded from a block grant rather than being paid directly by the line ministry. As a result, local expenditure as a share of GDP increased from 2.26 percent in 2006 to 5.53 percent in 2010 mostly due to due seven-fold increase of expenses on wages (Figure 1). As of December 2010, 76 municipalities in all had been admitted to phase II.

Macedonia at this stage of decentralization can be compared with other EU countries. Recurrent expenditures of local governments in the EU countries range from 0.6% of GDP in Malta to

32.8% of GDP in Denmark. The differences among countries in terms of the roles of local governments are driven by certain characteristics of those countries, such as their size, the overall roles of the public sector in the economy and the level of income. For the values of these factors for Macedonia—land area of 25,430 sq. km., GDP per capita of 1,820 constant 2000 US$, and recurrent expenditures of the general government of 31.2% of GDP (in 2005), the comparable benchmark level of decentralization is 4.5% of GDP. As of 2010, the level of recurrent expenditures by Macedonia's local governments stands at 4.39% of GDP. It has to be noted that in the European Union there are only two countries with the level of decentralization below the estimated benchmark of 4.5% of GDP: Malta (0.59% of GDP) and Greece (1.74% of GDP). Similarly, among the non-EU countries in Europe and Central Asia, only a few have the level of decentralization below the estimated benchmark of 4.5% of GDP: Armenia (1.17% of GDP) and Croatia (3.95% of GDP).

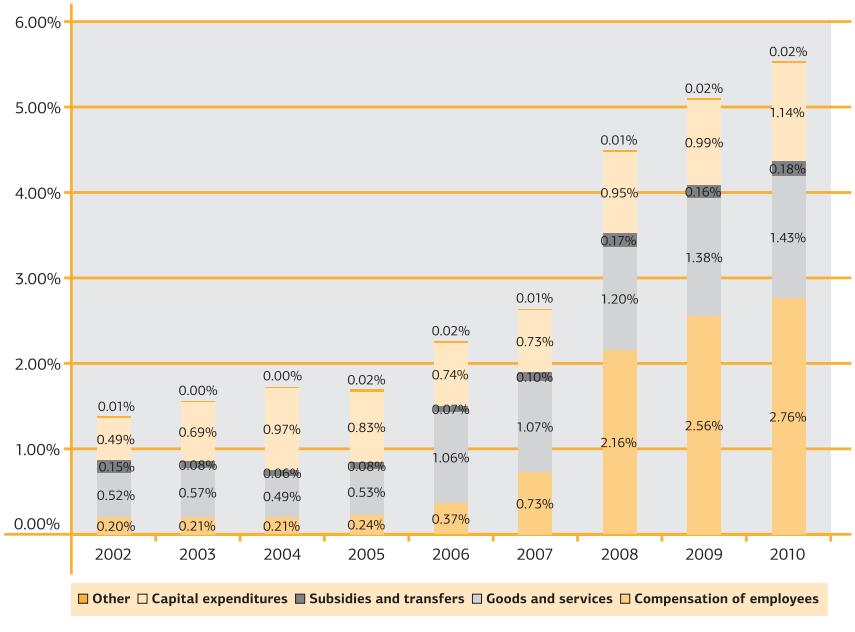


Figure 1. Local expenditures by economic item from 2002-10 (% of GDP)

Source: Calculated by authors based on Ministry of Finance data.

In order to interpret the trends in local governments' expenditures in terms of devolution of powers, we should point out that local authorities have varying degrees of discretion with respect to different parts of their resources. Indeed, local governments operate through a set of separate budgetary accounts: 1) principal budget; 2) the budget of donations; 3) the budget of sectoral grants; 4) the budget of self-financing activities; and, since 2008, also 5) the budget of borrowed funds. Essentially local authorities have full discretion for the allocation of funds from the principal budget account only. Resources in the donations account are often bound by the donation agreement; sectoral grants can be used only in line with staffing and financial plans of institutions (schools, museums, etc.) approved by line ministries; and receipts from self-financing activities (e.g., renting school premises for extra-curriculum activities) are paid directly to the accounts of individual institutions, which can use these moneys at their own discretion (possibly sanctioned by school boards and subject to the general public finance regulations). As shown in Appendix II, as of 2010 the principal budget represents 42 percent of local expenditures down from 70 percent in 2006. In other words, local authorities have full discretion over less than half of their total expenditures.

Table 1. Proportion of Municipalities receiving sectoral grants, 2009

	Rural outside Skopje	Urban outside Skopje	Municipalities in Skopje
Libraries	0/41	22/33	0/10
Music	3/41	18/33	0/10
Museum and cinema	0/41	16/33	0/10
Senior homes	0/41	3/33	0/10
Child day care centers	0/41	32/33	8/10
Primary education	40/41	33/33	10/10
Secondary education	0/41	30/33	0/10
Firefighting	0/41	29/33	0/10

As shown in Table 1, rural municipalities, which constitute almost half of all municipalities and a third of the national population, do not receive any sectoral grants other than for primary education (and in three rural municipalities also music education). While for most functions, all urban municipalities outside Skopje receive sectoral grants, in the cultural sector almost half of urban municipalities do not receive any funding. In Skopje, municipalities do not receive sectoral grants for any function other than primary education and child day care. For all other functions, the sectoral grants are provided to the City Government, whose jurisdiction overlaps the ten constituent municipalities.

As was argued earlier, the choice of specific design options for an expenditure need measure should be made with an eye on the ultimate objective of measuring expenditure needs. While specific policy objectives for the Macedonia's system of grants is expected to emerge as an outcome of consultation among relevant stakeholders, it is very likely that among those objectives will be narrowing *fiscal disparities* among municipalities. Fiscal disparity can be defined, for any government unit, as the excess of its expenditure needs and/or its fiscal capacity relative to some benchmarks. For example, in 2010 per capita own revenues of rural municipalities before grants on average deviated by 85 percent from the rural average, while per capita own revenues of urban municipalities outside Skopje on average deviated by 43 percent from the urban average.[10] At the same time, per capita expenditures of rural municipalities out of general purpose funds on average deviated by 86 percent from the rural average, while per capita expenditures of urban municipalities outside Skopje on average deviated by 41 percent from the urban average. However, as we explain below, rather actual revenues and expenditures, a sound system of grants should be based on the objective notions of expenditures needs and fiscal capacity.

Number of clients and per-client norms

As discussed above, the estimation of expenditure needs under the per client financial expenditure norm methodology requires the calculation of the number of clients for the relevant categories of expenditures. There are several choices that must be considered

[10] The extent of disparity in own-source revenue has narrowed compared to the 2006 level, when it was 101 percent for the rural municipalities and 46 percent for urban municipalities outside Skopje.

in this exercise. One choice is the range of expenditure functions over which to measure the needs. The computation of expenditures needs can be done separately by category of expenditures or for the composite of several local services. As was argued above, it makes sense to group under "general public services" some functions that are unimportant in budgetary terms, and use the local population to estimate the number of clients for this composite category.

The fiscal data for 2010 identify 57 programs in local public expenditures in Macedonia (see Appendix I). However, given the stated above considerations of practicality and transparency, it makes sense to group them into nine categories based on the target clientele and fiscal importance:

1) General public services. This category includes programs A0, D0, D1, DA, E0, EA, R1, RA, T1. It accounts for about 16 percent of total local expenditures, mostly dominated by operation of the municipal apparatus as opposed to the elected bodies. The relative share of administrative costs is in line with the EU average for local governments. General government activities cannot be assigned as a public service to a particular demographic group. Instead, this function benefits the community as a whole. We therefore define the total population in the locality as the client base for this service.

2) Economic affairs. This category includes programs F1, F2, F3, FA, FD, G1, G2, GA, J5, J6, J9, JD, JE, JF, Mb, MG, MV. It accounts for about 14 percent of total local expenditures, mostly dominated by capital investments into roads and other economic infrastructure. Initial infrastructure endowment matters for the estimation of expenditure needs, as the more the roads a locality has, the more funds it needs in order to maintain the transport network system. On the other hand, lower transport infrastructure endowment may signal under-provided localities. To avoid lopsided financing where more developed localities, blessed with better infrastructure, would receive more resources, a fairer option could be per capita allocation possibly adjusted for differences in construction and maintenance

costs. We therefore define the total population in the locality as the client base for this service.

3) Housing, community amenities, and sanitation. This category includes programs J0, J1, J2, J3, J4, J7, J8, JA, JG, JI, JJ, JK, JL, JM, JN. It accounts for about eight percent of total local expenditures, mostly dominated by operation of public lighting and construction of water supply, drainage and sewerage systems. In general, most of these public services benefit entire households rather than a particular age or demographic group. We therefore define the total population in the locality as the client base for this service.

4) Recreation and culture. This category includes programs K1, K2, K3, K4, KA, L0, LA. It accounts for about five percent of total local expenditures, half of which is of capital nature. Given fact that it benefits all demographic groups (although arts schools might benefit youth more), the client base for this service can be defined as the total population in the locality. It could be more practical to consolidate these programs in the "general public services" category. More to the point, currently all capital investments and almost half of operational costs in this sector is financed from the principal budget of local governments (which might include capital grants). However, because some programs in this sector (libraries, museums, and performance arts) are currently financed with sectoral grants, we consider them separately.

5) Firefighting. This category includes programs W0 and WA. It accounts for only about 1.6 percent of total local expenditures, most of which is of recurrent nature. Given its little fiscal significance and the fact that it benefits all demographic groups, it would be more practical to consolidate these programs in the "general public services" category. However, because these programs are financed with ring-fenced grants, we consider them separately. Moreover, in reality those local governments who receive funds for firefighting provide this service not only in the territory of their own municipalities but also adjacent ones. Therefore, the clientele base can account for population

not only of the municipalities providing this service, but also population of adjacent areas receiving this service from the municipality in question.

6) Primary education. This category includes only one program: N1. In 20010 it accounted for over one third of total local expenditures, which also included wage expenses in 73 municipalities. In 2006, when wages were paid by line ministries, these programs accounted for about twelve percent of total local expenditures. While the age of obligatory enrollment in primary schools is 6-15 years old, available demographic data only provided the number of children between 5 and 14 years old. Although the best option is to consider a range of 6-15, for this exercise we define the number of potential clients for education services as the number of children residing in the jurisdictions between the ages of 5 and 14 years (which in the practical application should be lagged by one year).

7) Secondary education. This category is comprised of two programs corresponding to recurrent (N2) and capital expenditures (NA, ND), the latter reported by only five municipalities and the City of Skopje in 2010. In 2010 the three programs accounted for 16 percent of total local expenditures, which also included wage expenses in 27 municipalities and the City of Skopje. In 2006, when wages were paid by the line ministry, this program accounted for about eight percent of total local expenditures. Determining the clientele size for this program presents a couple of challenges. First, available demographic data only provide the number of children between 15 and 19 years old, while the age of obligatory enrollment in secondary schools is 16-18 years old. The second challenge is that although the current legislation does not differentiate competencies among different types of local government units, in practice less than half of all local governments provide secondary education and receive grants for this purpose. Moreover, those local governments who receive funds for secondary education provide this service not only for eligible population among their residents but also for residents of other jurisdictions. Because the law

should be of primary guidance here, until a policy decision is made resulting in legal amendments, we proceed under the assumption that all local governments have to provide secondary education to eligible population among their residents and, for the purpose of our illustrative example, define the number of potential clients as the number of local residents between the ages of 15 and 18 years old. We do have to acknowledge that, even when having the financial means, municipalities without secondary schools would have to enter into contractual arrangements with other municipalities or private schools to deliver this service to their residents. As an alternative, in some of our simulations we will consider the school enrollment as the clientele base regardless of which municipality the students reside in.

8) Child day care. This category is comprised of just two program (V1, VA), which in 2010 accounted for six percent of total local expenditures, which also included wage expenses in 38. In 2006, when wages were paid by the line ministry, this program accounted for about five percent of total local expenditures. Similarly to the case of secondary education, determining the clientele size for this program presents a certain challenge. Although the current legislation does not differentiate competencies among different local government units, in practice less than half of all local governments provide child day care to their residents and receive grants for this purpose. We proceed under the assumption that all local governments have to provide child day care to eligible population among their residents and, for the purpose of our illustrative example, define the number of potential clients as the number of local residents aged less than or equal to 4 years old.

9) Senior care. This category is comprised of just one program (V2), which in 2010 accounted for 0.42 percent of total local expenditures, which also included wage expenses in 3. In 2006, when wages were paid by the line ministry, this program accounted for about five percent of total local expenditures. Similar to the case of high schools, determining the clientele size

for this program presents a certain challenges. Although the current legislation does not differentiate competencies among different types of local government units, in 2010, only four municipalities and the City of Skopje reported expenditures in this sector, out of which only three were receiving funds from the line ministry. Moreover, those local governments who receive funds for senior care provide this service not only for eligible population among their residents but also for residents of other jurisdictions enrolled by the line ministry. Because the law should be of primary guidance here, until a policy decision is made resulting in legal amendments designating this function as delegated, we proceed under the assumption that all local governments have to provide senior care to eligible population among their residents and, for the purpose of our illustrative example, define the number of potential clients as the number of local residents over the working age (65+ years old). This would also fit the national policy shift towards deinstitutionalization of social care. As an alternative, one can consider actual enrollment as the clientele base regardless of which municipality the clients were enrolled from.

It must be noted that the criteria opted for in the estimation of the number of clients per expenditure category, although well aligned with current international practice, are of course subject to improvements and are intended to serve as mere examples of how the per client expenditure norms should ideally be designed. In general, it is crucial to have well defined expenditure responsibilities and a shared understanding on the main factors determining the differences in costs and needs among localities. Once these conditions are met, it is relatively simple to estimate the number of clients per function and perform the required cost adjustments.

Expenditure category	Aggregate expenditures needs (2009, ‰of GDP)	Aggregate expenditures needs (2010, ‰of GDP)	Aggregate expenditures needs (total exps. 2010)	Estimated number of clients (2009)	Expenditure norm
General public services	0.78%	0.87%	3,667,064,357	2,056,509	1,783
Economic affairs	0.60%	0.75%	3,158,441,569	2,056,509	1,536
Housing, community amenities, and sanitation	0.49%	0.47%	1,986,224,248	2,056,509	966
Recreation and culture	0.20%	0.25%	1,054,174,494	2,056,509	513
Firefighting	0.09%	0.09%	363,048,857	2,056,509	177
Primary education	0.40%	0.35%	1,475,052,617	254,860	5,788
Secondary education	0.26%	0.30%	1,283,115,507	155,706	8,241
Child day care	0.17%	0.16%	678,338,141	112,671	6,021
Senior care	0.02%	0.02%	79,616,467	237,068	336

Note: For education, child day care and senior care, these figures do not include payroll to avoid inconsistency between phase I and phase II municipalities.

Table 2. The computation of expenditure norms (2010 values, in MKD)

Source: Authors' own calculations

It is important to note also that the standards per client can be easily adjusted upward or downward to the different costs of provisions of a particular service by applying a relative cost index to the standard. Table 2 presents a summary of the selected expenditure categories and their respective number of estimated clients, together with the respective per client expenditure norms derived in a top-down manner, the total municipal expenditures in a particular category divided by the number of potential clients.

In our numerical example, we use the actual amount of resources allocated to specific programs in the country as a whole to produce meaningful illustrative calculations of a top-down expenditure norm. However, as we pointed out earlier in the study, when the top-down approach is used to develop affordable norms in practice, the aggregate expenditures needs do not necessarily have to be estimated from actual budget expenditures. For example, the aggregate expenditures needs can be determined from the sectoral percentage of the budget envelope set on a multi-year basis in a medium term expenditure framework of aggregate service demand and costs of those services.

As was explained above, the expenditure need for each function and locality is computed by multiplying the per client expenditure norm by the cost adjustment coefficient and the number of clients in the locality. Thus it can be shown that the existing VAT formula effectively assesses expenditure needs of municipalities using a single top-down financial norm covering all local expenditures other than those financed with sectoral grants.[11] Furthermore, under the current system this single financial norm is effectively adjusted upwards (downwards) for municipalities that have more (less) land area per person and settlements per person.

Appendix III illustrates how the variable part of 2011 VAT grant formula can be reformulated in per capita terms adjusted for the same three factors (land area and the number of settlements, in addition to population) but now in a multiplicative form: adjustment coefficient x per capita norm x population.[12] Although retaining the current pattern of grant distribution, it would offer a more transparent framework for the current allocation, while laying out the foundations for the level of reform envisioned in the medium term

Indeed, the cost adjustment coefficient implied by Macedonia's 2011 general purpose (VAT) grant formula has two factors: land area per capita with the weight a^1 equal to 0.27 and the number of settlements per capita with the weight a^2 equal to 0.08:

$$\mathbf{c_i=1+0.27*(land/pop-LAND/POP)/(LAND/POP)+0.08*(n_i/pop_i-N/POP)/(N/POP).}$$

[11] See the 2008 Feasibility Study for the demonstration this equivalence.

[12] In 2011, in addition to the variable part depending on the population, land area, and the number of settlements, each local government unit also received a fixed amount of MKD 3 million.

For example, the municipality of Vranestica has 414% more land area per person and 903% more settlements per person than the average for municipalities outside Skopje. Therefore, the cost adjustment coefficient implied by the VAT transfer formula is 1+0.27*4.14+0.13*9.03=2.84. This means that the current VAT formula implies almost three times higher costs per resident in Vranestica than the average per person costs.

Conclusion

Fiscal decentralization in Macedonia has laid out most of the institutional requirements for equitable service delivery for all citizens. The next phase of reform aims to focus on intergovernmental transfers. In this regard, we have provided a technical discussion of expenditure needs and elaborated a method for their calculation. Given the available data we have provided a demonstration of application of this method to calculation of expenditure needs for municipalities. In doing so, we have aimed to focus the discussion on policy parameters and subordinate the claims to entitlements to comparable criteria for expenditure needs. Many valid policy questions will remain on the discussion table as the reform is undertaken. Whether total sectoral allocations are appropriate at the current level or should they be enhanced for key sectors like education and early childhood development. Whether client population is appropriately defined or another definition should be used as substitute. If decentralized decisions are to be allowed, should expenditure needs take into consideration service provided across jurisdictional boundaries. These and other questions of this kind would be necessarily discussed as the formula for expenditure needs is finalized and adopted. At the same time, the contribution of this report will be to move the discussion to such policy questions and focus them on relevant policy parameters.

2. REVENUE ASSIGNMENT STUDY

Introduction

It is widely accepted that the only flexible way to ensure adequate financing of local government services is through providing local governments with sufficient taxing powers, most preferably in the form of discretion over tax rates for some tax bases with meaningful revenue potential. A level of revenue-raising discretion is a good policy choice for financing decentralized public services, as it leads to greater accountability and it creates the basis for local creditworthiness. First, endowing local governments with a degree of revenue collection discretion at the margin allows them to increase or decrease those expenditures over which they are allocated responsibilities in response to the needs of their constituency. Second, local taxpayers will have a strong interest in assuring that local officials use local tax resources wisely. Without having to raise any revenue locally, local government officials would be able to ignore local residents and may be beholden to the interests of the central government or to their own interests. Dependence of local governments on the revenue decisions of the central government (including decisions on sharing revenue from national taxes and most other forms of transfers) undermines the accountability of local officials to their constituency by offering an easy "scapegoat" for poor local performance ("we do not get enough resources from the central government"). However, it must be recognized that not all local jurisdictions are likely

to have equal economic bases or revenue raising capacity, and for that reason revenue autonomy policies need to be accompanied by intergovernmental equalization grants to address potential fiscal disparities among municipalities.

When the current decentralization reform was launched in Macedonia in 2005, locally-raised revenue on average accounted for almost half of local budgets. However, the bulk of that revenue derived from two unstable sources (development fees and the property transfer tax), which hardly qualify as good local revenue sources. As we explain further in this study, a good local revenue source should be linked to the benefits of local government services and have a stable revenue yield. Moreover, as the decentralization process advanced to the second phase in 2007, the size of local expenditures relative to GDP increased by a factor of two in line with the levels observed in other countries comparable in size and income level.[13] To achieve this level of decentralization without increasing transfer dependence of local governments, local governments should have been provided with additional revenue instruments. In the absence of new tax handles, the share of intergovernmental revenue transfers in local budgets increased from under one half to almost 70 percent.

In this study, we review several potential candidates for new local tax handles, which have worked fairly well in many other countries and appear suitable in Macedonia's context. Nevertheless, because the central government may have an advantage in centralizing the collection of many productive taxes, there is likely to still be a vertical imbalance which needs to be closed by central government transfers. Therefore, we will follow the rule of thumb in the theory of revenue assignments that the identification of new tax instruments should aim to allow the richest (in terms of fiscal capacity) jurisdictions have approximately enough funds to cover their exclusive expenditure responsibilities. Currently, even in Skopje, own source revenues cover less than forty percent of their total expenditures and only 81 percent of their exclusive expenditures (principal budget) expenditures in sectors other than education, child day care, senior care, culture, and firefighting).

[13] For comparative data see Appendix VII in Cyan, M., Martinez-Vazquez, J., and Timofeev, A., 2009. Final Report Financing equitable service delivery for all citizens. Skopje, UNDP.

Conceptual framework and international experience

For efficient decentralization the assignment of revenues to sub-national levels of government needs to meet several basic criteria. First, it would need to predictably provide sufficient resources to local governments so as to allow them to perform the expenditure tasks assigned. These include local own tax revenues and fees and other user charges local governments may be allowed to levy, revenues from transfers, including, derivation-based sharing of national tax revenues, and borrowing powers. In practical terms, this criterion requires that the legal documents specifying the roles and responsibilities of different tiers of government define explicit (and guaranteed for a certain period) revenue assignments for all levels of governments in order to ensure predictable financing. Otherwise, vagueness may create perverse incentives for revenue mobilization at the local level. While to stability of revenue requires resilience to shortterm economic fluctuations, the yield of the local revenues sources should nevertheless increase with the upward trends an economy shows in the long-term, in other words being elastic.

Second, the revenue assignment should endow local governments with a degree of revenue collection discretion at the margin so to be able to increase or decrease those expenditures over which they are allocated responsibilities. A level of revenue autonomy is a good policy alternative to fund decentralized expenditures, it leads to greater accountability and it creates the basis for local creditworthiness. The best way to ensure revenue autonomy at the sub-national level is to provide sub-national level governments with the ability to change the tax rates of a closed list of taxes.

Third, a sound local tax should establish correspondence between the jurisdiction in which a tax is levied and the area in which the benefits are received from the local services funded with that revenue source. Adherence to this correspondence principle gives local governments the right incentives to fund an optimal

[14] "Tax exporting" is a situation in which the burden of taxes imposed by one subnational government is borne by the residents of other jurisdictions who do not benefit from services provided by the government levying the tax.

amount of locally provided goods (where marginal costs equal marginal benefits). The correspondence principle would be violated by local taxes that can be "exported" to taxpayers in other jurisdictions.[14] Such practice is not only unfair but also encourages overexpansion of public expenditures. Although clearly tempting and attractive to individual local governments, the assignment to local governments of taxes that can be exported lead to inefficient and irresponsible behavior of local governments at a national scale.[15]

Accountability would be further increased if we could establish correspondence between taxes and benefits not only in terms of the geographic area but also in terms of different groups of taxpayers within one area (this is known as the "benefit principle"). In this respect, the use of fees and user charges to finance local services is a good practice and perfectly justified for direct services rendered by local governments to their residents. However, the use of fees for general government services, such as education, can have very adverse effects on the access of the poor to those services and generally a negative impact on equity. It would be desirable to conduct a survey of fees currently being charged at the local level to assess their incidence and impact on welfare.

For local services that cannot be charged per use, such as street lighting, the second best is to use benefit taxes, which are compulsory contributions to local governments that are nonetheless related in some manner to benefits received by the taxpayer. As such, for benefit taxes there is either a specific or general link between the amount of taxation and the benefits from a specific government service. An example of *specific* benefit taxes is constituted by betterment levies, when the size or value of a residential property relates quite closely to an individual taxpayer's benefits received from street improvements on which the property is located. By contrast, *general* benefit taxes can be exemplified by charges levied on motor vehicles and motor fuels, whose revenues can be used for the construction and maintenance of roads and highways and thus benefiting road users as a class.

Likewise, property taxes are often considered a good benefit tax to finance public goods with a localized benefit. Property taxes are a good and commonly used local government source. First of

[15] Examples of taxes that are likely to be exported in large part include local taxes on production, when the products are consumed or utilized outside the local jurisdiction levying the tax. This is particularly the case for excises levied on the production of alcohol or production taxes on local mineral resources. In these instances, although the revenue is collected in the jurisdiction in which the production occurs, the tax burden is typically passed on (mostly) to the consumer through higher prices. As a result, most of the local tax burden is "exported" outside the locality, and paid by consumers outside the local jurisdiction.

[16] The balance between the services received by property owners and the property taxes they pay on their real estate typically can be capitalized into property values. That is, property taxes do not have to reduce the market value of dwellings in the market if the general perception is that the quality of services provided by the local government is good.

all, the property tax is a visible tax and thus conducive to political accountability. When both property and population are homogeneous and ownership of property is widespread, a property tax complies with the benefit principle.[16] In other situations, property taxation can weaken the benefit link by moving the tax burden on to a few classes of property such as non-residential property. However, taxation of property in an equitable way requires costly revaluation of property on a regular basis. Property taxes further follow the ability-to-pay principle, although some liquidity problems may be present for those homeowners with valuable real estate assets and low income.[17] In principle, the property tax should be easy to administer since property is very visible and immobile across local jurisdictions, which should give local officials a strong "tax handle".

Another good source of local revenue is a flat rate local piggyback income tax, which satisfies

[17] Being "house rich and income poor" can be a problem for elderly people. Some countries use especial exemption schemes ("homestead exemptions" or "circuit breakers") to increase equity in the implementation of property taxes.

Box 1: Local piggyback taxes

In the most common practice, piggy-back local taxes are collected by the central government as a surtax to a central government tax, but local governments are allowed to set the rate for the surtax and receive the proceeds from the subnational surtax on a derivation basis.

The most common type of piggyback taxes is a flat rate local income tax. However, the international practice also shows cases of piggyback sales taxes and piggyback excise taxes. Consistent with the principles of revenue assignment, the overall attractiveness of piggy-back taxes as a fiscal policy tool can be summarized by its main three benefits: (1) Piggyback taxes allow a relatively high degree of centralized control over the country's tax system (2) Piggyback taxes with rate setting give local governments an excellent degree of tax autonomy; (3) Piggyback taxes are administratively simple and feasible.

Some tax practitioners object to the notion of imposing multiple taxes based on the same tax base. The main argument is that imposing multiple tax rates on the same tax base could lead to excessively high tax rates. Of course, this could easily be prevented by coordinating the range of tax rates that can be applied by the different government levels. Given that tax payers (both households and firms) receive services from various levels of government, there is conceptually nothing wrong with taxing the same tax base, particularly when this can be done in an efficient and effective manner through a piggy-back style tax.

the benefit principle and, being quite visible, it promotes political responsibility and accountability (See Box 1 for a general description of piggyback taxes). This is also an elastic tax with revenues increasing commensurable with income, so that as the demand for local services increases with income, so do tax revenues. Ideally, local governments should have a balanced mix of inelastic revenues to provide uninterrupted services during economic decline and also some elastic revenues to meet the growing demand for services as the local economy expands.

Most international examples of a local income tax represent piggy-backing on the central governments income tax, which is collected by the central government tax administration. To enhance revenue autonomy, local governments may be allowed discretion in setting the flat rate between minimum and maximum rates, which are centrally legislated.[18] Because, local governments may be quite diverse in terms of tax bases and levels of economic development, it is also possible to have an asymmetric implementation of this type of tax, so that only larger cities or only urban areas are assigned such a tax.

In countries where informal sector accounts for a significant part of economic activities, a presumptive income tax is worth consideration both as a source of local revenue and a way to bring informal businesses into the tax net (see Box 2 for more details). Furthermore, similar to the case of property taxes, a local tax administration of presumptive taxes, especially in the form of lumpsum license fees on micro-businesses and self-employed, is more desirable as local governments may have superior knowledge of local circumstances and ability to tailor procedures to local conditions and therefore be more effective in tax enforcement.

[18] Other forms of tax autonomy, such as the ability to modify the base of the tax by providing more or less deductions, exemptions and so on do take place in the international experience but they are much less attractive because they make tax administration and enforcement so much harder.

Box 2: Benefits of presumptive taxation

Potentially, the use of presumptive taxes, especially when replacing the regular tax regime for the narrowly defined groups of taxpayers, can bring out three distinct benefits: 1) reducing compliance costs for small taxpayers; 2) increasing the effectiveness of regular tax enforcement, which does not have to deal with a large number of businesses having tiny taxable bases; 3) providing a smooth path for a business from informal to fully compliant status after graduation from this special tax regime. In addition, presumptive taxation can improve overall tax morale by narrowing horizontal inequalities (e.g., between formal and informal businesses, between salaried employees and self-employed, etc.).

The flip-side is that, because this tax applies to a large number of small taxpayers, it can result in a lot of political petitions, resulting in substantial administrative costs of frequent adjustments of this tax, which can be hardly justified by its modest revenue potential. Also, because the imputation is based on average profitability for a given line of business, it places a larger burden on businesses with a below-average profitability and in particular on startup businesses.

Using indirect indicators, such as a size of assets and employment, for imputing presumptive income, makes this tax act as a tax on those specific inputs to production and thus can discourage creation of new assets or new jobs. To make presumptive taxes neutral to the mixes of various production inputs, it should take into account the broadest possible range of inputs or a broad indicator such as gross turnover.

Based on international experience, the most feasible way to balance the aforementioned considerations appears to be in the form of annual business license fees, also known as patents. Being a final tax, lump-sum presumptive taxes promote expansion of economic activity as they place a zero marginal rate on each additional unit of business income.

Unlike, a regulatory license, which is granted only if certain conditions are met by the business (e.g. making sure businesses working with food meet hygiene standards), issuance of a pure revenue license does not require any inspection of the business, and the procedure should be as straightforward as possible.

Source: Wallace (2007) and Pashev (2006)

Finally, despite conventional wisdom in the definition of good "local taxes," in depth, individualized analysis of the available revenues sources need to be undertaken to confidently decide that the level of government assigned the revenue source can manage the tax efficiently. This is what we are set out to do in the section immediately below.

Revenue assignment in Macedonia

Macedonia's tax system

Macedonia's revenue raising effort of 28.8 percent of GDP in 2011 is below the average for unitary OECD countries (34%) but comparable to some of those countries, such as Greece (30%), Ireland (28%), Portugal (31%), Slovak Republic (29%) and to a lesser extent Turkey (25%).[19] In the European Union, with the average tax effort of 39%, only a few countries have tax collections as low as Macedonia: Bulgaria (29%), Ireland (28%), Latvia (27%), Lithuania (30%), Romania (27%) and Switzerland (30%).

The major deviation of Macedonia's revenue structure from EU and unitary OECD countries is its higher dependence on indirect taxes and lesser reliance on taxation of income and profits. (Table 3) The latter can be explained by the heritage of informal sector, which was estimated to be one of the largest among central and eastern European countries in the 1990s, in excess of 40 percent of GDP.[20] Macedonia's reliance on taxing goods and services (48% of total tax revenue) is comparable to some OECD countries, such as Chile (56%), Mexico (50%), Turkey (46%), and Estonia (41%). In the European Union, with the average share of indirect taxes at 28% of total tax revenue, only Bulgaria relies as heavily on indirect taxes (51% of total tax revenues). Furthermore, having the lowest collections of direct taxes in the EU, Bulgaria still collects fifty percent more than Macedonia in taxes on income and wealth (5.6% of GDP or 19% of total tax revenues)

Thus, based on this assessment, the only tax room that would be available for extending local revenue capacity is in direct taxation, including taxes on income and wealth/property. A few options are worth studying in this regard: as we explain below, the property tax yield could be increased multifold to bring it to the average in other transitional countries. The second area of extending local taxing authority is in taxation of personal income, where the national government recently vacated tax space by lowering the rate of the national tax from 12 to 10 percentage points. However, until the informal economy is brought under

[19] As of 2012, the Organisation for Economic Co-operation and Development (OECD) includes 34 member countries: Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States.

[20] Schneider, Friedrich and Dominik Enste (2000): Shadow economies: Size, causes, and consequences, The Journal of Economic Literature, 38/1, pp. 77-114.

control, direct taxes would fall disproporti onally on formal sources of income and this lopsided incidence of the tax burden could further reduce tax morale. Furthermore, in the presence of high statutory rates of social contributions, direct taxes on salaried labor would further increase the tax wedge on the labor and discourage formal employment[21]. Therefore, in the short-term, local taxing powers can be mostly broadened in the areas of economy untapped by national taxes: self-employed and informal micro-businesses. To avoid double taxation, these local taxes should be allowed as non-refundable credits towards tax liabilities on national taxes on income paid by those taxpayers who comply with national taxes. In other words, individual taxpayers should be allowed to claim a credit against their national Personal Income Tax liability for the local tax payments made as sole proprietors of unincorporated businesses. Thus, essentially the proposed local taxes will act as minimum taxes on the hard-to-tax sources of income. If some unincorporated businesses do not fully report their business income to the Public Revenue Office, at least some tax revenue will be collected from them by the local governments. Furthermore, the national budget will not lose any revenue due to tax credits as PIT payments from individual entrepreneurs are currently decreed for local budgets[22] The same applies to allowing credits for local taxes on non-residential property against income tax liability of both incorporated and unincorporated businesses.

[21] After dropping by as much as ten percentage points since 2006, as of 2010 Macedonia had a marginal rate on labor of 37% (10% PIT + 27% SSC), which is not particularly low. Given the deductions, Macedonia's average tax on labor of about 32% can be compared to that of upper-middle income countries in the EU: Bulgaria (24.4%), Latvia (32.5%), Lithuania (31.7%), and Romania (27.4%), More cross-country comparisons can be found in "Labour tax burden in the "flat tax" Western Balkan states: A comparison" presented by Kreso, S. and Lazovic-Pita L. at the he 5th International Scientific Conference "Entrepreneurship and Macroeconomic Management Reflections on the World in Turmoil", University of Pula, Croatia, 03/2011

[22] A somewhat related possible administrative measure to tap into income from underreported business activities is for local governments to withhold a certain percentage from payments for services procured from unincorporated businesses. Again, because the amount withheld by local governments would be credited against the national Personal Income Tax, which in turn is allocated to the local budget in the case of individual entrepreneurs, this would not introduce any additional tax burden on tax compliant businesses while securing some revenue from businesses that underreport their revenue,

	Macedonia, 2011			For reference, unitary OECD countries, 2009		
	General govt	Central govt	Local govt	General govt	Central govt	Local govt
Total tax revenue	**28.83**	**27.33**	**1.50**	**34.28**	**29.88**	**4.40**
Taxes on income, profits and capital gains	3.11	3.06	0.05	11.00	8.30	2.70
Social contributions	9.33	9.33	0.00	9.88	9.88	0.00
Property taxes	0.48	0.00	0.48	1.70	0.70	1.00
Taxes on goods and services	13.81	13.81	0.00	10.80	10.50	0.30
Other taxes	2.09	1.12	0.98	0.90	0.50	0.40

Table 3. Macedonia's tax system, % of GDP

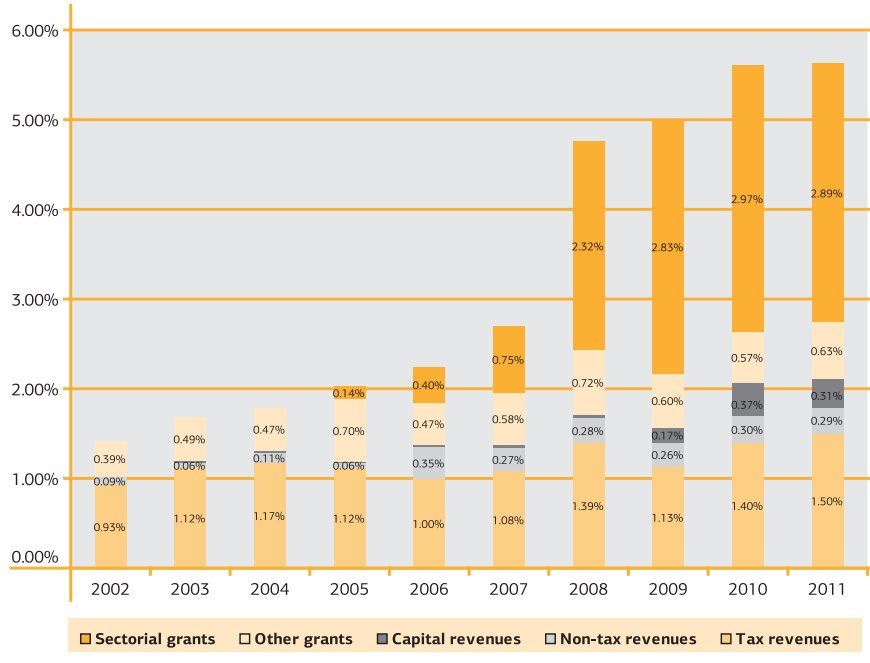
Source: Calculated by the authors based on data from the Ministry of Finance and OECD (2011)

Local revenue sources

In Macedonia, own sources (tax and non-tax) used to generate more than half of local revenues as shown in Figure 2. However, since the launch of the second phase of the decentralization reform in October 2007, it has dropped to 30% of total revenues of local government. This indicates an increasing reliance on central government grants as own-source revenues, while increasing, are still outpaced by increases in devolved expenditures. Although, in 2006 the transfer of public facilities from line ministries led to a sharp increase in municipal non-tax revenues in the form of user-fees and property leases, covering more than two-thirds of non-wage expenses in secondary schools, child day care, and senior homes, it subsequently declined when the central government abolished high school tuition. One should also note a dramatic increase in capital revenues starting from 2009, mostly accounted for by proceeds from sales of the nationally-owned construction land, municipal assets, and to a lesser extent mineral resource concessions.

Apart from being diluted with sectoral grants, the share of own source revenue (tax and non-tax) has also declined in the principal budgets of local governments, which cover all general purposes expenditures (all functions except the four covered with sectoral

Figure 2.
Local revenues as percent of GDP: 2002-11



Source:
Calculated by the authors based on Ministry of Finance data.

grants). As of 2010, the average share of tax and non-tax revenue in the principal budget was 69% in Skopje, 51% in urban municipalities outside Skopje (min=11%, max=76%) and 34% in rural municipalities (min=5%, max=67%). This indicates wide ranging variations in the extent of self-sufficiency of municipalities.

While the Law on Financing the Units of Local Self Government (Art. 4-7) and subsequent legislation provide local governments with a long list of revenue instruments, most of them have limited revenue yield. In fact, more than three quarters of locally-raised revenue is accounted for by just four tax instruments: development fee, property transfer tax, property tax, and the electricity fixed levy (for public lighting, see Figure 3). One should note that the revenue yield for the (annual) property tax is quite low at 0.18 percent of GDP in 2011; this yield should be increased to at least the average in other transitional countries, which means that the yield needs to be multiplied at least by a factor of three. At the same time the taxation of property transactions is heavier than in other countries yielding 0.30 percent of GDP in 2011. Similarly, the development fee, which technically should cover the costs of extending public infrastructure to new construction sites, report-

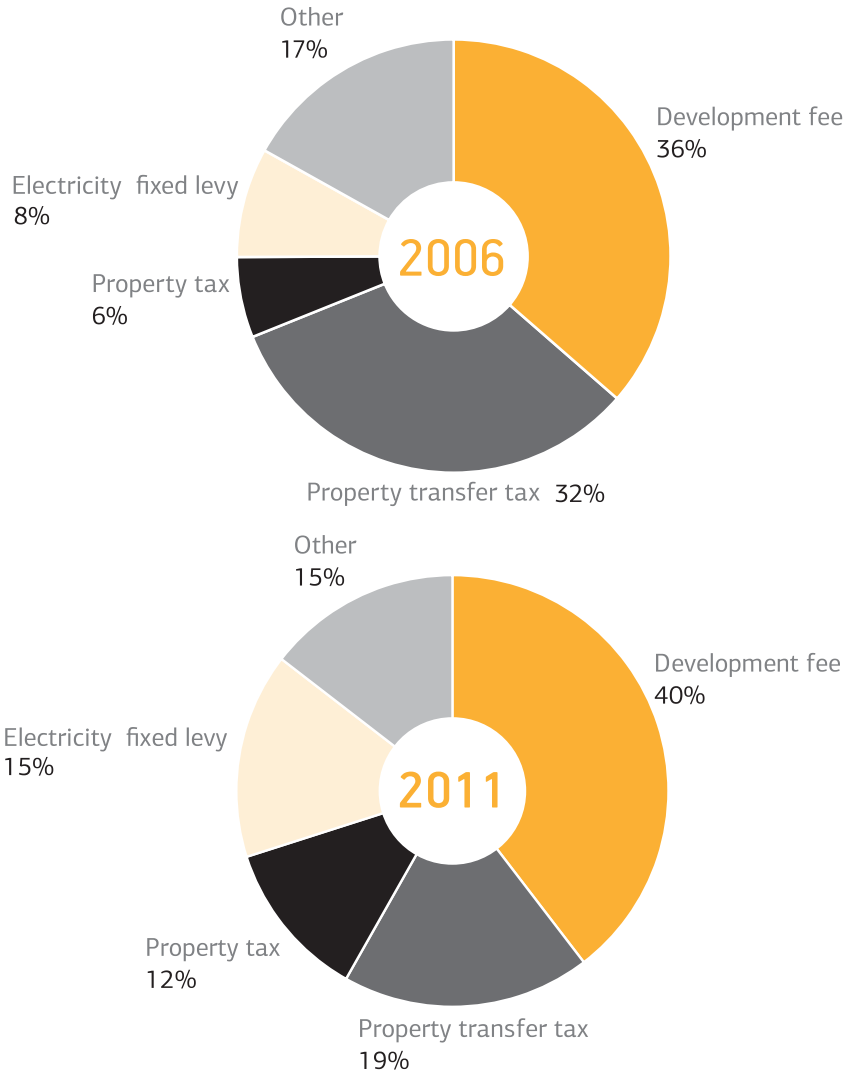


Figure 3. Composition of local tax revenue, 2006 and 2011

Source: Calculated by authors based on Ministry of Finance data.

edly places the burden of all infrastructure upgrades— including those for existing properties—on new development projects[23]. The low yield of the property taxes is not just a matter of weak administrative capacity in rural municipalities. Even Skopje municipalities collected in property taxes only 0.49 percent of GDP recorded in the Skopje Statistical Region in 2009, out of which 0.13 percent of GDP was in annual property taxes and 0.33 percent of GDP in taxes on property sales.

Before 2005, local governments' independent collection of revenues was limited. Most revenues were collected by regional branches of the Public Revenue

[23] In some countries a better mechanism for financing general upgrading of services in a neighborhood can be found in the form of betterment levies.

Office of the Ministry of Finance and deposited in the national treasury account and then the funds were distributed to the municipalities in accordance to derivation and equity criteria. Starting with the first phase of the fiscal decentralization in July 2005, the responsibility for collection of revenue from municipal revenue instruments was assigned directly to the municipal administrations. Within the first couple of years, there was an increase in collections from all own source of local government revenues, other than the development fees. The revenues from development fees initially dropped due to delays in the approval of local master plans by the Ministry of Transport, which provide the necessary basis for issuance of construction permits. But once the situation with master plans had been resolved, this revenue fully recovered by 2008.

Over time, with implementation of decentralization, composition of local tax revenue has changed in some noticeable ways. The relative size of different components has changed noticeably between 2006 and 2011 as shown in Figure 3. The property transfer tax has come down from 33 percent of the total to 19 percent. On the other hand, revenue from the annual property tax has increased from 6 percent of the total tax revenue to 12 percent and the electricity fixed levy revenue from 8 percent to 15 percent. This is a positive development as it signifies the shift from one-time charges for construction permits and property sales to recurrent charges such as the annual property assessment. However, the share of the development fees, the largest component of local tax revenue, while experiencing a pro-cyclical dip in 2009, is as large today as it was in 2006.[24]

It is also important to note that the yield of local tax handles has increased over time. Table 4 reports the collections from various local taxes as percentage of GDP. The total local taxes amounted to 1 percent of GDP in 2006. In 2011, the total local tax collection has increased to 1.5 percent of GDP. The table shows that the major increases have come in collections on account of both the property taxes and non-property (communal) taxes. Under the category of communal taxes, the main sources of increase in collections have been the electricity fixed levy, business signage fee, and development fee. The increase in collections is not uniform. The

[24] Between 2008 and 2010, the share of development fees in own- source revenues went up from 15 to 18 percent in rural municipalities, went down from 25 to 18 percent in urban municipalities outside Skopje, and remained around 45 percent in the City of Skopje.

collections from inheritance and gift taxes have increased but collection under the tax on transfer of real estate and rights has decreased from 0.32 percent of GDP to 0.28 percent of GDP. To some extent the increases in collections under property taxes, business signage fee and development fee indicate municipal level policy and administrative measures. At the same time, the small yield of property taxes still indicates an area where further municipal effort could bear higher revenue yields over time. In particular, taxation of commercial properties, first introduced in 2008, still yield less revenue than taxation of residential properties, which is the reverse of what is observed in many other countries. [25]

[25] While commercial property became taxable in 2008, the first tax bill was due in January 2009. Reportedly, in 2009 some municipalities were classifying this revenue under the old code, which is now used for residential properties only.

Table 4. Yield of local taxes in 2006-2011 (% of GDP)

	2006	2007	2008	2009	2010	2011
Tax revenues	**1.00**	**1.08**	**1.39**	**1.13**	**1.40**	**1.50**
Personal income tax	0.06	0.05	0.02	0.02	0.02	0.04
Property taxes	0.39	0.45	0.49	0.46	0.48	0.47
- Tax on residential property	*0.06*	*0.09*	*0.12*	*0.14*	*0.14*	*0.13*
- Tax on commercial property	*0.00*	*0.00*	*0.00*	*0.00*	*0.03*	*0.04*
- Inheritance and gift tax	*0.01*	*0.01*	*0.01*	*0.02*	*0.02*	*0.02*
- Tax on transfer of real-estate and rights	*0.32*	*0.35*	*0.35*	*0.30*	*0.29*	*0.28*
Communal taxes	0.52	0.61	0.88	0.64	0.87	0.97
- Business signage fee	*0.03*	*0.05*	*0.05*	*0.05*	*0.08*	*0.08*
- Usage of roads/vehicle registration	*0.02*	*0.02*	*0.01*	*0.01*	*0.02*	*0.02*
- Electricity fixed levy (for public lighting)	*0.08*	*0.09*	*0.18*	*0.21*	*0.22*	*0.23*
- Development fee	*0.36*	*0.40*	*0.61*	*0.33*	*0.50*	*0.59*
Other tax revenues	0.02	-0.03	0.01	0.01	0.03	0.02

Note: While technically being derivation-based tax revenue sharing, PIT shared revenues is reported here as a precursor for a local surtax on PIT

Source: Calculated by authors based on Ministry of Finance data.

Conclusions and specific recommendations

The main problem with revenue assignments in Macedonia is the need to restore the share of locally-raised revenues in local budgets, which significantly declined as a result of the second phase of decentralization. Even though local governments have discretion to change the rates of property taxes, recently extended to non-residential structures, this and other local taxes still fall short of providing adequate financing for dramatically increased local expenditures. As a general rule, own revenue sources should provide the richest jurisdictions with close to 100 percent of their expenditure needs. While local governments within the City of Skopje on average finance over eighty percent of their principal budgets from own sources, these revenues cover less than forty percent of their total expenditures, once you include education, child daycare, culture and firefighting. Even if the yield of the annual property taxes were to triple to 0.5 percent of GDP in the Skopje Statistical Region, this would only bring own-source revenues of Skopje municipalities to cover 100% of their exclusive expenditure responsibilities (that is excluding education, child daycare, culture and firefighting). This raises an important policy question about the status of the four recently decentralized functions. If they are not just delegated functions but are part of the local sphere of responsibility, then the revenue assignment should be revised upwards to keep up with the increased role of local governments. Furthermore, out of these own sources of revenue only for property taxes do municipalities have discretion to set the tax rate, which is allowed to vary by a factor of two. Thus, municipalities can affect at most by 30 percent their own revenues, which account for less than one-third of their total expenditures, meaning that at the margin, local government control only 10 percent of their revenues.

Another problem that we have identified already is that the bulk of own-source revenues comes from one-time charges such as development fees and property transactions as opposed to annual property taxes. The revenue yield for the (annual) property tax is still quite low at 0.18 percent

of GDP even though it has more than doubled compared to 2006; this yield should be increased to at least the average in other transitional countries, which means that the yield needs to be multiplied almost by a factor of three. At the same time the taxation of property transactions is heavier than in other countries yielding 0.23 percent of GDP, although down from 0.26 percent of GDP in 2006. While taxing property transactions is easier from the administrative perspective, at the same time it is more detrimental for the real estate markets as optimal taxation requires lighter taxation of more elastic tax bases.[26] Today one-time development fees yield 0.59 percent of GDP, up from 0.36 percent of GDP in 2006. As expected, development fees and to a lesser extent taxes on property sales are vulnerable to declines in economic activities, showing a dramatic drop in 2009, while other sources of local revenues held up pretty well. Because of the imbalance in the revenue structure between the proportions of stable and one-time revenues, the overall own-source revenues dropped by 20 percent in 2009.

Besides further increasing the revenue yield of annual property taxes, by a more efficient administration and by raising the range of rates applicable by the municipalities, a more promising avenue for raising local revenue autonomy is the introduction of new tax handles for local governments, with some potential candidates described immediately below.

Local PIT surtax

A local surtax to a central government tax (or a piggy-back local tax), is usually collected by the central government but local governments are allowed to set the rate for the surtax and receive the proceeds from the local surtax on a residence basis. The most common type of piggyback taxes is a flat rate local income tax. For example, in Croatia, the base for the surtax is the national PIT liability (that is tax on tax), and the rate of the surtax is set by the city or municipality in which the taxpayer resides (for more details and review of international experience see Appendix I).

Consistent with the principles of revenue assignment, the overall attractiveness of piggy-back taxes as a fiscal policy tool can be summarized by its three main benefits: (1) Piggyback taxes allow a relatively high degree of centralized control over the tax policy; (2) Piggyback taxes with rate setting

[26] It has been a common wisdom that property transfer taxes are discouraging market for at least two centuries since David Ricardo identified them as the ultimate 'anti-market' taxes.' A thorough discussion and references to the literature can be found in Richard M. Bird, "Stamp Tax Reform in Colombia," Bulletin for International Fiscal Documentation, 21 (June 1967), 247-55.

give local governments an excellent degree of local tax autonomy; (3) Piggyback taxes are administratively simple and feasible.

It is important to point out the difference between a local surtax and local retention of some share of the national tax revenue, which is more common in the former socialist countries. The latter is when the national government taxes or revenue sources are collected by the national tax authorities and then partially (or in some cases, fully) shared (often on a derivation basis) with local governments, as for example currently 3 percent of the PIT revenue in Macedonia. This revenue sharing can occur based on uniform sharing rates (so that all lower-level government jurisdictions receive the same share of revenues collected within their jurisdiction) or based on a differentiated sharing rate structure, in which different jurisdictions receive a different percentage of the shared revenue source. While shared revenue sources have some of the same features of local surtaxes, the latter provide greater local revenue autonomy because—unlike revenue sharing—surtaxes allow local governments a certain measure of discretion over the tax rate, and thus the ability to control its revenue on the margin. Thus, if instead of introducing a surtax, Macedonia would increase its reliance on sharing PIT revenue, this would further limit the level of revenue discretion of local governments in Macedonia.

Broadening of derivation-based sharing of PIT—that is allocation of a share of tax revenue to the local budget where the taxpayer resides—has certain promises but also dangers. Generally establishing a link between the jurisdiction receiving revenue and the place where taxpayers receive local services is beneficial because it gives local governments the right incentives to fund an optimal amount of locally provided goods (where marginal costs equal marginal benefits). It also promotes accountability by enabling local residents to evaluate the efficiency of local government services as to how much value they get for the money they pay. However, unlike local taxes, tax revenue sharing does not constitute the kind of cost-benefit link that would lead to efficient level of service provision and accountability of local officials to their constituencies. The reasons is that, even if local residents face the tax price of the local services funded with retention of the yield from the shared tax, efficient allocation does not occur because residents

cannot respond to this tax price by choosing more or less of the local service. Because localities cannot adjust the rate of the shared tax, there is likely to be a mismatch between the distribution of the local yield from the shared tax and the distribution of need for local services. Thus, in its present form PIT retention is just a counter-equalizing form of intergovernmental transfers with the revenue impact too small to justify the administrative costs of revenue allocation separate from other transfers.

Rather than increased sharing of revenues from the national taxes, a more desirable option would be a local surtax with a flat rate, with minimum and maximum rates nationally legislated, and would have the same tax base as the national PIT. If national policy objectives are to reduce tax burdens, this proposal can be accommodated easily by the central government creating "fiscal space" for the local piggyback PIT by reducing the national flat PIT rate by several percentage points. The heavier reliance on autonomous taxes, including the piggyback PIT, is far preferable to the expansion of PIT revenue sharing.

It is important to address a possible misconception that a surcharge on PIT would ruin the benefits of a flat rate tax, such as reducing tax evasion. The argued benefits of a flat rate tax come from elimination of progressivity. It is argued that higher tax rates for higher income discourage economic agents from undertaking income-generating activities and encourages underreporting of taxable income. A local surcharge on the national flat-rate PIT would not introduce any progressivity. In each locality the combined national and local rate would still be flat meaning the same tax rate for any income level. This combined flat rate would only vary across localities. Thus it would not create incentives to generate less income. The only way for taxpayers to avoid paying the local surcharge is by moving to another jurisdiction, which raises less revenue from its residents. But then this latter jurisdiction would not be able to offer the level of services as high as in the jurisdiction with a local surtax. Thus, it is not the level of local taxation that affects location decisions but the differentials in the net balance of taxes and benefits found in different localities. These differentials are better mitigated with tax autonomy and healthy competition among jurisdictions rather than hierarchical

constraints. These constraints reduce the ability of local governments to be responsive to the different needs and preferences of their constituents, and therefore public sector efficiency, and also reduce the accountability of public officials to citizens.

One does however need to acknowledge the administrative difficulties with levying a local PIT surcharge according to the residence principle. The employer withholding PIT from its workers will have to apply different PIT rates for workers residing in different municipalities. This problem would be somewhat mitigated if the choice for the rate of a local surtax were limited to only two levels: zero or a uniform non-zero level. But then, much of the element of additional autonomy would be lost. Another solution is to have the local surtax source-based, thus making it essentially a payroll tax. That latter option however would be less efficient because of potential distortions to location of businesses. It would also represent some unfairness in the distribution of funds and demand for services across jurisdiction because most individuals consume the largest part of local public services in their place of residence and not in their place of work.

Special assessment/ Betterment levies

In Macedonia, some local governments raise finances from their residents as a one-time charge— allowed in the current legislation under the name "self-contribution"— to cover costs of certain public infrastructure projects. Similarly, a one-time connection fee is charged to house owners to cover the costs of sewer extension. At the same time, under a different revenue instrument (development fees) developers pay a fee, which is justified by the cost of extending public infrastructure to the construction site. In fact these two cases are related in a sense that they represent a special levy to cover the costs of specific capital works schemes which only benefit a limited number of properties in a local jurisdiction. In the international practice (reviewed in Appendix II), this kind of charges (also known as betterment levies) is levied on property owners (as in Canada, Poland, Colombia, Argentina and Mexico) or on developers (as in Canada, Australia, Mexico). However, even in the latter case, known as development charges, over the long term the tax burden is likely to be borne by new owners rather than by developers, who nominally pay them.

A related instrument in the international practice is used to reap 'unearned increments' in property values arising from administrative acts such as rezoning or public works, such (as opening a subway station near the property This increase in land value mainly accrues to the owner of the land, but a levy or tax may be applied to divert some of that gain to the public sector (as is done in Poland, Colombia and Mexico).

These international experiences can be of some value for the unification and further development of the legal framework for this kind of levies in Macedonia, that would make the apportionment of public infrastructure costs among benefiting properties more fair, and thus making the property owners more willing to initiate and support improvements to public infrastructure.

While being similar to the existing development fees in Macedonia, in the sense that it falls on the owners/developers of specific properties, betterment levies are different in two respects. Unlike the existing development fees, a betterment levy can be assessed against not only new developments but also existing properties if they benefit from specific public infrastructure projects (such as sewer extension). Second, unlike the existing development fee, determined based on some centrally prescribed schedule, the amount of the betterment levy is determined based on the actual costs of a specific public infrastructure project apportioned according to the size or values of the affected properties. On both accounts, in the current form, Macedonia's development fees do not square well with the benefit principle described earlier.

Personal Property/ Motor Vehicle Tax

In many countries, a separate category of taxation is levied on personal (a legal term for immovable) property, particularly on motor vehicles (also boats and aircrafts), in addition to the tax on immovable property. Personal property, or personalty, primarily includes inventories, business equipment of commercial operations and the household effects and motor vehicles of residential households. In administering this tax, valuation decisions can be assisted by the use of privately published lists of the values of vehicles and office machinery by model type and year (for example produced by the insurance industry). Administration of this levy can be piggybacked on vehicle registration. In Macedonia's context this tax can be introduced as a modification to

the vehicle registration fee, which would allow it to vary with the vehicle value and the additional amount destined for local budgets (if local residents choose to pay more for better traffic related services, such as snow removal). To adequately price consumption of government services and externalities, (road congestion, air pollution, etc.), these fees should vary by vehicle age, engine size, axle weight, etc. Even when the collection of such fee is piggybacked on the state registration of vehicles, local governments can contribute to its enforcement by requesting the proof of registration as part of various municipal administrative procedures. For example, in the United States, in order to apply for a homestead exemption on the local property tax, the owner has to enclose proof that his vehicle is registered in the locality.

Presumptive/ Imputed Tax

Tax evasion is more common for individual entrepreneurs and small enterprises (versus large corporations) for two reasons: 1) Tax compliance procedures are too complicated and administratively burdensome, especially for small business because of the lump-sum nature of required inputs; 2) The nature of their business activities makes it harder for tax administrators to verify their taxable bases. The former is addressed in the tax systems by simplified tax regime while the latter by imputing taxable income. Imputed or presumptive taxes are taxes based on notional income rather than actual income. Imputed systems tend to calculate taxable income based on key factors which are associated with income generation (sales, number of employees, size of assets, etc.). Imputed tax bases are typically calculated based on coefficients for different factors applied to specific taxpayers or specific types of taxpayers (e.g., certain sized enterprises in particular industries). By contrast, presumptive taxes tend to be calculated based on more aggregate indicators, such as type of industry and region, or external indicators of income, with less specific calculations for particular taxpayers. In both cases, the definition of tax bases takes advantage of data that are easier to come by than data required to calculate actual taxable income as specified by law (see Appendix III for more details on presumptive imputed taxes).

In Macedonia's context presumptive taxation can be introduced by modification of the busi-

ness signage fee allowing it to vary with the type of industry, size of premises, number of employees, etc. Because the ultimate goal of presumptive taxation (apart from generating additional revenue) is to extend the reach of the tax net over a larger share of the economy, especially the informal sector, it is important for the presumptive tax to be well integrated in the overall tax system. One possible way of integration is to allow taxpayers to claim the amount paid to the local government as a credit against their liability on the national income tax. This way it will preclude double taxation of the same income while ensuring that all local businesses contribute some minimum amount towards the costs of the local services/infrastructure that they benefit from even when they declare zero profits on the national tax return or fail to file national taxes altogether. In addition, by removing tax disadvantage of formal businesses, it should increase their market share, and as formal businesses are usually more productive, also increase the overall efficiency of the economy. Besides providing additional revenues, the proposed presumptive taxes accord well with the best practices in simplifying tax regimes for unincorporated businesses in line with the Small Business Act for Europe, adherence to which will be monitored as part of Macedonia's EU accession process.

In summary:

All in all, the best way to promote local revenue autonomy is to provide local level governments with the ability to change the tax rates of a closed list of taxes. One downside of revenue autonomy is that it may exacerbate fiscal inequalities among municipalities. For that reason revenue assignment design must internalize this issue by identifying tax instruments with more evenly distributed base across local jurisdictions. Thus, it is not desirable to allow local governments to derive revenue from rare natural resources other than compensation for the degradation of environment and associated costs inflicted on local governments as a result of natural resource extraction. While for the new tax instruments proposed in thus study, the tax base should be present in most municipalities, there will inevitably be some disparities across municipalities that should be effectively addressed with a system of equalization grants (as discussed in a companion study).

3. REVENUE CAPACITY STUDY

The report presents a discussion of the notion of revenue capacity and describes options for calculating revenue capacity and revenue-raising effort using available data.

Section 1 recounts briefly revenue mobilization in Macedonia so far to set the stage for a technical discussion of revenue capacity. Following this discussion, Section 2 provides a discussion of different approaches to revenue capacity calculation. In Section 3 a general method for calculation of revenue capacity is given. Then section 4 presents a method for calculation of revenue capacity for municipalities using PIT collections and housing stock as proxies. The whole point of calculating revenue capacities and estimating disparities across jurisdictions is to address them. Section 5 shows pointers toward options to address revenue disparities and the final section concludes the discussion.

MACEDONIA REVENUE DECENTRALIZATION UP TO DATE

Revenue capacity is defined as the potential revenue that a local government can raise from its tax base, exerting an average level of effort. In order to measure fiscal capacity, it would be appropriate to focus on those revenues sources over which local governments have a certain degree of autonomy (i.e. the capacity to modify either the base or the rates applied). These are referred to as own revenues. Other revenues, such as locally retained collections of national taxes and intergovernmental grants, provide major share of local revenue, but are not the primary focus of the discussion as they cannot be directly affected by local governments and can be accounted for by the amounts directly received by local governments. We begin this study with a brief assessment of the volume and sources of local revenue in order to provide a context for building a discussion on revenue capacity of local governments in Macedonia.

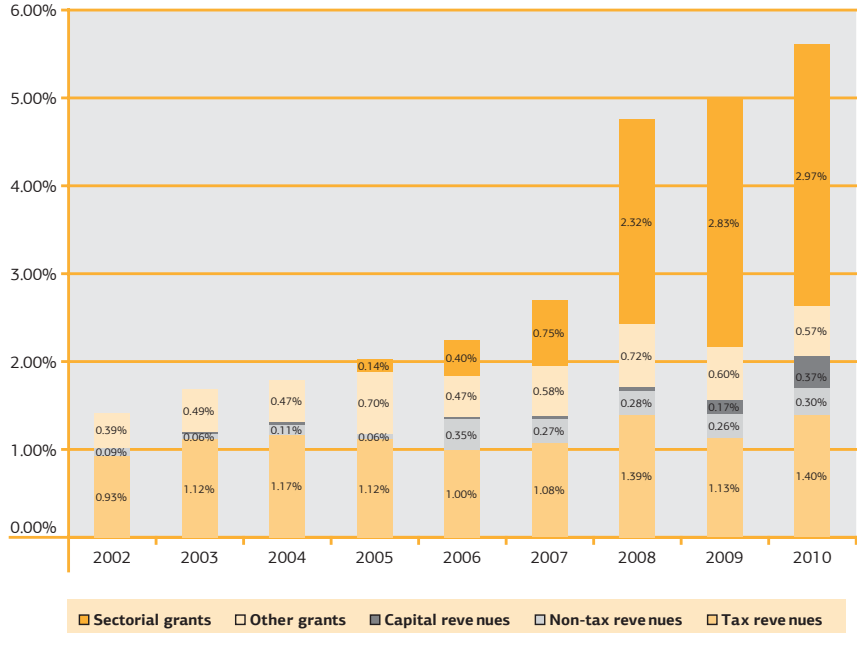
During the first phase of the decentralization reform, local governments were given responsibilities for the maintenance of facilities such as schools and day care centers. In four sectors (education, social welfare, culture, and fire-fighting) this was accompanied by allocation of earmarked grants from line ministries to cover recurrent non-wage costs in those institutions. Local expenditure as a share of GDP increased from 1.72 percent in 2004 to 2.26 percent in 2006, mostly due to doubling of expenses on goods and services. Besides the formal recognition, the only difference that it makes for local governments to be accepted to the second phase is that salaries for staff of the transferred facilities are funded from a block grant rather than being paid directly by the line ministry. As a result, local expenditure as a share of GDP increased from 2.26 percent in 2006 to 5.53 percent in 2010 mostly due to due seven-fold increase of expenses on wages. As of December 2010, 76 municipalities in all had been admitted to phase II.

Own source revenue are important to municipalities as they bring in a higher level of discretionary spending and readiness to respond to local needs and pref-

erences. In Macedonia, they have been an important part of municipal revenue. Own source (tax and non-tax) used to generate more than half of local revenues as shown in Figure 4. However, since the launch of the second phase of the decentralization reform in October 2007, it has dropped to 30% of total revenues. This indicates an increasing reliance on central government grants despite increasing own revenue outpaced by increases in devolved expenditures. While since 2005 the role of sectoral grants has increased, our analysis focuses on the "other" formula-based grants, which will be the precursor of the new system of equalization grant scheme. It is this part of the grant scheme that provides funds to municipalities without attached conditions, allowing them to allocate to local needs. It could be termed as the general purpose equalization grant. As the equalization reform is implemented progressively, this component of the grant will eventually absorb some of the sectoral grants. Another noteworthy trend is the considerable increase in capital (asset sales and concessions) revenue since 2009.

Unlike, "sectoral grants," the revenue of "other grants" do not have to be kept in a special account but are allocated to the principal budget account. The principal budget of local governments is used to finance expenditures for general purposes (all functions except the

Figure 4. Local revenues as percent of GDP: 2002-10



Source: Calculated by the authors based on Ministry of Finance data.

four covered with sectoral grants). The two main categories of the "other grants" are VAT revenue sharing (0.28% of GDP in 2010) and "Road Fund" (0.08% of GDP in 2010), both provided to municipalities under formula-based allocation. In 2011, VAT grant allocation is based on population (65 % weight), size of the LG land area (27 %) and the number of settlements (8%) and a fixed amount per municipality. Similarly to the VAT grants, the distribution of vehicle-related revenue (road grants) is based on population and land area as well as length of municipal roads and the number of registered vehicles. As of 2010, the average share of tax and non-tax revenue in the principal budget is 69% in Skopje, 51% in urban municipalities outside Skopje (min=11%, max=76%) and 34% in rural municipalities (min=5%, max=67%). This indicates wide ranging variations in the extent of self-sufficiency of municipalities.

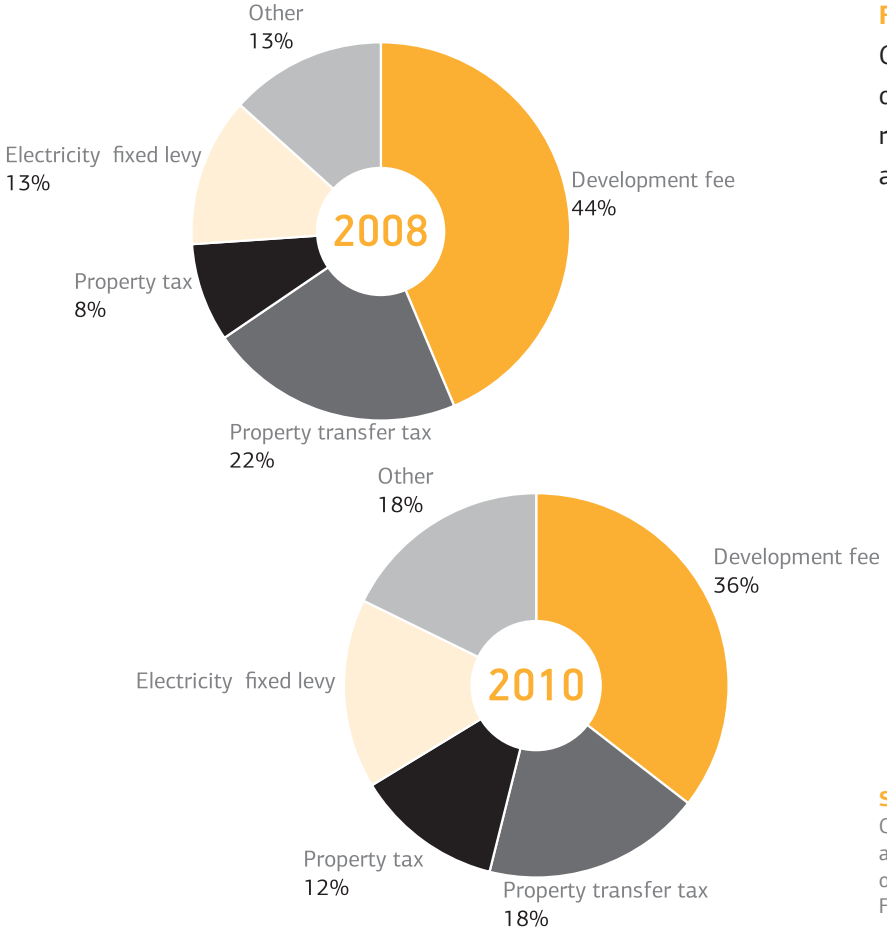


Figure 5. Composition of local tax revenue, 2008 and 2010

Source: Calculated by authors based on Ministry of Finance data.

Over time, with implementation of decentralization, composition of local tax revenue has changed in some noticeable ways. The relative size of different components has changed noticeably between 2008 and 2010 as shown in Figure 5. Development fee, the largest component of local tax revenue has decreased as a percentage of total tax revenue from 44 percent to 36 percent.[27] Similarly, property transfer tax has come down from 22 percent of the total to 18 percent. On the other hand, income from property tax has increased from 8 percent of the total tax revenue to 12 percent and the electricity fixed levy revenue from 13 percent to 16 percent. This is a positive development as it signifies the shift from one off charges for construction permits and property sales to recurrent charges such as the annual property assessment.

[27] Between 2008 and 2010, the share of development fees in own- source revenues went up from 15 to 18 percent in rural municipalities, went down from 25 to 18 percent in urban municipalities outside Skopje, and remained around 45 percent in the City of Skopje.

Table 5. Yield of local taxes in 2006-2010 (% of GDP)

	2006	2007	2008	2009	2010
Tax revenues	**1.00%**	**1.08%**	**1.39%**	**1.13%**	**1.40%**
Personal income tax	0.06%	0.05%	0.02%	0.02%	0.02%
Property taxes	0.39%	0.45%	0.49%	0.46%	0.48%
- Tax on residential property	*0.06%*	*0.09%*	*0.12%*	*0.14%*	*0.14%*
- Tax on commercial property	*0.00%*	*0.00%*	*0.00%*	*0.00%*	*0.03%*
- Inheritance and gift tax	*0.01%*	*0.01%*	*0.01%*	*0.02%*	*0.02%*
- Tax on transfer of real-estate and rights	*0.32%*	*0.35%*	*0.35%*	*0.30%*	*0.29%*
Communal taxes	0.52%	0.61%	0.88%	0.64%	0.87%
- Business signage fee	*0.03%*	*0.05%*	*0.05%*	*0.05%*	*0.08%*
- Usage of roads/vehicle registration	*0.02%*	*0.02%*	*0.01%*	*0.01%*	*0.02%*
- Electricity fixed levy (for public lighting)	*0.08%*	*0.09%*	*0.18%*	*0.21%*	*0.22%*
- Development fee	*0.36%*	*0.40%*	*0.61%*	*0.33%*	*0.50%*
Other tax revenues	0.02%	-0.03%	0.01%	0.01%	0.03%

Source: Calculated by authors based on Ministry of Finance data.

Note: While technically being derivation-based tax revenue sharing, PIT shared revenues is reported here as a precursor for a local surtax on PIT

It is important to note that the yield of local tax handles has increased over time. Table 5 depicts the collections from various local taxes as percentage of GDP. The total local taxes amounted to 1 percent of GDP in 2006. In 2010, the total local tax collection has increased to 1.4 percent of GDP. The Table shows that the major increases have come in collections on account of both the property taxes and non-property (communal) taxes. Under the category of communal taxes, the main sources of increase in collections have been the electricity fixed levy and development fee. The increase in collections is not uniform. The collections from inheritance and gift taxes have not changed much but collection under the tax on transfer of real estate and rights has decreased from 0.32 percent of GDP to 0.29 percent of GDP. To some extent the increases in collections under property taxes, business signage fee and development fee indicate municipal level policy and administrative measures. At the same time, the small yield of property taxes still indicates an area where further municipal effort could bear higher revenue yields over time. In particular, taxation of commercial properties, first introduced in 2008, still yield less revenue than taxation of residential properties, which is the reverse of what is observed in many other countries. [28]

The collection of own-source revenue is not uniform across municipalities. Table 6 shows that there are wide variations among municipalities in 2010 collections. The variations in property tax and development fee in dicate that municipalities have very different revenue base and/or revenue-raising efforts. Both are noteworthy issues for reform of intergovernmental relations as well as future emphasis on municipal revenue. The variation among rural municipalities (the top panel in the table) is higher than among urban municipalities (the second panel in the table). The per capita collections in rural municipalities are lower than the per capita collections in urban jurisdictions. This confirms the general notion that rural municipalities on average have lower collections under own source revenues. From these data it is not possible to attribute this to lower capacity but it only indicates that present policies and administrative implementation are resulting in lower per capita revenues in rural municipalities. The Skopje municipalities have much higher

[28] While commercial property became taxable in 2008, the first tax bill was due in January 2009. Reportedly, in 2009 some municipalities were classifying this revenue under the old code, which is now used for residential properties only.

collections under all items. In the case of the property tax, the mean collection per capita is more than four times the mean collection in rural municipalities and more than two times the mean collection in urban municipalities. The differences in development fee are even higher with mean collection in Skopje outstripping mean collection in rural municipalities by as much as approximately 12 times and urban municipalities by as much as nearly 8 times. The information shown in the table is incomplete since we do not have good measures of the revenue base but it does indicate an argument for equalization of revenue capacity.

Table 6. Disparities in per capita yield of own revenue sources, MKD per capita, 2010

Municipality Group	Property taxes	Development fee	Electricity fixed levy	Other own	Total tax and non-tax revenue
Rural outside Skopje (41 units)					
Average	429	229	419	232	1,309
Minimum	54	0	0	43	161
Maximum	1,901	2,797	862	1,034	5,597
Coef. of Variation	0.88	2.42	0.50	1.05	0.85
Urban outside Skopje (33 units)					
Average	664	349	487	384	1,884
Minimum	271	4	0	136	670
Maximum	2,621	3,022	1,204	816	4,669
Coef. of Variation	0.67	1.53	0.41	0.43	0.43
Skopje average (composite)	1,867	2,698	527	876	5,968
National average	994	1,025	461	491	2,970

Although the formulae for general purpose transfers are not explicitly set to equalize disparities in revenue yields, the transfers effectively achieve some level of equalization, at least between the three groups of municipalities as is evident from Figure 6 for 2010. This is because low-revenue rural municipalities tend to have more land and settlements per resident, the two criteria that actually drive the distribution of 40 percent of the VAT transfer fund. As a result, rural municipalities having 30 percent less pre-transfer revenue per capita than urban municipalities outside Skopje (the gap was 40 in 2007), eventually have slightly higher amount of total revenue per capita after the allocation of the two formula-based transfers(VAT and road grants).

While Skopje (having 25 percent of national population) receives 12 percent of the VAT pool, it receives more than two thirds of capital transfers, and 18% of the road grant pool. In Skopje, 2010 pre-transfer revenue per capita is more than twice the national average (2.010 times), almost the same gap as in 2007 (2.004 times). Per capita expenditures from the principal budget in Skopje are 1.8 the national average up from 1.4 in 2007 mainly because of capital grants and asset sales (land).

To further highlight the revenue disparity across municipalities, Figure 6 shows per capita levels of municipal revenues, in-

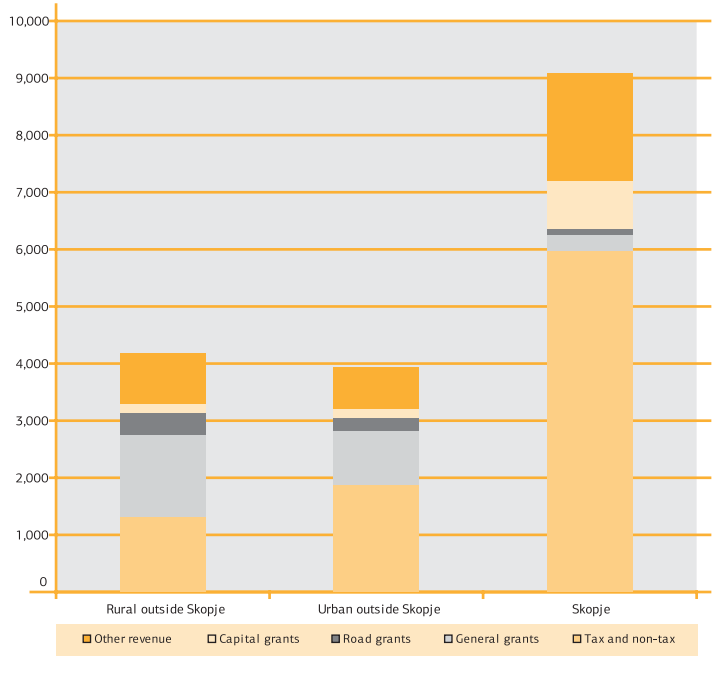


Figure 6. Disparity in Principal Budget Revenues: MKD per person, 2010

cluding own source tax and non-tax revenue as well as different types of grants, for three distinct groups of municipalities: rural, urban outside and within Skopje, respectively.

While the formula-based transfers narrow the gap in average revenues among the three groups of municipalities (rural, urban outside and within Skopje, respectively), at the same time they do little to address disparities within the group of rural municipalities. Disparities exist even among urban municipalities located outside Skopje in their capacity to generate own source revenue. The coefficient of variation in Table 7 below shows that the within-group disparities in own source revenue hardly change after the allocation of various grants to the principal budget of municipalities.

Table 7. Impact of grants on within-group disparities, MKD per person (2010)

	Tax and non-tax revenue	VAT grants	Road grants	Capital grants	Total revenue
Rural outside Skopje (41 units)					
Average	1,309	1,450	385	152	4,177
Minimum	161	507	0	-2	1,155
Maximum	5,597	4,218	1,116	2,122	22,092
Coef. of Variation	0.85	0.62	0.73	2.71	0.84
Urban outside Skopje (33 units)					
Average	1,884	938	227	167	3,942
Minimum	670	460	71	0	2,499
Maximum	4,669	3,330	955	1,411	9,541
Coef. Of Variation	0.43	0.62	0.80	2.28	0.42
Skopje average (composite)	5,968	279	119	837	9,080
National average	2,970	635	160	295	4,929

Approaches to measuring the revenue capacity

Differences in revenue capacity among municipalities in Macedonia offer a policy challenge for aligning intergovernmental relations so as to provide equitable access to social services across jurisdictions. An informed discussion can be built around adequate measures of revenue capacity. Only when measures of revenue capacity and differentials across jurisdictions are acceptable, could the discussion focus on reforming intergovernmental grants. For this purpose, we review approaches to measuring revenue capacity used internationally.

Practical challenges commonly arise in estimation of revenue capacity, which in the case of local governments may be defined as the potential revenues that can be obtained from the tax bases assigned to the local government if an average level of effort (by national standards) is applied to those tax bases. Ideally, tax capacity should be measured by the size of the tax bases available to local governments, or the revenue that these tax bases would yield under standard (or average) tax rates. Using the actual amount of revenue collections in a locality as a measure of revenue capacity should be avoided if local authorities can control tax rates, tax bases, or the administrative enforcement effort for it can create perverse incentives. Using actual collections, even from the past, creates negative incentives, because sooner or later local governments will "learn" that higher collections translate into lower transfers. A better approach is using some objective and widely available indicator as a proxy measure for revenue capacity. The examples of such proxy measures include the per capita level of personal income or the local equivalent of the national-level gross domestic product, which can be called gross municipal product (GMP). The basic idea underlying the proper estimation of revenue capacity is to calculate the amount of revenue that a locality would collect given the level of income or economic activity in its territory if it were to exert *average* revenue-raising effort.

Some countries (for example, Canada, United States, and Australia) have used a multidimen-

sional measure of revenue capacity known as the Representative Revenue System (RRS). This is done by collecting data on revenue collections and tax bases for *each* of the taxes under consideration for every locality. Using information on *all* tax bases for every jurisdiction as well as the national/regional average revenue-raising effort for each of the taxes, one can compute the amount of revenues that each jurisdiction would collect under the average revenue-raising effort. This amount is then considered to quantify the revenue capacity of each jurisdiction. The main benefit of the RRS is that computations are made at a disaggregated level and based on detailed knowledge of (proxies for) the statutory tax bases. However, disaggregated data might not exist at the local data in some countries, thus making a composite proxy measure, like average household income, the only available option for estimating revenue capacity.

Revenue capacity has been defined above as the potential revenue that a local government can raise from its tax bases, exerting an average level of effort. Thus, in order to measure revenue capacity, it would be natural to focus on those revenues sources over which local governments have a certain degree of control (i.e. the capacity to modify either the base, the rates applied, or the enforcement rigor). These are usually referred to as own-source revenues. Other revenues, such as residence-based sharing of collections of national taxes and earmarked intergovernmental grants, of course, provide for local governments, but remain outside our focus because they cannot be directly affected by local governments and therefore can be accounted for by the amounts directly received by local governments.

The problem of estimating revenue capacity is therefore reduced to the adequate estimation of (properly defined) locally-generated (own) revenues. Furthermore, since equalization transfers are not earmarked for a specific sector and therefore are meant to assist local governments to finance expenditure responsibilities in all sectors not covered by sectoral grants, for equalization purposes we can define revenue capacity as the sum of estimated potential own revenues (EOR_i), shared revenues (S_i, PIT in the case of Macedonia), and all transfers received other than equalization transfers (hereinafter OT_i).

The revenue capacity of a locality *i* can then be computed as:

$$\mathbf{FC_i = EOR_i + S_i + OT_i.}$$

Regardless of the methodology used to estimate potential locally-generated revenues, the overall revenue capacity is obtained, as shown in the formula above, by adding up the estimate of own-source revenues to the actual shared revenue retention and all transfers (except for those received for equalization purposes).

Estimation of revenue capacity for municipalities using proxies

The basic idea underlying the proper estimation of revenue capacity is to calculate the amount of revenue that a locality would collect given the level of household income and business activity or another tax base in its territory if it were to exert average revenue-raising effort (see table 8 for details). Ideally, tax capacity should be measured by the size of the tax bases available to local governments, or the revenue that these tax bases would yield under standard tax rates.

Table 8. Computing a Measure of Revenue capacity Based on the Average Tax Effort

Step 1.	*Select proxy measures for the tax base (Base$_i$)*—Select measures of a jurisdiction's own-source revenues (OR$_i$) and a proxy for the jurisdiction's tax base.
Step 2.	*Define the Average Effective Tax Rate (AETR)*—This can be defined as: AETR = (Σ_i OR$_i$) / (Σ_i Base$_i$) This coefficient reflects the average yield of own sources of revenue in relation to the tax base measure across all jurisdictions.
Step 3.	*Compute revenue capacity*—Revenue capacity for jurisdiction *i* equals: Capacity$_i$ = AETR * Base$_i$ This amount reflects the amount of collections that each jurisdiction would have if it exerted an average level of revenue-raising effort in collecting own-source revenues.

Currently, for Macedonia's local taxes there are no reliable data available on the size of the taxable bases. In particular, for the property tax and business signage charge— the two local taxes with highest potential to become main local sources of stable revenue—currently there are no data available on the taxable property values and the number and size of local businesses respectively. Therefore to calculate local revenue capacity, one has to employ proxies highly correlated with a locality's capacity to collect revenues from these revenue sources. As a proxy for the property tax base, one can use data on housing stock from the survey of dwellings carried out as part of the population surveys in 2002 and 2011. As a proxy for potential revenue from the tax on commercial properties and the business signage charge, one can use data on capacities of retail, catering and lodging businesses from the 2008 survey of the services sector and data on the number of active business entities from the national register of legal entities.

However, one can argue that the per capita stock of housing in the municipality does not entirely determine its capacity to tax property. Indeed, the taxable value for the property of a given size, which is defined as a certain fraction of the market value, is likely to be higher in localities with higher demand for real estate. Assessed value of property would serve as a more appropriate measure of property tax capacity when assessment ratios are comparable across jurisdictions. This is for example is the case for equalization of taxable property values per student in the State of Georgia, where the state government ensures uniformity of assessment by checking on a random sample of properties that the assessed values do not deviate by more than 15 percent from recent sale prices of comparable properties in the area. In the absence of such verified data on taxable values of property one might have to indirectly approximate the property tax base by accounting for both the size of properties and the level of income in the municipality. To capture the impact of local economic well-being on real-estate prices and profitability of local businesses, one can use the locally retained share of the personal income tax collections as a proxy of the tax base. In this case, it would be implicitly assumed that local governments do not have any capacity to modify ei-

ther the base or the rates applied to the personal income tax, the source of tax sharing revenues; that the tax collection by the Public Revenue Office is independent of local government influence.

While the collections of the national PIT are believed to be a good proxy of the income generated in the formal economy, it might not adequately account for income generated in the shadow economy. This would underestimate local revenue capacity if local governments had tax handles to reach the informal economy. One can argue that some local taxes can indeed reach informal income. For example, one can argue that the residential property tax allows taxing accumulated wealth regardless of its source, formal or informal. However, even if local governments can assess property tax on wealth generated in the informal economy, they might not be able to receive any payments unless they are given adequate enforcement powers, such as forced sale of real estate for nonpayment of taxes.

Therefore, one might need to take into account a combination of several proxies when estimating local revenue capacity. When using several factors, we need to decide on their relative contributions to local revenue capacity, which would be represented by relative weights attached to these variables in the computation formula. These weights can be estimated from actual data as elasticities of local tax revenues with respect to those factors. Indeed the formula used in Table 8 for the computation of revenue capacity

$$Capacity_i = \frac{Base_i}{\sum_j Basej} \sum_j ORj \qquad (4)$$

can be rewritten in an equivalent form

$$Capacity_i = \frac{Base_i / POP_i}{\sum_j Base_j / \sum_j POP_j} \bullet \frac{\sum_j OR_j}{\sum_i POP_j} \bullet POP_i \qquad (5)$$

which is municipal population times average per capita own revenues times adjustment for differences in per capita taxable base. This latter adjustment term can be expressed as percentage differential in per

capita value of the proxy measure for the revenue base:

$$\frac{Base_i / POP_i}{\sum_j Base_j / \sum_j POP_j} = 1 + \frac{Base_i / POP_i - \sum_j Base_j / \sum_j POP_j}{\sum_j Base_j / \sum_j POP_j} = 1 + \%\Delta\left(Base_i / POP_i\right) \quad (6)$$

Substituting (3) into (2) yields

$$Capacity_i = \left\{1 + \%\Delta\left(Base_i / POP_i\right)\right\} \bullet \frac{\sum_j OR_j}{\sum_i POP_j} \bullet POP_i \quad (7)$$

From (4) it is easy to show that the percentage differential in per capita revenue capacity is equal to percentage differential in per capita value of the proxy measure for the revenue base:

$$\%\Delta\left(\frac{Capacity_i}{POP_i}\right) = \frac{Capacity_i / POP_i - or}{or} = \frac{Capacity_i / POP_i}{\sum_j OR_j / \sum_j POP_j} - 1 = \%\Delta\left(Base_i / POP_i\right) \quad (8)$$

where or=(Σ_i OR_i) / (Σi POP_i) is the national average per capita value of own-source revenue, which by definition is also the national average per capita value of revenue capacity.

Furthermore, in the revenue capacity formula (7) the adjustment term %Δ ($Base_i/POP_i$) can take into account several factors weighted according to their relative importance. In this case, percentage differentials of those factors from the national average will be multiplied by respective weights. Below we apply this multi-factor approach to calculate revenue capacities for municipalities in Macedonia.

To illustrate this approach, if we want to use two factors, the yield of the national PIT and local housing stock to assess the property tax capacity, the formula will look as following:

$$Capacity_i = \left\{1 + a^1 \bullet \%\Delta\left(\frac{PIT_i}{POP_i}\right) + a^2 \bullet \%\Delta\left(\frac{Hou\sin g_i}{POP_i}\right)\right\} \bullet \frac{\sum_i OR_i}{\sum_i POP_i} \bullet POP_i \quad (9)$$

where the a^i's stand for the weight assigned to each tax base. In this formula, the expression

$$a^1 \bullet \%\Delta\left(\frac{PIT_i}{POP_i}\right) + a^2 \bullet \%\Delta\left(\frac{Hou\sin g_i}{POP_i}\right)$$

represents the percentage deviation of municipalities i's per capita revenue capacity from the national average. The below average values of the adjustment factors enter this formula with a negative sign. After reversing the respective signs to indicate a revenue shortfall and multiplying by the size of local population POP_i, this indicator of revenue disparity can be used as an allocation factor in an additive grant formula, like the one currently used for the VAT grant allocation in Macedonia. In Appendices II and III we elaborate this proposal for an interim reform option for the VAT grant formula.

Calculation of Revenue Capacities—An Illustration

Are in fact PIT collections a good indicator of local tax bases and thus of own revenue collection? Intuitively it would seem so, but the statistical data provides additional evidence in its favor. In 2010, PIT collections are positively correlated with local property tax revenues (correlation coefficient 0.54) and total own revenues (correlation coefficient 0.60).[29] However, housing stock per capita is only weakly correlated with the property tax revenue (correlation coefficient of 0.22) thus supporting our earlier argument that in order to proxy market value of properties we need to take into account household income (captured with the PIT collections) that would better reflect market value of a property of a given size. At the same time housing stock per capita has stronger correlation with the electricity fixed levy for public lighting (correlation coefficient of 0.47). This is not surprising given that this levy has a flat amount per electricity bill.

To illustrate the proposed methodological approach, in Appendix I we estimate the fiscal capacity for each non-Skopje municipality by calculating percentage revenue disparities relative to the average per capita local revenues from all own sources in this

[29] The linear correlation coefficient measures the strength and the direction of a linear relationship between two variables. For strong positive relationships, this coefficient is close to one.

group of municipalities (MKD 1,943 in 2010).[30] In order to account for percentage differences in PIT revenue per capita and the per capita stock of housing, the contributions of these two factors are weighted using the estimates of elasticity of own source revenues with respect to these two factors, estimated as 0.72 and 0.28 respectively.

For example, the municipality of Vranestica has 40% less PIT revenue per person but 130% more housing per person than the average. Therefore, the percentage revenue disparity relative to the average per capita capacity is 0.72*(-0.40) +0.28*1.30=0.078. This means that potential own-source revenues per capita in Vranestica are estimated to be 7.8% higher than the average per capita local revenues from own sources outside Skopje, that is MKD 1.078*1,943 = 2,195.

Based on these estimates of potential revenue, for each non-Skopje municipality we also estimate the indicator of revenue-raising effort as the ratio between actual and potential revenues. According to this definition, a revenue effort equal to 1 means that the municipal tax collection is equal to the average worked per capita effort across non-Skopje municipalities. Those jurisdictions with a revenue effort greater than one are the above average municipalities.

For urban municipalities outside Skopje the average tax effort is about 85 percent, ranging from 0.40 in Makedonska Kamenica to 2.31 in Strumica. For rural municipalities outside Skopje the average tax effort is about 92 percent, ranging from 0.19 in Aracinovo to 2.11 in Dojran. Higher values of tax effort can arise from fiscal stress, local preferences for better government services, and better capacity for tax administration.

[30] It can be argued that the economic base and the administrative capacity of Skopje municipalities are not comparable to that of municipalities outside Skopje. This could be one of the reasons why these two groups of municipalities have separate formula for allocating VAT grants.

Options to address disparities in revenue capacity

The whole point of calculating revenue capacities is to be able to assess disparities and find ways to address them through grants or further revenue decentralization. The following options can be considered:

- Estimated revenue disparities can be (partially) narrowed by including additional allocation factors in the formula currently used for the general purpose (VAT) grants.
- Computation of revenue capacities can be undertaken on the basis of proxy variables (e.g. PIT collections, housing stock, etc).
- In the future, reforming revenue assignments to provide new local tax instruments that could have some yield in the rural areas.

In the medium term, the Government of Macedonia should move towards the implementation of a system of equalization transfers based on computed revenue disparities. As a first step in that direction, the existing additive formula can include an additional factor to account for disparity in revenue capacity (see Appendix II for details of this reform option). Initially, only a low weight, say 10 percent, might be assigned to the new factor. The methodology can refer to this factor as "revenue disparity," while the employed proxy indicator can be perfected over years as the data availability improves. Initially, this fiscal disparity can be assessed using the yield of the national PIT in each jurisdiction and the size of housing reported by the survey of dwellings as part of the 2011 Survey of Population (preliminary data to be released in late 2012). The weight on the revenue disparity factor can be raised in the future as this new allocation factor gains more universal acceptance and the data availability for proxy measures improves. In time, more accurate measures of revenue disparity could also be adopted. As an alternative to compensating for shortfall in revenue capacity, the existing additive formula can include an additional factor to reward revenue-raising effort evaluated relative to the existing revenue

capacity (see Appendix III for details of this reform option).

Eventually, when the current additive formula for VAT grants is transformed into an expenditure needs measure based on per client norms adjusted to costs, the estimated revenue capacity can be deducted from the estimated expenditure needs. This reform can be phased in over a period of several years. Thus, while in the current grant distribution no adjustment is made for disparities in fiscal capacity, in the first year of reform, 20 percent of the estimated revenue capacity can be deducted from the estimated expenditure need, in the second year of reform 40 percent of the estimated revenue capacity can be deducted from the estimated expenditure need, and so on until fully phased in by the fifth year.

In line with the fiscal data currently produced for the municipal level, the computation of fiscal capacities should be undertaken on the basis of a proxy variable that is highly correlated with localities' fiscal capacity. Local PIT revenues, as shown in the study, can perform that role. To account for the contribution to the revenue capacity from the local informal economy, PIT collections data can be used in combination with other indicators such as the survey of dwellings carried out as part of the population surveys and data on capacities of retail, catering and lodging businesses from the 2008 survey of the services sector.

In the medium term, it will be also desirable to reform revenue assignments to restore the level of revenue autonomy that local governments had enjoyed before 2007. An easy intuitive rule to follow is that the new revenue instruments (for example, those discussed in the 2008 Feasibility Study), should provide the richest local governments with sufficient revenue from their own sources to finance their expenditure needs. Currently, even the Skopje municipalities on average cover only 94 percent of the principal budget expenditures from own sources of revenue (tax, non-tax, and capital revenue). However, without proper treatment of revenue disparities by intergovernmental grants, increasing revenue-raising powers of local governments would further exacerbate existing revenue disparities. Therefore, establishment of an effective system of equalization grants should precede and be a precondition for assigning any additional revenue sources to local governments.

Conclusion

As decentralization is consolidated in Macedonia, expectations for improved services are rising. Service level comparisons across jurisdictions invariably lead to comparison of inter-municipal resources. As expected, revenue assignment has provided municipalities with varying levels of revenue bases. Some municipalities generate high levels of revenue while others can hardly pay their essential administrative costs from their own revenue. The current equalization grant does not address differences in own source revenue capacity. Due to these factors, differences in level of services and available resources at the municipal level abide. At the policy level therefore, it is recognized that revenue disparities should be addressed through a reform of the general purpose (VAT) grant. This report has initiated the discussion on reform of the VAT grant followed by reform of other grant systems by providing technical concepts required to assess revenue capacities. A key ingredient in the reform will be inclusion of indicators of revenue capacity in the grant formula(s). This report takes an important step toward this objective by delineating methods for calculation of revenue capacity for municipalities and providing technical tools to focus the discussion on differences in revenue capacities. It has also demonstrated a calculation method using the limited available data and generated measures of revenue capacity for each jurisdiction. The revenue indicators calculated using PIT collections and housing stock can be adopted in the VAT grant formula as interim measures of revenue disparity. As comprehensive data become available specifying local revenue bases, more accurate calculations of local revenue capacity can be made and instituted in the equalization formula.

4. ASSESSMENT OF CAPITAL GRANTS IN MACEDONIA

Introduction

Macedonia with a population of 2 million has a two-tier government system. Decentralization has been implemented under the Ohrid Framework (Peace) Agreement at a measured pace since 2005, with increasingly wider roles and responsibilities passing on to subnational governments. The subnational level consists of 84 municipalities and the city of Skopje as a special unit of local self-government. Macedonia is aiming for EU membership. This has been another catalyst for reform. Primarily, decentralization was perceived as part of the political reforms pursued to improve political cohesiveness and strengthen democratic representative institutions in the country. As local self-governments took on more responsibilities with the implementation of the reform, the focus of policy discussion in Macedonia has moved on from expenditure and revenue assignments and procedural concerns relating to financial regulations to the issues of quality and access to public services as well as the overall efficiency of the local institutions.

At this stage of the reform, an important concern is to ensure adequate funding for service delivery in municipalities and realign incentives for efficient fiscal behavior, as the policy emphasis moves on to equitable access to public service for all citizens. The Ministry of Finance, based on the accumulated experience of implementation, recognizes it is time to build on the past successes and address the newly emerging policy issues. UNDP has continued to provide technical assistance to the Ministry of Finance in support of the reform of the system of intergovernmental fiscal relations in Macedonia. As part of this technical assistance the project titled Social Services in Support of Social Development and Cohesion commenced in December 2010. The project has aimed to deliver three key outputs: (i) improved policy making for social service delivery; (ii) capacity development for research and monitoring; and (iii) inclusive participatory planning. The present report has been prepared to focus discussion on reform options under the first project output.

Under the project, the aim of the intergovernmental fiscal transfer system reform is to usher in a transition toward an enhanced equalization framework in Macedonia. As the reform moves through this phased transition, the general-purpose and capital investment grants will come to be based on technically sound notions of expenditure needs and revenue capacities. To plan and implement the transition, the project activities have aimed to establish a new equalization framework, providing new formulas and policy options for re-distribution of funds and demonstrating their viability through simulations. This process is also used to promote policy dialogue in support of reform by focusing the discussion on key parameters amenable to policy choices. To focus the discussion on key policy parameters during the initial phase of project implementation, a number of studies have been carried out to support a technically well informed policy dialogue with municipalities and key offices in the government.

This report offers the results of a preliminary study on capital grants and their related issues to serve as an initial step toward analysis on an hitherto understudied area of intergovernmental relations in Macedonia. The preliminary study was carried out according to the agreed interpre-

tation of the terms of reference as it was understood that a comprehensive analysis, while desirable, would require additional resources and detailed field work to fill in the data and information gaps. Detailed development of reform options would then follow through a well-defined process affording sufficient participation to all stakeholders and a well-choreographed policy dialogue to develop consensus.

Capital grants form an important part of local finance. They potentially affect local service delivery outcomes in a major way. They also form an important component of intergovernmental relations in Macedonia. Based on a solid understanding of capital transfer issues and the particular situation in Macedonia, the objective of this study is to achieve: (i) an all-encompassing review of the framework for planning and allocation of capital transfers in Macedonia,; (ii) to identify relevant international experiences; and (iii) to provide recommendations for the reform of the capital transfers system in Macedonia.

The report is organized as follows. Immediately below we provide a normative framework and a review of international experiences with capital grants. This discussion is provided to state key principles for organizing capital grants. In the next section, we outline the structure of capital transfers in Macedonia and briefly describe each of the transfer channels. The discussion highlights important features of capital grants in Macedonia and sets the stage for their assessment. Then we provide an assessment of the existing intergovernmental framework for financing capital investments. In the final section, we conclude with a summary of preliminary findings and recommendations for policy reform.

Conceptual framework and international experience

In this section we aim to establish a conceptual framework for designing capital transfer mechanisms, as well as to highlight the international experience and best principles that will guide us in designing and implementing a sound system of capital transfers.

In many developed economies, a primary avenue for local capital development – both for urban as well as rural local governments - is local government borrowing. There are two types of public goods on the basis of public expenditure. Capital projects are the first type where they create public assets. Recurrent public expenditures are the second type, where expenditures are made annually to produce such public goods. For example, street sweeping in a jurisdiction is produced as recurrent public goods. Table 9 summarizes the different features of current and capital budgets.

Table 9 Current vs. Capital Budgets

Current/Operating	Capital
Recurring	Non-recurring
Items are small relative to overall budget	Items are large relative to overall budget
Short lifetimes	Long-lived assets
Does not generate future revenues (or benefits)	Generate future benefits and revenues

While public finance experts agree that government spending on recurrent (local) goods and services should be met by revenues from taxes and other recurrent revenue sources, the "golden rule" for (local) government borrowing states that it is proper for (local) governments to borrow for capital projects.[31] As discussed in Box 3, the ability of local governments to borrow as part of an efficient system of intergovernmental fiscal relations is important on normative grounds.

[31] Musgrave, Richard Abel. 1939. "The Nature of Budgetary Balance and the Case for the Capital Budget." The American Economic Review, 29(2), pp. 260.

Under normal circumstances, capital grants can be justified on normative grounds because of the existence and the need for compensation for spillover of benefits and also because often times the construction of national infrastructure projects are outsourced to the localities where these facilities would be located. In fact these two justifications are related because the spillover of benefits occurs when a local government undertakes a capital project which actually belongs to

Box 3: The efficiency gains from borrowing for local capital infrastructure

To a large extent, the efficiency of decentralized government finance rests on the benefit principle, which requires that the costs of public services be covered with taxes paid by those who benefit from these services. However, if current tax receipts were spent toward some capital project that brings fruits for many years ahead, such as a new road or a water treatment plant, the benefit principle would be violated in an inter-temporal sense across time periods. Unless corrected, this "inter-temporal spillover" of benefits would lead to the under-provision of local public capital goods. This is because current residents might not be willing to pay the full cost of the project while receiving only a fraction of its benefits.

Debt financing has the potential to rectify this situation by spreading the costs of building a facility over the entire period during which the benefits from this investment are received. For service facilities whose costs are fully recovered from user fees, borrowing brings a clear improvement by allowing governments to charge appropriate prices for local public goods. For instance, while funding a piped water scheme from recurrent local resources may prove prohibitive, borrowing could help put in place a sustainable, fee-based public water scheme that is more cost effective than private provision (e.g., water from private vendors) or safer than alternative sources.

a higher-level government whose jurisdiction encompasses the entire area where the project benefits occur. This justification for capital grants can be exemplified by highway construction in the United States, which is federally planned and partially financed but implemented by state governments with considerable externalities for other states.

Besides these two normative justifications for capital grants, in practice, capital grants are used for reasons other than economic efficiency. Thus, relying on local government borrowing as the main funding mechanism for local capital infrastructure could result in extremely lopsided capital development across the national territory.[32] As such, policy makers need to carefully consider equitable modalities for funding capital infrastructure at the local government level.

It is important to note that capital grants still may be justified in the case of projects that are not creditworthy in a sense that the built infrastructure would not generate a flow of revenues (or cost savings) to recoup invested resources over some period of time. This would be the case for example with most social or general benefit infrastructure. Services provided with this kind of infrastructure should be financed with taxes (as opposed to user fees), which should be also the source for gradually repaying the costs of investment into these facilities. However, if inadequate revenue-raising powers do not allow local governments to generate primary surpluses, the central government would be the likely source of capital financing resources.

Capital grants and equity

One of the open conceptual questions in the design of capital grant mechanisms is whether capital grants should address disparities in the accumulated stock of physical capital (sometimes referred to as "capital backlog" or "capital infrastructure gap"). If the existing local infrastructure is considered a true local good that has been built under optimal arrangements (so that those who currently enjoy the benefits also contribute to paying off the accumulated debt through local taxes), there is no need to address this disparity with capital grants. Indeed, fiscally-induced migration will not arise here because the incentives to migrate into infrastructure-rich jurisdictions

[32] This is the case since (market-based) borrowing for local government infrastructure typically only provides access to financial capital for wealthier (typically urban) local government authorities.

will be offset by the disincentives of higher taxation necessary to pay off the associated debt.

However, the disparity in infrastructure may have resulted from some exogenous decision. Examples could be the discriminatory policy of the Apartheid regime in South Africa or in other developing countries past preferential central government capital investment in local infrastructure in some jurisdictions. Such disparities can cause fiscally-driven misallocation of labor. In the case of income-generating assets, this would lead to disparity among localities in income revenues, which has to be addressed with grants, according to the theory of fiscal equalization.[33] In the case of assets that do not generate income, under accrual accounting the income from these assets has to be imputed and accounted as an expense in the recurrent budget and as revenue in the capital budget. Thus conceptually this disparity can be addressed by taking into account these imputed revenues and expenditure in the assessment of revenue capacity and expenditure needs as part of fiscal equalization.

When the infrastructure under consideration contributes to a redistributive government function (such as basic education or primary health care), then central government intervention might also be warranted. However, the exact form of this intervention is not necessarily clear. Some scholars suggest that when regional disparities are exogenously given, the central government can also externally determine a fair or equitable distribution of physical infrastructure and introduce a series of earmarked grants to bring about the desired allocation of capital stock after a certain number of years (e.g., Levtchenkova and Petchey, 2004).[34] However, this approach is not without problems. The main rationale for decentralization is allowing local players to make efficient decisions based on their superior knowledge of local conditions. The right mix of capital and non-capital inputs to the production of public services is one of the most important economic decisions. Therefore, externally imposing the level of capital infrastructure can lead to inefficient modes of service production. In some countries, centrally financed infrastructure remains underutilized without contributing to the desired level of public services, a manifestation of inefficiency of central decisions.

[33] Boadway, Robin. 2004. "The Theory and Practice of Equalization." CESifo Economic Studies, 50:1, pp. 211.

[34] Levtchenkova, Sophia and Jeff Petchey, 2007. "A model for Public Infrastructure Equalization in Transitional Economies," In: *Challenges in the Design of Fiscal Equalization and Intergovernmental Transfers.* Jorge Martinez-Vazquez and Robert Searle (ed.), New York: Springer.

To the extent that the issue of unequal capital endowment concerns fiscal equalization, it is worth relating it to the 60 years of literature regarding efficiency-enhancing equalization grants.[35] In particular, this literature provides some insights on how capital grants should treat differences in construction costs, differences in borrowing costs, and differences in infrastructure needs in terms of large number of students and so on.

Overall, economic theory presents a very limited case for taking into account differences in the costs of producing subnational public services. That limited case is entirely based on inter-jurisdictional externalities allowing economic decisions, like choosing a jurisdiction for residence, to be based on rational choices. Concerning the economic externalities arising from labor mobility, equalization grants should take into account local costs only to the extent that they are due to 'publicness' of local government services as private benefits of local services are fully internalized in the individual's migration decision. With non-congestible local government services, every new migrant creates public benefits to the destination municipalities by chipping in the costs of these services without taking away from the enjoyment of these services by other local residents. However, most empirical estimates of the congestion parameter for local government services imply these are highly congestible (Albouy 2010). This means that whatever additional revenue, if any, brought by new residents this can mostly be offset by the additional costs of local government services that will be required to serve the additional population—the new residents. Given the empirically found "congestibility" of local government services, there is little need for intergovernmental grants to take into account economies of scale from the inflow of new residents.

On the other hand, the theoretical justification for intergovernmental grants as a compensation for inter-jurisdictional spillover of benefits from local government services requires the so-called Pigouvian subsidies to be inversely related to local costs of government services. The intuition is to signal the recipient government that this service can be produced more cheaply elsewhere and, given the reciprocal externalities, enjoyed by the less

[35] See Boadway (2004, Idem) for a comprehensive review.

cost-effective jurisdiction through spillover of benefits from the more cost-efficient jurisdiction. This will further discourage the less cost-efficient local government from providing this service as, in addition to having higher per unit costs, it will also receive a lower per unit subsidy. For example if it costs less to achieve one ton reduction in ***carbon*** dioxide emissions by upgrading local utilities in one jurisdiction than in the other, not only will the second jurisdiction have higher costs per one ton reduction they will also receive less in national subsidies per ton reduction. This will steer the second jurisdiction to use its resources for some more cost effective expenditures while the national emissions reduction quota can be achieved where it is more cost effective. To the extent that there is a local impact from ***carbon*** dioxide emissions, the local government might still spend some of its own resources on emission reduction.

The only possible case for efficiency-inducing equalization grants to be positively related to local capital needs is due to differences in the composition of population in terms of entitlement to various capital-intensive services. However, this conjecture articulated by Boadway (2004) has not been formally derived in the theoretical literature.

On the revenue side, efficiency-inducing equalization grants should take into account disparities in source-based taxes and local rents. Concerning disparities in residence-based taxes, the only disparities that should be equalized are those determined by the differences in the composition of residents arising from differences in income-earning abilities across jurisdictions; however, equalization is not warranted in terms of their actual income—as, for example, determined by local income-generating activities. These normative prescriptions for fiscal equalizations are generally derived using a single-period model. Conceptually these arguments could be extended to a multi-period setting so that a migration decision by a local resident is determined by the present value of future revenues and costs. However, this introduces one additional aspect of disparities namely the cost of inter-temporal smoothing or borrowing costs.[36] Thus, for two jurisdictions with identical streams of future revenues, the one with higher borrowing cost will have a lower present value of its revenues.

[36] Herrero-Alcalde, Ana; Martinez-Vazquez, Jorge and Murillo-Garcia, Encarnacion. "Capital Transfers and Equalization: An Application to Spanish Regions," Publius: The Journal of Federalism, pp.1-29, 2011. Published by Oxford University Press.

It is important to realize that within any country, with its own peculiar financing institutions, the ability to borrow is likely to differ markedly across sub-national governments. Local government borrowing from competitive capital markets –either through private financial institutions or directly from the bond markets- requires the local authority to be creditworthy by demonstrating its financial ability to repay its loan over time and technical capacity to manage its debt. As such, the very nature of capital markets assures that local government borrowing is likely to exacerbate horizontal imbalances: credit markets provide larger and wealthier regional and local governments with access to capital funding, while smaller and poorer local governments are typically excluded altogether from access to capital.

However, the issue of inadequate fiscal capacity of poorer jurisdictions is not specific to debt financing. Without being addressed with effective remedies, it affects the ability of local governments to finance their operating costs just the same way as their ability to repay debt. In fact, debt financing is only a tool for managing the flow of income and expenditures across time periods. If the flow of income is overall inadequate to finance the flow of expenditures rather than being mismatched across time, then debt financing cannot improve this situation. However, when a decentralized fiscal system is able to effectively address fiscal disparities by equalizing revenue capacity and expenditure needs, including capital costs, this equalization will allow local governments to generate current surplus necessary to service their debt. Stable and predictable intergovernmental equalization and other grants contribute significantly to building the creditworthiness of local governments, if not just the same way as stable revenues from their own sources. An example is provided by the practice of intercepting sub-national government sources of revenues; the ability to intercept intergovernmental transfers can be seen by creditors as the most secure collateral.[34]

There is however one related issue that is specific to debt financing. Even when being able to generate revenue surpluses from their own sources and stable intergovernmental transfers, smaller jurisdictions might not be served by private markets because of the small size of their financial

[37] At the same time the right to intercept intergovernmental transfers can discourage lenders' effort to monitor local government finances, and in some cases could be interpreted by these lenders as a promise of central government bailout. For example, Mexico has recently abandoned the practice of the intercept for these same reasons.

needs and relatively higher associated transactions costs. This suggests that policy makers need to consider alternative means of funding capital infrastructure in local authorities that lack access to capital markets. Capital grants are only one of several alternatives to private sector borrowing for financing local capital development in smaller jurisdictions, as we discuss immediately below.

Intermediary financial institutions specializing in local governments can help break the vicious circle in which smaller less-developed localities are restricted in funding infrastructure investments because of lack in capacity to manage borrowing. Although international practices vary substantially between countries, an intermediary institution can borrow in its own name and use the proceeds to purchase debt instruments of local governments; this type of intermediary is known as a bond bank. Alternatively, financial intermediaries that serve local governments might assemble and repackage municipal debt instruments and make them available to the market (e.g., create local bond pools). Such intermediaries can provide access to capital markets for smaller governments that otherwise would not get credit. Moreover, intermediation brings savings on the fixed costs of debt issuance thanks to standardized borrowing procedures and documentation, and technical assistance to local governments with capital planning, cash flow projections, and pre-structuring of loan packages.[38] While this intermediation is provided for a price, the fees associated with such intermediation for small-scale projects are generally less than the costs of bond issuance. In the United States, bond banks have been quite successful in leveraging "economies of scale on behalf of the small borrowers" since 1960s.[39]

In practice, financial intermediation, especially when run by the national government, can have its own problems. Besides creating moral hazards, if the "soft" financial assistance from the center is institutionalized, it can also create a culture of long-term dependency and impede capital market development. Therefore, as a practical compromise, complementing borrowing with equalizing capital grants would allow the grants component to be means tested, thus representing an upfront payment of future gaps between debt service costs and revenue collections at some

[38] Freire, Mila and John Petersen, eds. (2004) Subnational capital markets in developing countries: From theory to practice. Washington, D.C. New York and Oxford: World Bank, Oxford University Press.

[39] Government Finance Group, Inc. 1997, "An Analysis of State Bond Banks," Council of Infrastructure. Financing Authorities Monograph Nº 9, Washington, D.C.

reasonable rates. Such upfront grants can be superior to subsidized interest rates and operating subsidies as they bring transparency and eliminate the need for future surveillance and administration.[40] The allocation of grants can be based on affordability analyses, targeting those projects that would become affordable only if subsidized with a partial grant.

In addition, Petchey and MacDonald (2007) argue that capital grants can be used as a "short-term option" in transition and developing countries until subnational governments get access to capital markets, tax handles or predictable intergovernmental revenue.[41] Furthermore, they argue that under the aforementioned constrains, capital grants can be used as a short-cut for ensuring equal access to public services that have capital as the main input (e.g., transport). While this might be a valid point in some specific settings, it is not uncommon in developing countries to see local governments not having cash to provide access to education even at a "school under a tree" at the backdrop of aborted government construction sites and idle pieces of infrastructure, which were found to be of little use upon completion. For a broad range of public services allowing some degree of substitution between capital and non-capital inputs, the flexibility of, for example a sectoral block grant, would significantly enhance the chances of local governments to provide a larger access to these services as opposed to conditional grants earmarked to capital use or specific infrastructure projects.

In summary, normative theory gives some guidance for the use of capital grants and limits it to the cases of benefit spillovers, outsourcing of national projects, credit enhancement, and, in some circumstances, addressing historical disparities in the existing stock of infrastructure that are not the product of specific choices made by local governments themselves. For capital inputs for the provision of truly local public services, the theory of public finance suggests the importance of unitary planning and budgeting, possibly relying on inter-temporal financing through savings from past revenues and borrowing against future revenues. After describing the normative framework for capital grants, we next turn to the international practice of capital grants to provide a comparative framework for capital grants in Macedonia.

[40] Varley, Robert C. G. (2001) Indonesia: Financing Small Scale Urban Infrastructure in the Era of Decentralization. Asian Development Bank.

[41] Petchey, Jeffrey; MacDonald, Garry;2007. "Financing Capital Expenditures through Grants," in Boadway, Robin and Shah, Anwar (eds.) Intergovernmental Fiscal Transfers: Principles and Practice. Public Sector Governance and Accountability Series. Washington, D.C.: World Bank, 425–51.

International experience

In practice, capital grants are used beyond the aforementioned theoretically justified causes (see Box 4). Out of 151 countries included in the 2010 edition of the IMF Government Finance Statistics, 96 countries report non-missing values for intergovernmental capital grants in at least one of the years between 1990-2008. One simple general reason for such a wide-spread use of capital grants is that real-world decentralized systems of government do not always follow the ideal model of decentralized public finance. As we pointed out earlier, the lack of taxing powers affects the ability of local governments to finance their capital investments just in the same manner as their ability to finance their operating costs.

Another powerful reason for the prevalence of capital grants is that central governments tend to treat capital development in a more centralized manner than recurrent programs. In cases where the provision of given services may have been devolved to local governments, it is not atypical to find central governments maintaining significant control over capital infrastructure decisions. This is despite the fact, that typically the share of subnational governments in capital expenditures of a country is twice their share of recurrent expenditures (Figure 7). This is true for countries in each income group and for the world average of the subnational share of capital expenditures, which is 60 percent compared to the 30 percent of recurrent expenditures accounted for by subnational government.

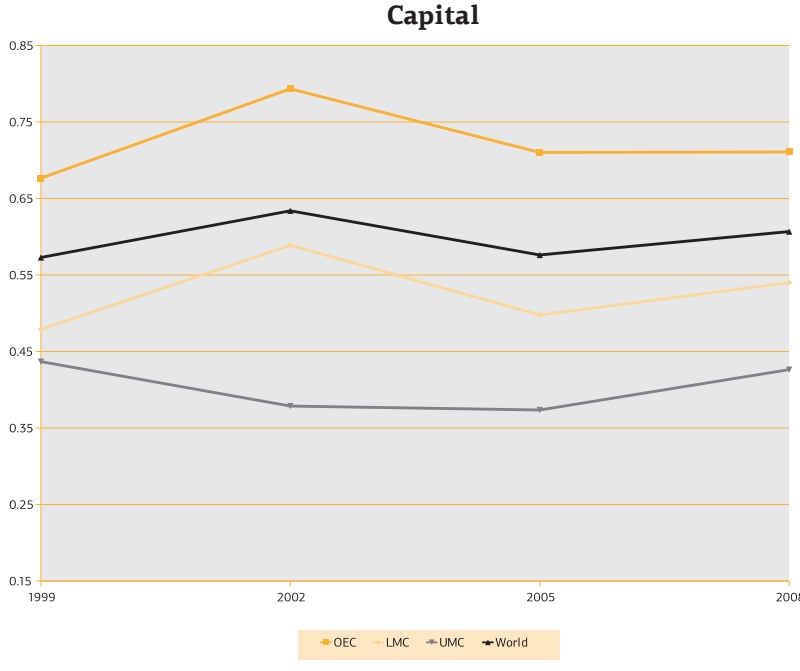
Box 4: International Cases and Best Practice in the Design of Capital Transfers

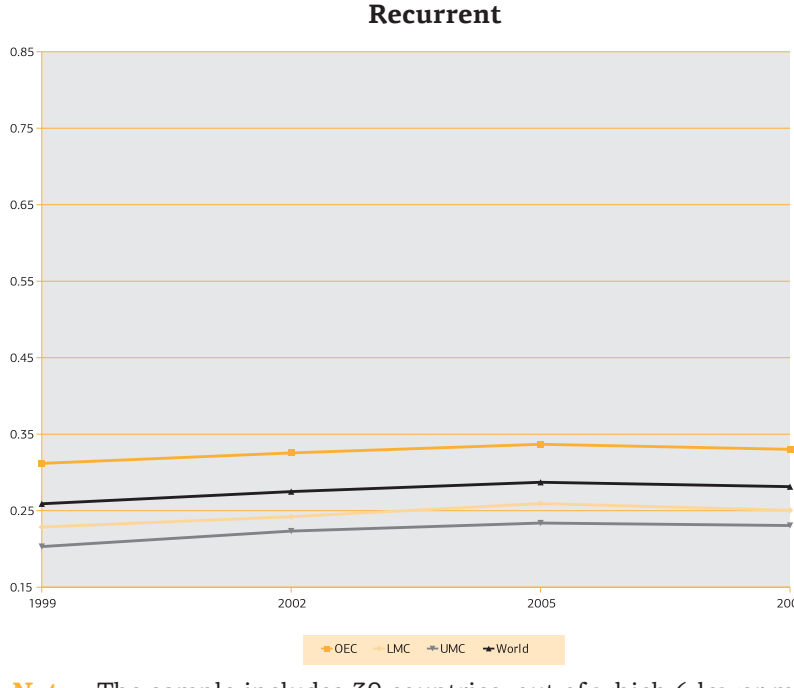
International experience with the design of capital transfers shows that a large variety of approaches are used. Most countries use some form of capital transfers in support of subnational governments for specific sectoral expenditure areas such as roads, water and sewerage treatment plants, transportation, housing, education, health, and so on. Regarding the mechanism used to allocate capital transfers, country experiences vary from ad hoc allocation decisions to formalized approaches using pre-established formulae. Similarly, country experiences vary in flexibility from the least flexible "project-based grants" to unconstrained funds provided as part of a general revenue transfer. Often the amount of capital grants has to be matched with locally raised resources and the matching rate is sometimes inversely related to the local income (e.g. Finland)

The lack of information and the variety of approaches observed make it particularly difficult to generalize and extract lessons useful for just any country trying to establish or reform a system of capital transfers. At the risk of oversimplification, one can say that the typical country has a variety of capital transfers which are closed-funded in the national budget, have earmarked funds within specific capital expenditure categories, require some level of matching funds from subnational governments, and whose funds are allocated either by an objective formula or on a specific project basis. The variety of specific details in the design of capital transfers is a reflection of the many institutional features associated with capital transfers and the multitude of objectives that may be pursued by governments in this area. The range of objectives for capital transfers include: closing disparities in local infrastructure stocks, subsidizing capital projects with cross-jurisdictional spillovers of benefits, addressing vertical imbalance in the assignment of revenue sources, addressing lack of credit availability, and others.

Source: Martinez-Vazquez, Jorge 2000. "An Introduction to International Practices and Best Principles in the Design of Capital Transfers," report prepared for the Center for Fiscal Policy, Moscow under USAID funding with Deloitte, Touche, Tomatsu.

Figure 7. International trends in decentralization of recurrent and capital expenditures, 1997-2008





Source: Martinez-Vazquez and Timofeev (2012)[42]

Notes: The sample includes 39 countries, out of which 6 lower middle income (LMC), 10 upper middle income (UMC), 2 non-OECD high income, and 21 OECD countries (OEC).[38]

[42] Martinez-Vazquez, Jorge, and Andrey Timofeev. 2012. "Propensity to Invest and the Additionality of Capital Transfers: A Country Panel Perspective" International Studies Program Working Paper 12-16. International Studies Program, Andrew Young School of Policy Studies, Georgia State University.

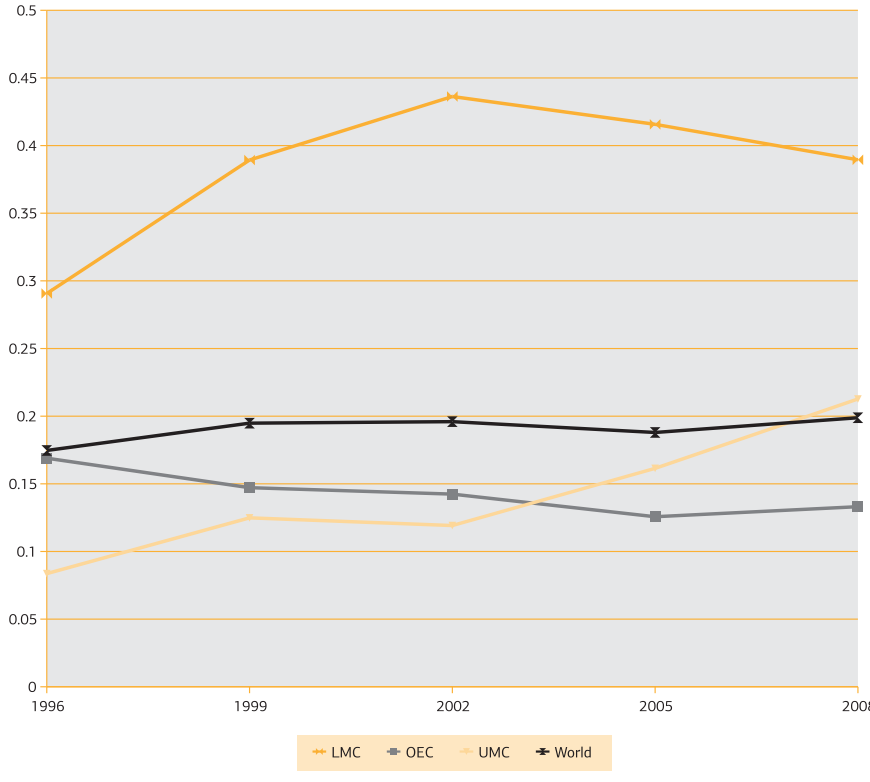


Figure 8. Capital grants as a share of total grants throughout the world, 1993-2008

Source: Martinez-Vazquez and Timofeev (2012)

Notes: The sample includes 44 countries, out of which 1 low income, 9 lower middle income (LMC), 9 upper middle income (UMC), 3 non-OECD high income, and 22 OECD countries (OEC).

According to the International Monetary Fund's Government Finance Statistics data, on average, twenty percent of intergovernmental grants in the world are earmarked for capital use (Figure 8). This earmarked share is the lowest in OECD countries (13 percent) and the highest in lower-middle income countries (40 percent). From juxtaposing Figures 7 and 8, it is interesting to note that OECD countries are the most decentralized in terms of capital expenditures but at the same time use the least earmarking of intergovernmental grants for capital use. Similarly, a qualitative survey of governments revealed that three in five developed countries earmark transfers for capital use as opposed to four in five transitional countries, which can be explained by the legacy of central planning (OECD/World Bank 2003).[403] In transition countries, capital transfers are often channeled through a plethora of extra-

[43] OECD/World Bank. 2003. Survey of Current Budgetary Practices for 30 OECD countries and 30 non-OECD countries.

budgetary funds created within various line ministries (e.g., Romania until 2004).

Partly due to historical inertia but also because of external reasons, in some (mostly developing) countries capital grants stem from the existence of separate development budgets. For many years, donors have preferred the separation of the development budget from the regular budget because presumably it is easier to monitor progress on investment projects than on general government programs. In addition, donors might prefer capital projects because of the misconception that capital expenditures are always more productive for development than current expenditures. Best practice approaches have changed considerably in recent times. For example, for grant allocation to its own members and prospective candidates, the European Union requires each country to develop a single programming document, which shows how government priorities determine eligible projects, capital in nature or not, for example retraining of labor force.

In transitional countries, the practice of capital grants takes its genesis from the ad hoc delineation of responsibilities and resources during the first years of transition (on top of the long tradition of central planning). Because central governments were sensitive to political costs of wage arrears in schools and hospitals, they wanted local authorities to pay salaries first under the pretext that resources for capital expenses would be coming separately. Nevertheless, throughout the transitional countries, capital grants have played a smaller role in the financing of local infrastructure than own revenue of local governments (often from the sale of assets) and borrowing, with the latter being more prevalent in Central Europe.[44] Throughout the world, capital grants account for about one third of net subnational investments and this share ranges from less than one-fifth in lower-middle counties to over a half in OECD countries (Figure 9).

[44] Swianiewicz, P. (2004), "Comparing International Experiences: Emerging Markets of Local Borrowing?" in: Swianiewicz, P. (ed.), *Local Government Borrowing: Risks and Rewards: A Report on Central and Eastern Europe*, OSI/LGI, Budapest, pp. 385–424.

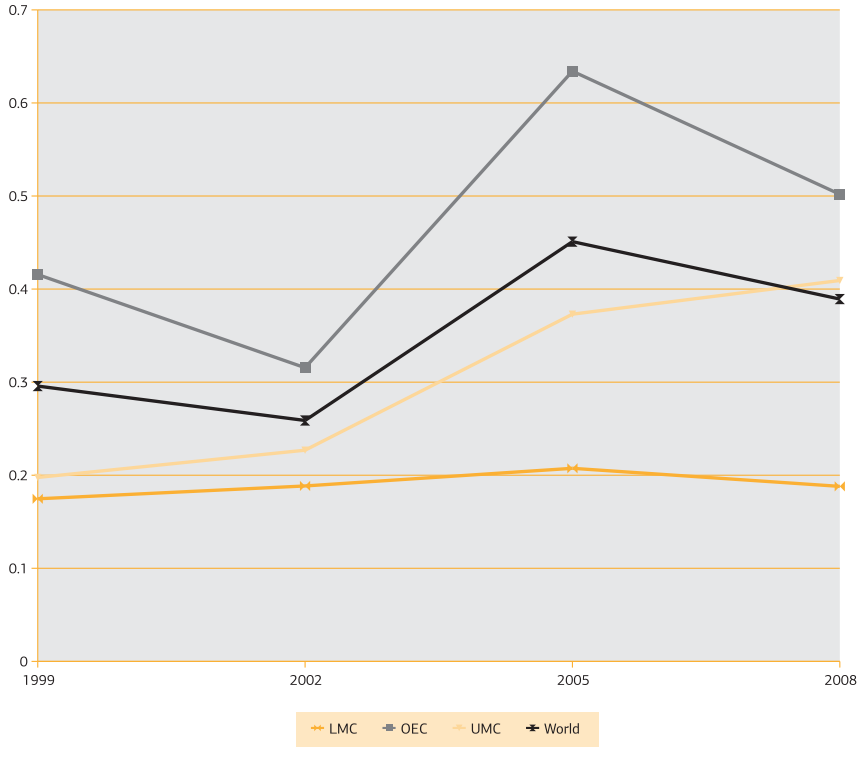


Figure 9. Capital grants as a share of subnational capital investments in other countries, 1997-2008

Source: Martinez-Vazquez and Timofeev (2012)

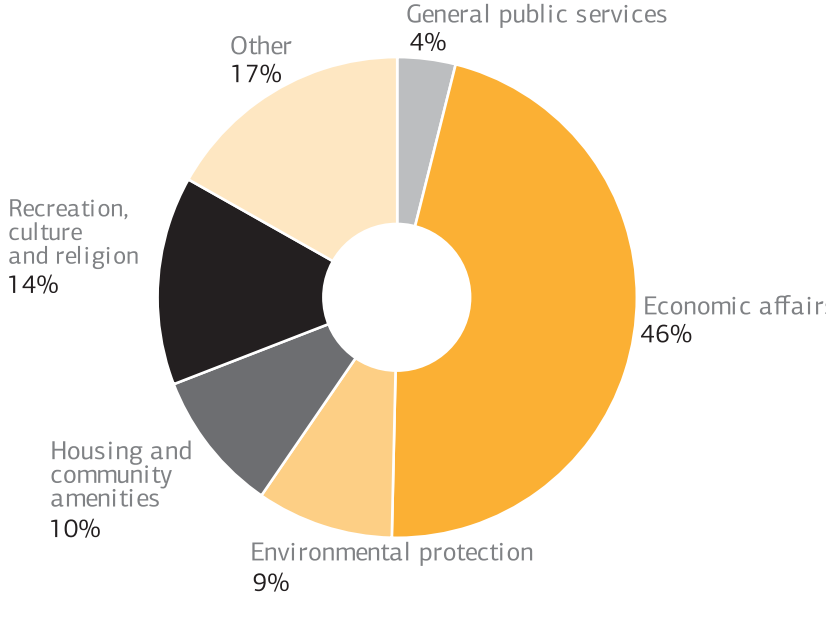
Notes: The sample includes 33 countries, out of which 1 low income, 7 lower middle income (LMC), 7 upper middle income (UMC), 2 non-OECD high income, and 16 OECD countries (OEC).

All in all, across the world, subnational governments account for almost two thirds of public investments, only one third of which is financed with capital grants, which in turn accounts for one-fifth of intergovernmental transfers. It should be noted however that, while the lowest share of grants (15 percent) is earmarked for capital use in the OECD countries, it accounts for the largest share of subnational investments (one-half), as capital expenditures play a much smaller role in the budgets of developed countries compared to the world average. This brief discussion of capital grants around the world shows that there are a number of different patterns. The upper middle income country examples, a comparator group for Macedonia, in particular can be treated as a reference for Macedonia.

Local capital expenditures in Macedonia

In Macedonia, subnational governments account for almost a quarter of public investments compared to 40 percent in other upper-middle income countries. The largest share of local capital expenditures (46%) is allocated to economic infrastructure, in particular construction of roads (Figure 10). The second most common sectoral allocation of local investments was for cultural assets (14%). The next two largest sectoral allocations were for community amenities, in particular water supply, and environmental infrastructure, in particular treatment of liquid and solid waste. Between 2006 and 2010, capital grants have continued to provide financing to local government alongside direct central government investments on local infrastructure in various sectors. In 2006, capital grants were 46 percent of total central government spending on local level infrastructure which decreased to 29 percent in 2010. During this time period, a special project for financing local roads was initiated which is classified under direct investment. When this mode of financing is included under the

Figure 10. Sectoral composition of local capital expenditures, 2010



Source: Prepared by the authors based on Ministry of Finance data.

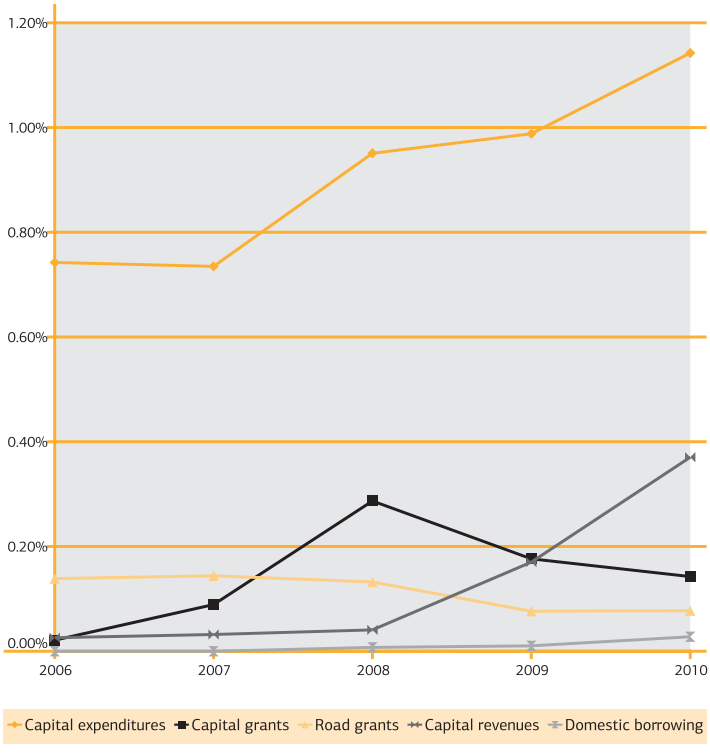


Figure 11. Local capital revenues and expenditures as percent of GDP: 2006-10

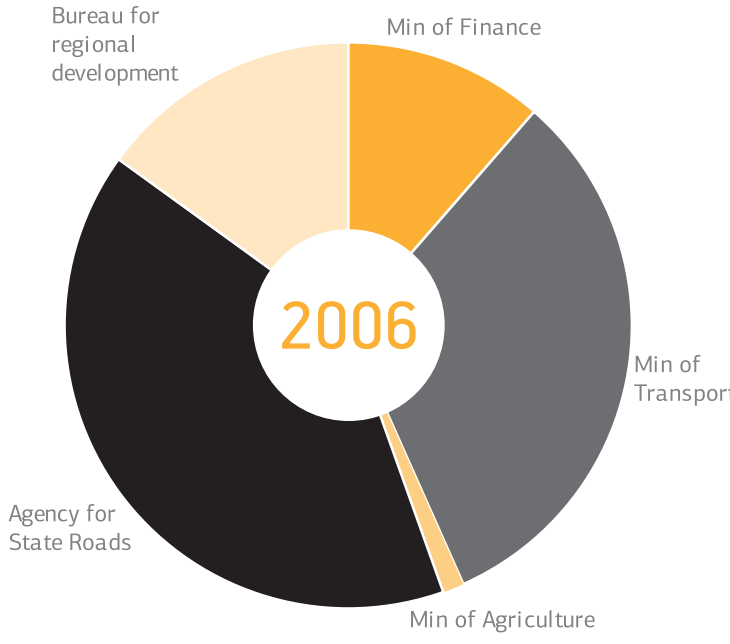
Source: Prepared by the authors based on Ministry of Finance data.

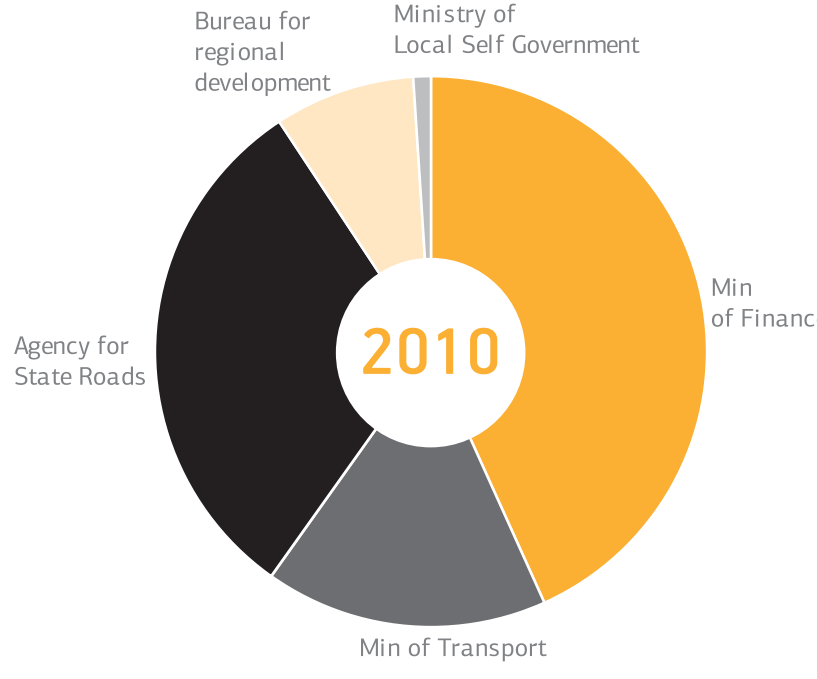
capital grants, the total grants as a percent of local level investments comes to 42 percent. This project targeted local public infrastructure but worked as a form of central spending, however providing local governments a role in the identification and the prioritization of investments. It may have worked as a substitute to capital grants. During the same time period, the capital grants administered by the Ministry of Finance increased from 4 to 13 percent of central government spending on local level infrastructure.

According to Figure 11, less than a third of subnational investments (but over half in rural areas as can be seen from Table 11 farther below) is financed with capital grants compared to 40 percent in other upper-middle income countries. In Macedonia, capital grants account for only four percent of intergovernmental transfers compared to 21 percent in other upper-middle income countries. On the whole, it is important to note that on average most of the local capital expenditures are financed from general purpose revenues of local governments, including VAT grants.

According to the Law on Financing of the Units of Local Self-Government (Art 11), capital grants from relevant line ministries and from the Public Roads Fund are to be used to finance municipal investments based on a program of the Government of Macedonia.

Figure 12. Composition of capital grants by administering agency, 2006 and 2010





Source: Calculated by authors based on data from adopted national budgets

The Public Roads Fund provides financing for construction, reconstruction, and maintenance of local roads. The criteria for the allocation of the Fund are prescribed in the Rulebook on Allocation of Funds for Construction, Reconstruction and Maintenance of Local Street and Roads adopted annually by the Ministry of Transport and Communication. The decisions are updated every year by the ministry and these changes set the size of total allocation for municipalities. The grants do not require municipal level matching contributions. The amounts allocated each year to different municipalities do not appear to be published. As a share of GDP, the total amount of the road grants— including those for road maintenance— has been steadily declining from 0.14 percent of GDP (or 19 percent of local capital expenditures) in 2006 down to 0.08 percent of GDP (or 7 percent of local capital expenditures) in 2010.

The Ministry of Transport and Communication used to dispose of another fund for financing capital investments in local infrastructure (water supply and sewerage). This fund has been discontinued in its previous shape. The size of this fund depended on the annual central budget allocation. This fund was dedicated to potable water pipelines and sewer collector systems and it was distributed on a project basis. Municipalities submitted projects to the Ministry of Transport and Communication for consideration and funding. Normally, the money allocated to the municipalities in the framework of this fund covered just a portion of the total cost of the project submitted. Thus, the actual distribution of the capital grants tended to give priority to projects that have secured necessary matching funds and to projects that had been started but not yet completed. The list of the municipalities receiving the fund's money was published annually. The amount of the money budgeted for allocation to municipalities through this fund was MKD 396 mln (or 15% of local capital expenditures) in 2006. In 2010, MKD 161 mln was allocated (or 3% of local capital expenditures).

Another form of capital development grants comes from the Bureau of Regional Development (formerly Bureau for Development of Underdeveloped Regions) under the Ministry of Local Self Government, which allocates funds to the "underdeveloped" regions in the country. These

regions are identified on the basis of several criteria, which can be revised annually and include variables such as the level of economic development and demographic characteristics. Underdeveloped regions are classified into four categories: hill/mountainous areas, extremely underdeveloped regions, rural areas, and border areas. By law the level of funding for the Bureau is set at 1 percent of the GDP on an annual basis plus external donations. However, reportedly the actual allocations had averaged 0.2-0.3 percent of GDP before 2007. In 2011, MKD 89 mln was appropriated for the Bureau of Regional Development, out of which MKD 80 mln for capital grants to municipalities (or 1.5% of local capital expenditures).

The Bureau of Regional Development finances three types of projects: infrastructure projects (e.g., air pollution prevention, local water supply system, electrification); economic support projects, such as loans to small enterprises; and vocational training or contributions to the health and security insurance for the employees in these regions. In the case of economic support projects, vocational training and health and security contributions, the applicants can be legal or physical persons located in the defined areas, while only the municipalities are eligible for infrastructure projects. In the course of the year, the Bureau opens tenders in the above-mentioned areas of interventions. The applicants submit their projects to the Bureau and a commission composed of, among others, the representatives of the Ministry of Local Self Government and other line ministries, selects the projects and the respective funding allocations. The financing covers just a portion of the project proposals up to 3 million MKD. Formally the selection of the projects is done on specific criteria. However in the past municipalities claimed that these criteria had not been consistently applied and that the selection of projects had been politically driven.[45]

The legal framework for the Bureau was revised with the adoption of the Law on Balanced Regional Development in May 2007. According to the new law, the Regional Development Bureau, as a body within the Ministry of Local Self-Government, is now responsible for analytical support, drafting government documents, and technical assistance to planning regions in the area of regional

[45] Feruglio, Nicoletta, Jorge Martinez-Vazquez and Andrey Timofeev. 2008. "Assessment of Fiscal Decentralization in Macedonia," UNDP Macedonia.

development. While the focus of these activities is on planning regions, areas with specific developmental needs, and villages, it also concerns municipalities in two ways. First, as a founding principle, the new law proclaims cooperation between the central and local authorities in preparation, implementation, monitoring and evaluation of planning documents and programs and measures in the area of regional development. This partnership also provides for equal sharing of operating costs of Development Centers in each Planning Region. Second, local self-government units that encompass areas designated as having "specific developmental needs" will have the authority to submit project proposals and, if approved, receive funds from the Bureau. The total amounts of funds allocated for such projects will account for twenty percent of the funds appropriated annually for the purpose of encouraging balanced regional development. In addition, local self-government units will have the authority to submit project proposal for development of their constituent villages. The total amounts of funds allocated for the latter type of projects will account for ten percent of funds appropriated annually for the purpose of encouraging balanced regional development but would also have to be matched by an equal amount from urban municipalities proposing projects for their constituent villages. Urban municipalities are required to co-finance 50 percent of the projects while rural municipalities receive total financing from the Bureau grants. Using the criteria set in the law and socio-economic and demographic indicators, the Bureau funds were planned to be distributed over regions from 2008 to 2012 according to the following indicative table based on the information provided by the Bureau:

Table 10
Distribution of Bureau of Regional Development Funds over Planning Regions (2008-2012)

Planning Region	Percentage for distribution by region (%)
Skopje	6.4
Southeast	10.6
Pelagonia	12.9
Southwest	13.0
Polog	13.0
Vardar	13.5
East	14.0
Northeast	16.7

Source: Bureau of Regional Development

In total, in 2010 MKD 131.81 million were allocated to the regions out of which MKD 21.71 million were disbursed. In 2011 a sum of MKD 92.07 million was allocated. During the same year, funds for areas with special development needs amounting to 34.19 million were disbursed. In 2011, an amount of MKD 26.31 million was allocated. In 2011, a total of MKD 13.15 million was allocated for development of villages. The low utilization indicates change in expenditure priorities of the national government during budget execution.

In 2010 only 40 municipalities (13 rural and 27 urban – 8 in Skopje) reported that they had received capital grants totaling MKD 604 MKD. Possibly some other funds were paid directly to contractors from the central agency budgets or were misclassified as recurrent revenue in the municipal budgets. However, the information on the total amount of capital funds appropriated for local projects by the Ministry of Transport and Communication and the Road Fund suggests that less than one fifth of local capital investments are financed with national grants earmarked for capital infrastructure.

The capital grants are further fragmented by sector. For example, in 2011, The Youth and Sports Agency spent directly in 48 municipalities for financing of sports facility construction. The minis-

try expenditures had no matching requirement. The main allocation criterion has been the pursuit of balanced development of sports facilities across the country. The Ministry of Environment finances investment in schemes aiming at environmental protection. In 2010 and 2011 the only schemes with capital outlays were financed for construction of water supply in a few municipalities.

Pursuant to Article 24, paragraph 2 of the Law on drinking water-supply and disposal of urban wastewaters, the construction and maintenance of water and sewerage systems are financed by central government grants detailed in a cabinet regulation adopted under the Law on Drinking Water-Supply and Disposal of Urban Wastewaters, 2008. The regulation is implemented by the Ministry of Agriculture, Forestry and Water Economy, Ministry of Local Self-Government, Ministry of Transport and Communications and Ministry of Environment and Physical Planning. The municipalities receive funds for water supply and sewerage systems using a system that looks at the deficiency in access to drinking water and sewerage in the municipality in addition to contribution from own source revenue. The scoring system favors higher deficiency and higher contribution to project financing from own source revenue. The individual scores are used to calculate a "relative index of needs" that is used to allocated available funds across municipalities.

The regulation on the evaluation of water and sewerage projects by the Ministry of Transport awards additional points to projects submitted by poorer municipalities. However, even more points are allocated for a larger local match. Thus, if a municipality with twice the average level of income contributes twice the amount from the local budget than an average-income municipality, all in all it would still receive more points on its application. By contrast, the Bureau of Regional Development awards more points for a higher local match regardless of the local ability to raise revenues. While ensuring the "additionality" of investments, this further aggravates disparities in the level of development by channeling resources to more developed localities, who can afford a higher local contribution.

The Protection and Rescue Directorate manages funds collected from fire insurance premiums.

The funds are placed in a separate account at the Directorate, with established purpose for the supply of firefighting equipment for firefighting units. From 2009 to 2011, the Directorate invested in supply of firefighting 29 vehicles for municipalities and to add to central firefighting capacity.

Table 11. Impact of grants on disparities in capital expenditures, (2008-2010)

	Road grants, MKD per person	Capital grants, MKD per person	Local capital expenditures, MKD per person	Capital grants as a share of local capital expenditures	Road grants as a share of local capital expenditures
Rural outside Skopje (41 units)					
Average	1,275	574	4,443	0.16	0.39
Minimum	219	0	824	0.00	0.08
Maximum	3,848	3,954	29,490	0.79	1.15
Coef. of Variation	0.68	1.52	1.08	1.19	0.63
Urban outside Skopje (33 units)					
Average	776	612	4,483	0.11	0.20
Minimum	252	0	1,410	0.00	0.03
Maximum	2,314	7,274	9,369	0.80	0.59
Coef. Of Variation	0.68	2.22	0.47	1.58	0.70
Skopje average (composite)	433	2,590	11,693	0.22	0.04
National average	563	1,097	6,068	0.18	0.09

Source: Prepared by the authors based on Ministry of Finance data.

Note: All amounts are in constant 2010 denars. All nominal amounts transformed to constant 2010 denars using Industrial Producer Price Indices

Over 2008-2010, the average per capita amount of capital grant and capital expenditures in rural municipalities was only slightly lower than in urban municipalities. Similar to general purpose grants, capital and road grants are only slightly, although negatively, related to the per capita amount of own-source revenue (coefficients of correlation about -0.1). As a result wealthier municipalities are able to undertake more capital expenditures per capita (coefficient of correlation about +0.29).

Overall assessment of capital grants

The financing of local government investments in Macedonia takes place against a backdrop of rather fragmented territorial division, incomplete devolution of functional responsibilities, and poorly integrated practices of capital planning. The totality of these factors determines the existing system of intergovernmental financing of local capital investments and also available reform options.

Besides the fragmented structure of local government, Macedonia also has a fragmented system of policy tools for the allocation of capital transfers. The three major channels for central government financing of local capital projects are ad hoc grants from line ministries; road fund grants and grants from the Bureau of Regional Development.

The fragmentation of policy instruments leads to ineffectiveness and significant administration costs. The fact that the same local project (e.g. water supply) can be submitted to several investment programs of the national government (e.g., Ministry of Agriculture, Forestry and Water Economy; Ministry of Transport and Communications; and Ministry of Environment and Physical Planning) suggests that the total amount of resources available for achieving a particular national objective are not pooled together to be competed among all eligible projects.

Fragmentation of capital grants by different sectors precludes cross-sectoral prioritization within each locality. Incorporation of the territorial aspect into the sectoral investment programs would make this two-dimensional programming really unmanageable given the sheer number of local governments.

Conclusions and specific recommendations for reforming capital grants

The variety of specific details in the design of capital transfers found around the world is a reflection of the many institutional features associated with capital transfers and the multitude of objectives that may be pursued by governments in this area. The range of objectives for capital transfers includes closing disparities in local infrastructure endowments, subsidizing capital projects with cross-jurisdictional spillovers of benefits, addressing vertical imbalance in the assignment of revenue sources, and addressing lack of credit availability. Therefore, the choice of policy options for Macedonia would depend on the selection of objectives that are to be pursued by means of capital grants. One of the conclusions from our analysis is that different policy objectives would imply quite different incidence of capital grants allocation. For example, capital transfer policy addressing socio-economic issues as measured by infant mortality would imply more resources going to the Polog region than to the East region. However, capital transfer policy aiming at reducing the capital infrastructure backlog as measured by road density would imply less resources going to the Polog region than to the East region.

Regardless of the policy objectives, it should be emphasized that, unlike capital grants and intergovernmental loans, market-based borrowing improves the selection of projects. This principle applies to revenue generating capital projects such as toll roads or public service utilities financed with fees and charges. The improvement in selection of such projects is due to lenders having (or being able to extract from local governments) better information than the central government and because local governments and lenders are motivated to be prudent as they bear the repayment costs or the default costs. Therefore, it is desirable to rely on the market approach as much as possible; for example, by means of financial intermediaries rather than bypassing markets with capital grants or officially sponsored financial intermediaries.

Reform of the capital grants should be primarily driven by addressing their role in achiev-

ing the national objectives. Providing financing to local governments should take a secondary role in the reforms. With respect to the national objectives, there are a number of serious conceptual issues with the current arrangement for capital grants. Presently, the allocation of capital grants constitutes ring-fencing of a portion of public funds for investment purposes and allocating it based on submitted project applications. This violates several principles of public finance management.[46] First, it essentially creates dual budgeting by excluding a portion of public funds from policy-based prioritization. Second, the allocation of funds by economic item (i.e., investment) shifts the focus of budgeting away from implementing government policies to funding projects. Every government pursues policy objectives through different types of public expenditures. Government programs involving both capital and current outlays are implemented to achieve policy objectives like higher educational attainment or higher access from rural areas to urban centers. Both capital and current expenditures are components of those programs. The distinction between the two particularly blurs in the multi-year framework incorporating operation and maintenance costs. Where capital expenditures build assets, operation and maintenance expenditures are necessary to produce services at a certain level. Both types of expenditures contribute to development objectives. Planning processes that separately consider capital and recurrent expenditures are less likely to look at the overall service needs that are to be fulfilled. By artificially separating programs into capital and recurrent while aiming at the same policy objective prevent such expenditure plans from competing against each other within the total resource envelope. These arrangements can bias budgetary allocations toward more capital intensive approaches or vice versa.

Medium Term Expenditure Framework (MTEF) and Public Investment Program (PIP)

The Medium Term Expenditure Framework (MTEF) can provide a linking framework for policy making, planning and budgeting. The MTEF is essentially made up of the following components:

[46] For best principles see Public Expenditure Management Handbook (1998). Washington, D.C.: World Bank

- Macroeconomic framework for making projections of revenues and expenditures in the medium term;
- Guidelines to all agencies on undertaking sector reviews that would define sector objectives and policies, including the outputs to be produced and specific activities to achieve the outputs and thus the objectives;
- Assessment of costs and expenditure implications of policies resulting in medium term spending projections; and
- An effective forum at the central government linking policy making, planning and budgeting to make strategic budgetary decisions. This would institutionalize technical consultation procedures ensuring that policy proposals have been adequately debated among stakeholders prior to submission to the Cabinet of Ministers.

Applying MTEF to the development of the public investment program becomes problematic for the top-down process of allocating capital grants. While the allocation of resources to sectors and priorities can be guided by government policies, investments alone cannot be assigned any priority out of the context of programs and services that utilize these capital assets. The absence of an informed resource envelope for public investments makes the process of prioritizing local projects ineffective because time-consuming procedures of evaluation and prioritization are performed on projects that have no chance of being funded. Rather than being a tool of program prioritization, development of an investment program becomes a tool for attracting funds on an ad-hoc basis.

One possible justification for the public investment program process is its potential for using macroeconomic policies as a control on government debt and aggregate demand and for enforcing the golden rule.[47] However, in the multi-year framework, these goals can be achieved within the general financial management framework through accrual budgeting. More to the point, the capital grants cover only a small fraction of local capital expenditures and thus are less useful for macroeconomic control than accounting for all local expenditures by economic type.

[47] Enforcing a "strong golden rule", meaning that government borrowing should only be used to finance capital investments, would require separation of recurrent and capital budgets. In contrast, a "weak golden rule" limits the size of a subnational government's fiscal deficit by the amount of public investments. In Macedonia, a "strong golden rule" can be enforced thanks to the ring-fenced fund (account 789) in the local budget.

Rather than trying to create a (dual) capital budget at the local level, the national government should provide a general policy-driven framework for planning and budgeting which might have special provisions for capital components of government programs. The best way to proceed here is to develop explicit policy priorities for different sectors within the Medium Term Expenditure Framework (MTEF) and get the current PIP integrated into the MTEF. The role of the PIP unit could be to provide technical support and establish and enforce a set of procedures that enhance rigorous decision making.

The EU requirements for a single programming document for accessing structural funds essentially provide a medium term planning framework possessing all the MTEF features. Because the Government of Macedonia will eventually have to use these procedures to attract EU funding, it would be logical to start using them as a basis for Macedonia's MTEF. Within the EU SF framework, local government projects can be financed though State aid schemes or open call for applications. In addition, some activities from the National Program implementation modality can be delegated (or outsourced) to local governments while remain to be programmed centrally.

Under MTEF, capital grants can potentially ensure adequacy, stability and transparency of capital funding, at least in the part aiming at national objectives. However, there would be still an issue of local discretion, creditworthiness and capital markets development. Fortunately, as capital grants play only a limited role in financing LG investments in Macedonia, lack of cross-sectoral prioritization of this part of capital investments will not be as critical. In accordance with the current practice, the national PIP framework could be used to direct local projects toward national priorities. In this case there is no need to worry about territorial incidence of these programs. If local capital expenditures continue to be predominantly funded by general purpose revenue of local governments, as is the case in many countries, disparities in local infrastructure developments should be addressed elsewhere in the decentralization system including equalization grants, general revenue sharing, and so on.[48]

[48] As discussed in Herrero et al (2011, idem) design and implementation of capital equalization grants based on quantifiable capital expenditure needs and capacity measures, through identification of singular characteristics of capital expenditures and capital financing sources, to finance capital infrastructure at subnational level is a distinct policy option requiring further work.

Performance-based funding of capital investments

Now that almost every municipality has advanced to phase II of decentralization reform, there is a need for another mechanism to provide local governments with incentives to improve their performance. Performance-based capital grants could play that role, especially in the form of minimum conditions for receiving capital grants because there is a high risk of errors of omission and commission in local investments.

Performance linked funding has proved to provide local governments with remarkably strong incentives to comply with statutory requirements and has led to improved performance in many countries. More generally, performance-based grants can have three kind of positive outcomes:[49]

- promoting a positive change in some aspects of the performance (institutional or service delivery) of local governments, which receive or try to get access to the grants,
- identifying capacity building gaps and needs of local governments,
- providing input to the overall M&E and supervision systems (feedback to policy design).

Rewarding performance can take three alternative forms:

- access to funding,
- size of funding,
- allowing differential levels of discretion in using the funds.

When performance is rewarded through access to funds, it is necessary to define what constitutes the 'minimum safeguards' for handling of funds: a clean audit report, all financial reports have been submitted on time, a development plan has been prepared, etc. When performance scores are not high enough to allow access to capital grants, capacity building grants are sometimes given instead to make sure that underdeveloped regions are not left behind.

Experiences of other countries have shown that the credibility and integrity of the assessment of local government performance is vital for success of the system. The ministry that normally administers such a grant, also tends to be subject to most political pressure to ensure the release of funding, and is thus vulnerable to pressure to dilute and manipulate the assessment process. For that reason, to minimize conflicts

[49] Jesper Steffensen. 2010."Performance-Based Grant Systems - Concept and International Experience" United Nations Capital Development Fund.

of interest, it might be desirable keep the assessment as independent, and as far away from the rest of the grant administration machinery as possible.

From the experiences of other countries, the operation and maintenance implications of the local investments is still an area, which leaves some room for improvement, and which sometimes requires reforms in the systems of local government own-source revenues in some countries. As a minimum access condition, in the project planning local governments can be required to show the source of additional own-source revenues necessary to maintain new infrastructure. Then, performance-based increments of the grant can take into account how these pledged additional own-source revenues materialize.

Other general recommendations

- *Introducing mechanisms allowing joint operation of facilities by several municipalities or contracting out service provision to other local governments and modalities for central government financing of inter-municipal capital projects.* The law on inter-municipal cooperation was adopted in 2009. However, possibly due to missing by-laws, we have not found cases of capital grants awarded to a group of municipalities. Reportedly the Ministry of Environment allows applications from inter-municipal public enterprises and is promoting construction of region-wide waste utilization facilities.
- *Introducing a normative framework clearly delineating the respective roles of different levels of government in construction and maintenance of public infrastructure, p*articularly in education. Sector reviews under the MTEF can facilitate formulation of clear roles of national ministries in the sector vis-à-vis local government;
- In order to increase the "additionality" of capital grants, the government should make all of them matching grants and selectively raise the matching rates for those already in use.
- Other than outsourcing national programs to local governments, the national government should consolidate resources currently provided to local governments under the plethora of sectoral

investment programs into fewer but larger block grant programs with emphasis on a reduced number of sectors;

- Approval of subnational borrowing should be based on formal criteria and, where appropriate, packaged with allocation of capital grants. A review board could evaluate local loan applications using a set of specific criteria. These criteria could be harmonized with the PIP guidelines for project evaluation. This will be particularly relevant for EU SF projects where pre-financing of projects often requires local borrowing. These two procedures can be integrated so that an approval of a local project for the EU financing under the PIP would automatically authorize local borrowing up to the total project cost secured with future reimbursement payment from the EU structural funds.

APPENDIX I.

Measuring expenditures needs for grants pursuing different objectives[50]

In this appendix we review the existing theoretical rationales for compensating the differences in expenditure needs of subnational governments and assessing the expenditure obligations of the subnational sector as a whole.

Measuring expenditure needs to address vertical fiscal imbalances

Even in the most decentralized countries, local jurisdictions cannot operate like sovereign states because intergovernmental arrangements often limit their taxing powers, constraint borrowing, determine local government responsibilities, and impose certain spending requirements. In federal countries where local government is often established under constitutions or statutes of the federating states, it is these states rather than the federal government that impose fiscal constraints on local governments (e.g., Austrian and German Lander, Swiss Cantons, U.S. States, or Canadian Provinces). Thus, in the U.S., States constrain local governments by their grants of authority, by revenue sharing, by requiring actions and services, and by requiring uniform accounting and auditing procedures (Beckett, 2003).[51] In particular, states constrain local revenue raising powers by setting specific limits on revenue sources and tax burdens. These constraints on local government fiscal powers can lead to a vertical imbalance when the revenue sources available to subnational governments do not correspond

[50] This appendix draws heavily on Martinez-Vazquez, Jorge, Gustavo Canavire-Bacarrez, and Andrey Timofeev. 2011. "Fiscal federalism and the measurement of expenditure needs: Theory and international practice." International Studies Program Working Paper, Andrew Young School of Policy Studies, Georgia State University.

[51] Beckett, Julia. 2003. "State Supervision of Local Government Budgets" in Jack Rabin, ed., *Encyclopedia of Public Administration and Public Policy*. New York: Marcel Dekker.

to their expenditure responsibilities.

There is an imbalance between the expenditure responsibilities of subnational governments and their revenue raising powers virtually in every country and especially where local governments are involved in the provision of education and healthcare. This vertical imbalance is not likely to improve dramatically even as their economies develop and tax administration capacity of subnational governments improves. The reason is that urbanization that comes with economic development requires local governments to provide better urban amenities and this pressure outpaces any improvement in local revenue yield. At the same time, improved communication and transport infrastructure that comes with economic development makes economic activities more footless requiring centralization of taxation of businesses to the national level in order to reduce distortions to business location. Even in the taxation of consumption (the most productive subnational tax handle), the recent trend has been substitution of the national VAT for local sales taxes. As a result, throughout the world the bulk of revenue raising powers has been concentrating at the central level, which has been providing grants to local government to accommodate the mismatch. The result is that transfers comprise a major component of subnational government revenues, which even in OECD countries is close to fifty percent.[52]

A major issue faced by those who design transfer systems aiming to narrow the vertical imbalance is how to measure the vertical fiscal gap. In order to know how much transfer is necessary, one must estimate the difference between the revenues available to subnational governments as a whole, and the expenditure needs of each level of government. In the USA, a somewhat related application of the expenditure need measures is when a newly incorporated sub-county area negotiates with the county authorities the delineation of responsibilities for service provision and its participation in sharing certain county-wide taxes, such as the sales taxes or gas taxes.

Once the assignment of expenditure responsibilities or functional competencies to subnational government is performed, subnational finance systems provide funding to support those

[52] OECD 1999. Revenue Statistics: 1965–1998: Special Features, Taxing Powers of State and Local Government, the Interpretation of Tax-to-GDP Ratios, the Impact of GDP Revisions on Reported Tax Levels. Paris.

expenditures activities from a variety of sources, including revenues from fees and user charges, subnational own taxes, sharing in central government tax revenues, equalization transfers, conditional grants and borrowing. Although each source of financing has its own goals and desirable properties, the global fundamental question for the entire system of sub-national government financing is its revenue adequacy, that is, whether the expenditure functions and obligations of subnational governments can be sufficiently financed with the array of revenue sources that are provided in laws on local government finances. Of course, this is a very difficult question, and there will be no hope of even getting close to an answer without a transparent methodology that allows the mapping of expenditure responsibilities into expenditure needs.

General revenue sharing is used to close the vertical fiscal gap arising from centralization of taxing powers aimed at minimizing economic losses of taxation due to mobility of taxable activities across local jurisdictions. When grants are used to compensate local governments for the lack of local powers to tax, they might take into account differences in local costs if costlier public inputs to local production are offset by higher local productivity, which generates higher tax revenues, which in turn are shared with the local government. While to our knowledge this has not been formally modeled in the literature, some insights can be drawn from the fiscal equalization literature. Boadway (2004) points out the equivalence between the "gross equalization scheme" funded with central government taxes and the "net equalization scheme" funded with fraternal contributions from the municipalities. In a way, formula-based revenue sharing is similar to the gross equalization scheme in the sense that, rather than being retained at the point of collection, it is redistributed through the grant pool.[53]

Because Boadway's calculations of equalization grants (either net or gross) take into account differences in the costs of public services due to economies of scale and congestion, so should a revenue sharing scheme. Note however that, if public services are (partially) congestible and the revenue-sharing is funded with a uniform (across regions but possibly varying with taxpayers' earning ability) national tax, there

[53] Boadway, Robin. 2004. "The Theory and Practice of Equalization." CESifo Economic Studies, 50:1, pp. 211.

will be a need for a regional surtax that at the margin would internalize a region-specific tradeoff between congestion costs and productivity of labor. Boadway (2004) shows that in the optimum there can be higher congestion costs under higher productivity of private activities. Intuitively, this model can be extended to feature higher costs of productive local government services in areas with a more productive private sector. If Boadway's (2004) results hold in this setup, then revenue sharing should take into account the average costs of local economic infrastructure while local surtaxes would on the margin equate higher (due to congestion) costs in more urban localities with their higher productivity of private inputs to production.

Another way to look at this question is by recognizing that local expenditures on productive inputs create vertical fiscal externalities by boosting the yield of national taxes in a given jurisdiction. In the case of Pigovian subsidies shows that central government grants should be proportional to the extent of fiscal externalities. At the same time these Pigovian subsidies should be inversely related to local costs (per unit of fiscal externalities) in order to maximize marginal increase in national tax yield from a marginal increase in productive services of local government.

Measuring expenditure needs to address horizontal imbalances

Subnational units must have enough fiscal autonomy for decentralization to be successful in a multi-tier system of government. To ensure this autonomy, taxes are assigned to different levels of government in the decentralized countries. In reality, the spatial distribution of tax and other revenue sources creates horizontal imbalances in the governmental finances when superimposed over the spatial distribution of expenditures. These occur when government entities of the same level experience a mismatch between their expenditure needs and their fiscal capacity. In particular trying to address vertical fiscal imbalances by strengthening taxing powers of subnational governments, tends to exacerbate horizontal imbalances, given that subnational governments differ in their economies, and therefore, tax bases. If horizontal imbalances are left unmitigated, such dif-

ferences among the subnational governments may result in unequal provision of public goods and services across jurisdictions leading to inefficient allocation of resources across the geographic landscape.

There are both legal and political imperatives for the national governments to mitigate horizontal imbalances. Thus, federal countries with more recent constitutions often have a constitutional requirement of equalization payments to federating units.[54] How Mieszkowski and Musgrave (1999, p. 258-9) put it, "inherent in the federal contract may be an understanding that sharp inequality of member jurisdictions to render public services is unfair, with inter-jurisdictional grants called for to reduce it."[55] Boadway (2004) points out that for the case of horizontal equity to be applicable to a country with heterogeneous regions, and particularly to a federal country, it "requires a consensus that social citizenship or solidarity among all citizens apply with equal force nationwide as opposed to being region-specific."

For nations viewing such equity in general terms, general purpose grants are called into action. By contrast, block grants are used when equity is viewed in categorical terms. Thus, education equity clauses were inserted in the first constitutions of the newly formed U.S. states to assure the Congress that the availability of schools would support land values throughout the states' territories, as sales of federally-owned land was the main source of federal government revenues at that time.[56]

However, behind those positive manifestations, there are some normative arguments calling for fiscal equalization. An economic argument for fiscal equalization was first articulated by Buchanan (1950), who pointed out that, if equals are "pressed more in one area than in another [through higher taxation and/or lower value of public services], there will be provided an incentive for migration of both human and nonhuman resources into the areas of least fiscal pressures.[57]"

Various causal links of equalization studied over the course of the thirty years since Buchanan (1950) were neatly synthesized in a coherent framework by Boadway and Flatters (1982).[58] What is important for our review, they consider a case featuring heterogeneous labor and publicly provided private goods, which is es-

[54] For example, Section 36 of Canada's Constitution Act of 1982 establishes the "principle of making equalization payments to ensure that provincial governments have sufficient revenues to provide reasonably comparable levels of public services at reasonably comparable levels of taxation." Other examples include Australia, Germany, and South Africa.

[55] Mieszkowski, P. and R. A. Musgrave. 1999. "Federalism, grants, and fiscal equalization." National Tax Journal, 52:2, pp. 239-60.

[56] Fischel, William. 2010. "The 1787 Origins of the Tiebout Model: How Congressional Desire for Revenue Promoted Local School Districts." ***Proceedings of the 101st Annual Conference on Taxation***. National Tax Association.

[57] Buchanan, James M. 1950. "Federalism and Fiscal Equity." The American Economic Review, 40:4, pp. 583-99. Buchanan 1952.

[58] Boadway, Robin W. and Flatters, Frank R. "Efficiency and Equalization Payments in a Federal System of Government: A Synthesis and Extension of Recent Results." Canadian Journal of Economics, 1982, 15(4), pp. 613-33.

sentially the setup of Buchanan (1950) but with the addition of the "locational fixity," that is when an individual's choice of location not only affects his consumption of the local public good but also his private-sector activities, including earning income. Since there are no externalities for the publicly provided private goods, in the optimum marginal productivity of labor should be equal across regions. However, free migration is driven by the sum of the labor earnings and net public benefits, and thus leads to inefficient location under the inter-regional disparities in both source- and residence-based taxes. This is because individuals would be willing to move to areas with lower earning opportunities if the loss of income is compensated by better public services. Thus, in this case efficiency-inducing grants will be determined by per capita differences in both source-based taxes and residence-based taxes of local governments. The latter are determined by disparities in average personal income among municipalities, in turn determined by the composition of local labor as wages for the same type of labor are equal in all municipalities in the absence of public service congestibility.

The compensation for the differences in residence-based taxes takes into account the progressivity of these taxes by incorporating separate tax rates on the high- and low- ability residents. This modeling can be extended to the case of progressivity on the expenditure side of local budgets where the benefits from local services vary across population strata rather than being uniform for all residents of the region. In this case, the formula should take into account the differences in the proportion of entitled population (e.g. school-age children) similarly to the differences in the proportion of low-ability labor in the formula above.

While until recently the differences in costs other than those due to economies of scale have not been formally modeled in the literature, Boadway (2004, p. 238) outlines a strategy how to account for other costs:

In the standard analysis, the cost of providing services is assumed to be the same across regions. To the extent that some regions have higher costs of provision than others, difficult problems arise for equalization. In a unitary state, if different regions have different costs, dif-

ferent levels of public services will generally be provided. The equity advantages of more equal provision will have to be set against the efficiency costs. Thus, the level of public services is typically lower in remote and scarcely populated areas than in urban areas, but how much lower involves a policy judgment. The same applies in a decentralized setting in which some regions have more high-cost locales than do other regions. An equalization scheme that mimics the unitary state, at least in potential terms, will only partially equalize for differences in the cost of providing public services. In fact, it is likely that high-cost locations will exist in all regions, but to differing degrees. One option might be to stratify locations in all regions by their costs and equalize among regions within comparable strata.

One implication of this argument is that a country can have separate equalization schemes for different types of municipalities, for example one equalization scheme for urban municipalities and another equalization scheme for rural municipalities.

Cost differences and compensation for spillovers or "externalities" in the provision of local public services

When local governments are left to make their own decisions, they may under-spend on certain services where there are substantial external benefits to third parties, such as surrounding local governments. For example, subnational governments would probably under-spend on treatment of its liquid waste compared to the level that is desired by the nation as a whole, given the fact that the resulting pollution of the watershed mostly affects downstream localities. In this case, economic theory tells us that a grant conditional on spending for the service in question could stimulate spending on it.

In fact, the Pigovian theory of subsidies provides the most widely accepted justification for intergovernmental grants. This theory suggests that local governments should receive a unit subsidy equal to the marginal value of the inter-jurisdictional spillovers of benefits created in the provision of local public services. Based on this rationale, one would expect such subsidies to be

driven by the magnitude of external benefits but not by local costs required to produce these benefits. Furthermore a straightforward extension to Oates' (1972) model of reciprocal externalities demonstrates that per unit subsidies should be inversely related to the unit costs in the recipient locality. The intuition is to signal the recipient government that this service can be produced more cheaply elsewhere and, given the reciprocal externalities, enjoyed by the less cost-effective jurisdiction through spillover of benefits from the more cost-efficient jurisdiction. This will further discourage the less cost-efficient local government from providing this service as, in addition to having higher per unit costs, it will also receive a lower per unit subsidy. For example if it costs less to achieve one ton reduction in carbon dioxide emissions by local utilities in one jurisdiction than in the other, not only will the second jurisdiction have higher costs per one ton reduction they will also receive less in national subsidies per ton reduction. This will steer the second jurisdiction to use its resources for some more cost effective expenditures while the national emissions reduction quota can be achieved where it is more feasible. To the extent that there is a local impact from carbon dioxide emissions, the local government might still spend some of its own resources on emission reduction.

Funding national priorities or "merit goods"

The concept of merit (or demerit) good covers different forms of departure from the rule of consumer sovereignty not caused by externalities or "publicness" of this good. The most common case is when societal values override personal preferences. This latter definition is favored by Richard Musgrave, who introduced the concept of merit goods in the 1950s. He states that "common values may be taken to reflect the outcome of a historical process of interaction among individuals, leading to the formation of common values or preferences which are transmitted thereafter" (Musgrave 1987, p. 452).[59] The concept of merit good also includes paternalism in distribution, when society cares more about the distribution of certain goods, such as basic necessities of life, health, and citizenship than income distribution in general (Tobin 1970).[60]

[59] Musgrave, Richard A. "Merit Goods." In The New Palgrave: A Dictionary of Economics 3, edited by John Eatwell, Murray Milgate, and Peter Newman, 452-3. London: The MacMillan Press, 1987

[60] Tobin, James. "On Limiting the Domain of Inequality" Journal of Law and Economics 13 (1970): 263-77..

For some of these goods, the society values equal access (e.g., civil rights and privileges). For other merit goods the society values an assured universal minimum (education, shelter and nutrition for children). Yet for other goods (e.g. science and arts) the society might be indifferent about the spatial distribution of this government intervention. Because all these concerns stem from societal values, the concept of a merit good thus presumes that the central government is in a better position to determine the socially optimal level for this good than either individual citizens or local governments.

Similar to the case of externalities, economic theory suggests that conditional grants could stimulate spending on such goods or services. Based on the definition, differences in the local costs should be taken into account for the distribution of those grants that fund merit goods aiming at equal access or an assured universal minimum. The latter case might also require determining the adequate level of funding in order to secure this assured minimum. For other merit goods (e.g., supporting arts) it would be more efficient to achieve the national objective where it is more cost-efficient, that is allocating more grants to localities where it is cheaper to implement a particular type of programs.

All in all, the economic theory presents a very limited case for taking into account differences in the costs of producing subnational public services, which is mostly based on inter-jurisdictional externalities. Concerning externalities from mobility of labor, intergovernmental grants should take into account local costs only to the extent of publicness of local government services as private benefits of the local services are fully internalized in the individual's migration decision. However, most empirical estimates of the congestion parameter imply that local government services are highly congestible (Albouy 2010).[61] Given the empirically found privateness of local government services, there is little need for intergovernmental grants to take into account local costs from that perspective. On the other hand, the theoretical justification for intergovernmental grants as a compensation for inter-jurisdictional spillover of benefits from local government services requires such Pigovian subsidies to be inversely related to local costs of government services.

[61] Albouy, David. 2010. "Evaluating the Efficiency and Equity of Federal Fiscal Equalization," NBER Working Papers 16144, National Bureau of Economic Research, Inc.

Another theoretical justification for intergovernmental grants to be positively related to local expenditure need is due to differences in the composition of population in terms of entitlement to various public services. Independently from the theoretical rationales, there can be constitutional and political imperative to ensure comparable levels of some public goods across different localities, perhaps in line with the merit goods argument.

APPENDIX II.

Composition of local expenditures by program in 2010 (% of total)

Code	Title	Principal budget	Donations	Self-financing	Earmarked grants	Borrowing	Total
A0	Municipal council	2.45%	0.01%	0.00%	0.00%	0.00%	2.45%
D0	Mayor	1.13%	0.01%	0.00%	0.00%	0.00%	1.14%
D1	Neighborhood self-government	0.02%	0.00%	0.00%	0.00%	0.00%	0.02%
E0	Municipal administration	10.80%	0.07%	0.00%	0.00%	0.00%	10.87%
R1	Environmental protection	0.12%	0.03%	0.00%	0.00%	0.00%	0.15%
T1	Healthcare enhancement	0.01%	0.00%	0.00%	0.00%	0.00%	0.01%
DA	Neighborhood self-government (capital expenditures)	0.02%	0.00%	0.00%	0.00%	0.00%	0.02%
EA	Capital expenditures of municipality	0.75%	0.04%	0.00%	0.00%	0.00%	0.79%
RA	Environmental protection (capital expenditures)	0.17%	0.02%	0.00%	0.00%	0.00%	0.19%
	Total general public services	**15.48%**	**0.17%**	**0.00%**	**0.00%**	**0.00%**	**15.64%**
F1	Urban planning	0.49%	0.00%	0.00%	0.00%	0.00%	0.49%
F2	Arranging of construction land	0.23%	0.00%	0.00%	0.00%	0.00%	0.23%
F3	Arranging of the space in rural areas	0.03%	0.00%	0.00%	0.00%	0.00%	0.03%
G1	Support to the local economic development	0.49%	0.10%	0.00%	0.00%	0.00%	0.59%
G2	Stimulation of tourism development	0.07%	0.01%	0.00%	0.00%	0.00%	0.07%
J5	Public local transportation of passengers	0.52%	0.00%	0.00%	0.00%	0.00%	0.52%
J6	Maintenance and protection of local roads and streets	1.90%	0.00%	0.00%	0.00%	0.00%	1.90%
J9	Maintenance of parking space	0.04%	0.00%	0.00%	0.00%	0.00%	0.04%
FA	Arranging of construction land (capital projects)	2.85%	0.00%	0.00%	0.00%	0.00%	2.85%
FD	Arranging of the space in rural areas (capital projects)	0.08%	0.00%	0.00%	0.00%	0.00%	0.08%

Code	Title	Principal budget	Donations	Self-financing	Earmarked grants	Borrowing	Total
GA	Construction of commercial buildings	0.25%	0.02%	0.00%	0.00%	0.00%	0.27%
JD	Construction and reconstruction of local roads	5.93%	0.16%	0.00%	0.00%	0.01%	6.09%
JE	Construction of parking space	0.16%	0.00%	0.00%	0.00%	0.00%	0.16%
JF	Construction of traffic signs	0.12%	0.01%	0.00%	0.00%	0.00%	0.13%
MB	Rural development	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
MG	EPA projects	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
MV	Cross-border cooperation	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Total economic affairs	**13.17%**	**0.30%**	**0.00%**	**0.00%**	**0.01%**	**13.47%**
J0	Maintenance of the urban equipment	0.05%	0.00%	0.00%	0.00%	0.00%	0.05%
J1	Water supply	0.04%	0.00%	0.00%	0.00%	0.00%	0.04%
J2	Sewerage and purification of waste waters	0.06%	0.00%	0.00%	0.00%	0.00%	0.06%
J3	Public lighting	2.74%	0.00%	0.00%	0.00%	0.00%	2.74%
J4	Public hygiene	0.76%	0.00%	0.00%	0.00%	0.00%	0.76%
J7	Maintenance and utilization of parks and greenery	0.35%	0.00%	0.00%	0.00%	0.00%	0.35%
J8	Other communal services	0.59%	0.00%	0.00%	0.00%	0.00%	0.59%
JA	Construction of public lighting	0.38%	0.00%	0.00%	0.00%	0.00%	0.41%
JG	Construction of water supply systems	0.74%	0.08%	0.00%	0.00%	0.00%	0.95%
JI	Construction of systems for drainage and purification of waste waters	1.45%	0.03%	0.00%	0.00%	0.00%	1.48%
JJ	Construction of waste dumps	0.01%	0.00%	0.00%	0.00%	0.00%	0.01%
JK	Public hygiene (capital expenditures)	0.12%	0.00%	0.00%	0.00%	0.00%	0.12%

Code	Title	Principal budget	Donations	Self-financing	Earmarked grants	Borrowing	Total
JL	Other communal services (capital expenditures)	0.19%	0.00%	0.00%	0.00%	0.00%	0.19%
JM	Parks and greenery (capital expenditures)	0.40%	0.01%	0.00%	0.00%	0.00%	0.41%
JN	Urban equipment (capital expenditures)	0.31%	0.00%	0.00%	0.00%	0.00%	0.31%
	Total housing, community amenities, and sanitation	**8.20%**	**0.12%**	**0.00%**	**0.00%**	**0.00%**	**8.47%**
K1	Library activity	0.01%	0.01%	0.00%	0.36%	0.00%	0.42%
K2	Music and performing art activity	0.05%	0.01%	0.15%	0.39%	0.00%	0.60%
K3	Museum and cinema activity	0.04%	0.01%	0.06%	0.31%	0.00%	0.42%
K4	Cultural events and creative work	0.53%	0.01%	0.00%	0.00%	0.00%	0.54%
L0	Sports and recreation	0.25%	0.00%	0.00%	0.00%	0.00%	0.25%
KA	Cultural events and creative work (capital projects)	2.75%	0.03%	0.00%	0.00%	0.00%	2.77%
LA	Sports and recreation (capital projects)	0.13%	0.00%	0.00%	0.00%	0.00%	0.13%
	Total recreation and culture	**3.76%**	**0.07%**	**0.21%**	**1.05%**	**0.00%**	**5.13%**
W0	Firefighting	0.33%	0.00%	0.00%	1.20%	0.00%	1.53%
WA	Firefighting (capital expenditures)	0.02%	0.00%	0.00%	0.00%	0.00%	0.02%
	Total firefighting	**0.35%**	**0.00%**	**0.00%**	**1.20%**	**0.00%**	**1.55%**
N1	Elementary education	0.52%	0.09%	0.97%	31.48%	0.00%	33.06%
	Total primary education	**0.52%**	**0.09%**	**0.97%**	**31.48%**	**0.00%**	**33.06%**
N2	Secondary education	0.40%	0.00%	1.14%	14.28%	0.00%	15.82%
NA	Secondary education (capital expenditures)	0.15%	0.01%	0.00%	0.00%	0.00%	0.16%
ND	??? (capital expenditures)	0.12%	0.00%	0.00%	0.00%	0.00%	0.12%
	Total secondary education	**0.67%**	**0.02%**	**1.14%**	**14.28%**	**0.00%**	**16.10%**

Code	Title	Principal budget	Donations	Self-financing	Earmarked grants	Borrowing	Total
V1	Kindergartens	0.08%	0.00%	1.35%	4.69%	0.00%	6.11%
VA	??? (capital expenditures)	0.01%	0.01%	0.00%	0.00%	0.00%	0.03%
	Total child day care	**0.09%**	**0.02%**	**1.35%**	**4.69%**	**0.00%**	**6.14%**
V2	Elderly homes	0.02%	0.00%	0.14%	0.26%	0.00%	0.42%
	Total senior care	**0.02%**	**0.00%**	**0.14%**	**0.26%**	**0.00%**	**0.42%**
	Grand Total	**42.25%**	**0.78%**	**3.81%**	**52.96%**	**0.01%**	**100.00%**

APPENDIX III.

Computation of per capita grants adjusted for costs, 2011

	Total population	Land Area	# of settlements	Land Area per capita	Land Area, % diff	# of settlements per person	Settlements, % diff	Adjustment coefficient	Per capita norm	Variable allocation	Total allocation
	(1)	(2)	(3)	(4)=(2)/(1)	(5)=%[(4)-mean(4)]	(6)=(3)/(1)	(7)=%[(6)-mean(6)]	(8)= [1+0.27*(5)+0.08*(7)]	(9)=MKD 1,002,914,853 / Total (1)	(10)=(8)*(9)*(1)	(11) = MKD 3 mill + (10)
Arachinovo	11,597	3,126	4	0.2696	-83.23%	0.0003	-69.52%	0.72	662	5,522,569	8,522,569
Berovo	13,941	59,793	9	4.2890	166.76%	0.0006	-42.95%	1.42	662	13,061,618	16,061,618
Bitola	95,385	78,716	66	0.8252	-48.67%	0.0007	-38.85%	0.84	662	52,861,482	55,861,482
Bogdantsi	8,707	11,424	4	1.3120	-18.40%	0.0005	-59.40%	0.90	662	5,201,618	8,201,618
Bogovinje	28,997	14,161	14	0.4884	-69.63%	0.0005	-57.33%	0.77	662	14,700,669	17,700,669
Bosilovo	14,260	16,196	16	1.1358	-29.36%	0.0011	-0.84%	0.92	662	8,681,731	11,681,731
Brvenitsa	15,855	16,425	10	1.0360	-35.57%	0.0006	-44.26%	0.87	662	9,112,515	12,112,515
Valandovo	11,890	32,798	29	2.7585	71.56%	0.0024	115.55%	1.29	662	10,115,379	13,115,379
Vasilevo	12,122	23,039	18	1.9006	18.21%	0.0015	31.23%	1.07	662	8,616,113	11,616,113
Vevchani	2,433	2,270	1	0.9330	-41.97%	0.0004	-63.68%	0.84	662	1,345,505	4,345,505
Veles	55,108	42,709	29	0.7750	-51.80%	0.0005	-53.49%	0.82	662	29,805,512	32,805,512
Vinitsa	19,938	43,265	16	2.1700	34.96%	0.0008	-29.08%	1.07	662	14,131,892	17,131,892
Vraneshtitsa	1,322	10,914	15	8.2557	413.47%	0.0113	902.74%	2.84	662	2,483,146	5,483,146
Vrapchishte	25,399	15,840	15	0.6236	-61.21%	0.0006	-47.81%	0.80	662	13,386,464	16,386,464
Gevgelija	22,988	47,994	17	2.0878	29.85%	0.0007	-34.65%	1.05	662	16,016,027	19,016,027
Gostivar	81,042	51,396	35	0.6342	-60.56%	0.0004	-61.83%	0.79	662	42,206,185	45,206,185
Gradsko	3,760	23,589	16	6.2737	290.20%	0.0043	276.06%	2.00	662	4,987,024	7,987,024
Debar	19,542	14,934	18	0.7642	-52.47%	0.0009	-18.60%	0.84	662	10,906,941	13,906,941

	Total population	Land Area	# of settlements	Land Area per capita	Land Area, % diff	# of settlements per person	Settlements, % diff	Adjustment coefficient	Per capita norm	Variable allocation	Total allocation
Debartsa	5,507	42,193	30	7.6617	376.53%	0.0054	381.43%	2.32	662	8,460,713	11,460,713
Delchevo	17,505	42,239	22	2.4130	50.08%	0.0013	11.07%	1.14	662	13,252,105	16,252,105
Demir Hisar	4,545	31,078	15	6.8378	325.29%	0.0033	191.66%	2.03	662	6,110,073	9,110,073
Demir Kapija	9,497	48,016	41	5.0559	214.46%	0.0043	281.53%	1.80	662	11,338,558	14,338,558
Dojran	3,426	12,917	13	3.7703	134.50%	0.0038	235.34%	1.55	662	3,517,123	6,517,123
Dolneni	13,568	41,242	37	3.0397	89.05%	0.0027	141.00%	1.35	662	12,149,693	15,149,693
Drugovo	3,249	38,324	28	11.7956	633.64%	0.0086	661.61%	3.24	662	6,966,012	9,966,012
Zhelino	24,390	20,093	18	0.8238	-48.76%	0.0007	-34.78%	0.84	662	13,565,426	16,565,426
Zajas	11,605	16,109	13	1.3881	-13.67%	0.0011	-1.00%	0.96	662	7,389,752	10,389,752
Zelenikovo	4,077	17,685	14	4.3377	169.79%	0.0034	203.47%	1.62	662	4,373,741	7,373,741
Zrnovtsi	3,264	5,582	3	1.7102	6.37%	0.0009	-18.77%	1.00	662	2,164,534	5,164,534
Ilinden	15,894	9,703	12	0.6105	-62.03%	0.0008	-33.28%	0.81	662	8,475,896	11,475,896
Jegunovtse	10,790	17,673	17	1.6379	1.87%	0.0016	39.24%	1.04	662	7,400,134	10,400,134
Kavadartsi	38,741	100,418	40	2.5920	61.21%	0.0010	-8.75%	1.16	662	29,693,126	32,693,126
Karbintsi	4,012	22,966	29	5.7243	256.03%	0.0072	538.80%	2.12	662	5,634,366	8,634,366
Kichevo	30,138	4,914	7	0.1630	-89.86%	0.0002	-79.47%	0.69	662	13,836,407	16,836,407
Konche	3,536	23,301	14	6.5896	309.85%	0.0040	249.90%	2.04	662	4,765,108	7,765,108
Kochani	38,092	36,033	28	0.9459	-41.17%	0.0007	-35.04%	0.86	662	21,698,005	24,698,005
Kratovo	10,441	37,529	31	3.5944	123.56%	0.0030	162.39%	1.46	662	10,111,422	13,111,422
Kriva Palanka	20,820	48,001	34	2.3055	43.39%	0.0016	44.32%	1.15	662	15,879,626	18,879,626
Krivo-gashtani	6,150	8,903	13	1.4476	-9.96%	0.0021	86.81%	1.04	662	4,242,720	7,242,720
Krushevo	9,684	19,067	19	1.9689	22.46%	0.0020	73.39%	1.12	662	7,172,895	10,172,895

	Total population	Land Area	# of settlements	Land Area per capita	Land Area, % diff	# of settlements per person	Settlements, % diff	Adjustment coefficient	Per capita norm	Variable allocation	Total allocation
Kumanovo	105,484	50,922	48	0.4827	-69.98%	0.0005	-59.79%	0.76	662	53,274,619	56,274,619
Lipkovo	27,058	26,789	22	0.9901	-38.42%	0.0008	-28.15%	0.87	662	15,644,183	18,644,183
Lozovo	2,858	16,610	11	5.8118	261.47%	0.0038	240.14%	1.90	662	3,589,623	6,589,623
Mavrovo and Rostusha	8,618	67,447	42	7.8263	386.76%	0.0049	330.69%	2.31	662	13,166,475	16,166,475
M.Brod	8,110	19,036	9	2.3472	45.99%	0.0011	-1.93%	1.12	662	6,024,614	9,024,614
M. Kamenitsa	7,141	88,898	51	12.4490	674.27%	0.0071	531.16%	3.25	662	15,335,915	18,335,915
Mogila	6,710	25,533	23	3.8052	136.67%	0.0034	202.92%	1.53	662	6,799,373	9,799,373
Negotino	19,212	48,029	19	2.4999	55.49%	0.0010	-12.60%	1.14	662	14,489,361	17,489,361
Novatsi	3,549	75,268	41	21.2082	1219.07%	0.0116	920.95%	5.03	662	11,808,512	14,808,512
Novo Selo	11,567	23,777	16	2.0556	27.85%	0.0014	22.24%	1.09	662	8,365,839	11,365,839
Oslomej	10,420	12,109	16	1.1621	-27.72%	0.0015	35.70%	0.95	662	6,575,926	9,575,926
Ohrid	55,749	39,335	29	0.7056	-56.12%	0.0005	-54.03%	0.81	662	29,706,292	32,706,292
Petrovets	8,255	20,131	16	2.4386	51.67%	0.0019	71.29%	1.20	662	6,536,141	9,536,141
Pehchevo	5,517	20,811	7	3.7722	134.61%	0.0013	12.13%	1.37	662	5,012,994	8,012,994
Plasnitsa	4,545	5,444	4	1.1978	-25.50%	0.0009	-22.22%	0.91	662	2,746,962	5,746,962
Prilep	76,768	119,831	59	1.5609	-2.92%	0.0008	-32.08%	0.97	662	49,095,280	52,095,280
Probishtip	16,193	32,522	36	2.0084	24.91%	0.0022	96.47%	1.14	662	12,262,986	15,262,986
Radovish	28,244	49,741	36	1.7611	9.53%	0.0013	12.64%	1.04	662	19,359,734	22,359,734
Rankovtse	4,144	24,068	18	5.8079	261.23%	0.0043	283.87%	1.93	662	5,298,982	8,298,982
Resen	16,825	55,076	44	3.2735	103.60%	0.0026	131.11%	1.38	662	15,415,326	18,415,326
Rosoman	4,141	13,278	10	3.2065	99.43%	0.0024	113.41%	1.36	662	3,724,422	6,724,422

	Total population	Land Area	# of settlements	Land Area per capita	Land Area, % diff	# of settlements per person	Settlements, % diff	Adjustment coefficient	Per capita norm	Variable allocation	Total allocation
Staro Nagorichane	18,497	48,269	33	2.6096	62.30%	0.0018	57.67%	1.21	662	14,863,461	17,863,461
Sveti Nikole	5,656	22,196	13	3.9243	144.08%	0.0023	103.12%	1.47	662	5,507,384	8,507,384
Sopishte	4,840	43,242	39	8.9343	455.68%	0.0081	612.11%	2.72	662	8,711,440	11,711,440
Struga	63,376	48,565	51	0.7663	-52.34%	0.0008	-28.88%	0.84	662	35,041,680	38,041,680
Strumitsa	54,676	32,149	25	0.5880	-63.43%	0.0005	-59.59%	0.78	662	28,259,122	31,259,122
Studenichani	17,246	27,579	19	1.5992	-0.54%	0.0011	-2.64%	1.00	662	11,371,310	14,371,310
Teartse	22,454	13,643	13	0.6076	-62.21%	0.0006	-48.83%	0.79	662	11,782,068	14,782,068
Tetovo	86,580	26,185	20	0.3024	-81.19%	0.0002	-79.59%	0.72	662	41,084,935	44,084,935
Tsentar Zhupa	6,519	10,315	23	1.5823	-1.59%	0.0035	211.80%	1.17	662	5,026,169	8,026,169
Chashka	7,673	81,944	42	10.6795	564.22%	0.0055	383.74%	2.83	662	14,370,947	17,370,947
Cheshinovo	7,490	13,193	14	1.7614	9.55%	0.0019	65.19%	1.08	662	5,342,572	8,342,572
Chucher-Sandevo	8,493	24,054	12	2.8322	76.15%	0.0014	24.87%	1.23	662	6,887,307	9,887,307
Shtip	47,796	58,285	44	1.2195	-24.15%	0.0009	-18.64%	0.92	662	29,093,076	32,093,076
Total outside Skopje	1,515,621	2,436,849	1,715	1.6078	0.00%	0.0011	0.00%	1.00	661.72	1,002,914,853	1,224,914,853

APPENDIX IV.

International experience with a local surtax on the national PIT

For a local surtax on the national tax, there are two options for the rate structure at the local level: 1) Tax on tax is when a local government levies a tax that is a proportion of the national tax; 2) Tax on base is where the local rate is applied to the taxable income defined for the national tax. Given that Macedonia has a flat rate for the national PIT, and therefore the tax amount is proportional to the taxable income, the difference between the two approaches is not material. However, one has to be aware of this distinction when reviewing international experience.

The table below describes the piggyback arrangement for income taxes in a variety of countries. Thus, in Croatia, the base for the surtax is the national PIT liability (that is tax on tax), and the rate of the surtax is set by the city or municipality in which the taxpayer resides. Before 2001, the surtax could have been introduced only by cities with populations of over 40,000. The maximum rate of the surtax they could introduce was 30% (60% for the city of Zagreb). Since 2001 all local government units except counties have been allowed to introduce a PIT surtax. The rate ceiling is set at 10% for rural municipalities, 12% for cities with populations up to 30,000, and 15% for units with populations above 30,000. The maximum rate of the surtax in the city of Zagreb is 30%. By January 1, 2007, 251 local government units had introduced this surtax.[62]

[62] Mihaela Bronić (2007), Personal income tax and surtax sharing in Croatia, Institute of Public finance Newsletter No. 27, April 2007.

Appendix Table 1. Subnational government personal income taxes

Country	Tax Base	Subnational Government's Tax Rate Schedule		Tax base between localities	Assessment and Collection
		Single Rate*	Separate progressive rate schedule		
Belgium	Central government income tax paid	6-8	—	Residence	Central Gov't
Croatia	Central government income tax paid	10 - 30	—	Residence	Central Gov't for 1% fee
Denmark	Central government taxable income	20.2 – 33.5 (Av=27.1)	—	Residence	Central government for collection and local for assessment
Finland	Central government tax base and separate tax relief structure	14 – 18.5 (Av=15.9)	—	Residence	Central government
Iceland	Central government tax base	8.4 – 9.2	—	?	Central government
Japan	Central government tax base and separate tax relief structure	—	4 to 18 + fixed amount	Residence	Local Gov't
Spain	Central government tax base and separate tax relief structure	Split rate between the center and the regions, who can increase or decrease their rate	—	Residence	Central Gov't
Sweden	Central government tax base and separate tax relief structure	26.4 - 33.2 (Av = 30)	—	Residence	Central Gov't

Source: Andrey Timofeev. 2003. "Shared Tax Revenue versus Shared Tax Base: Piggy-Back Income Tax" ISP Technical Note, Georgia State University, Atlanta (Georgia).

Other examples of countries with piggyback income taxes include Canada, Germany, Norway, Switzerland, and United States. Piggybacking arrangements provide local governments with considerable revenue autonomy because they can set the tax rate and even limited ability to define the base. Piggy-backing arrangements allow the local governments and the central government to exchange information which can increase the effectiveness of enforcement activities. A drawback of piggy-backing arrangements is that local revenues may change whenever the national tax base is changed.

Notes: * Minimum and maximum rates levied among subnational governments. Although a given subnational government uses a single rate, subnational governments are free to levy different rates. That different rates are applied by different subnational governments in a given country illustrates the advantage of greater revenue autonomy that can be achieved with a piggyback income tax.

APPENDIX V.

International experience with betterment levies[63]

Special assessment is a special property rate levied to cover the costs of specific capital works schemes which only benefit a limited number of properties in the local jurisdiction This kind of charges (also known as betterment levies) is levied on property owners (as in Canada, Poland, Columbia, Argentina and Mexico) or on developers (as in Canada, Australia, Mexico). A related instrument is used to reap 'unearned increments' in property values arising from administrative acts such as rezoning (as in Poland, Columbia and Mexico). Below we provide more detail on the experiences of selected countries.

Poland

Local governments may impose an 'adjacency fee' to partially recover costs of infrastructure investment. The fee cannot exceed 50 percent of the increase in property value attributed to infrastructure improvement. Payment of the fee can be extended over the period of up to ten years (with interest). In addition, within five years of land plan change, a tax of up to 30 percent of the value increase can be imposed on the sale of affected property. At the same time, owners whose property value decreases as a result of land plan changes are entitled to compensation.

Canada

Canada has two kinds of special taxes on property aiming at recouping the costs of building local infrastructure. Special assessments (also known as improve-

[63] This appendix draws on Richard M. Bird and Enid Slack. 2004. International Handbook of Land and Property Taxation. Elgar: Cheltenham, U.K. and Northampton, Mass.

ment charges) on residential, commercial, and industrial properties are used to recoup the costs of additions and improvements to existing infrastructure that borders those properties. The charge is determined based on particular capital expenditures (street pavement, water mains and sewers, sidewalks, street lighting, etc) in a given year, but the costs can be spread over a period of years. The most common base for special assessments is the front footage of properties, size of lot, assessed value of property or location zone.

By contrast, development charges (also known as exactions and lot levies) recoup growth-related capital costs from developers rather than final beneficiaries. The charge is determined by a special rule, for example, based on the forecasted growth in the need for services and the existence of excess capacity. While municipalities in British Columbia use a development-by development approach, elsewhere this charge is levied uniformly for all developments in the municipality.

Colombia

Since 1921, Colombian municipalities have been authorized to impose special charges to pay for certain public works. According to the present system introduced in 1966 (under the name of 'valorization'), each level of government can levy contributions on any benefit or appreciation of property arising from public works. Such contributions may be imposed before, during, or after the construction of public works. The cost of the works plus 30 percent is divided among affected properties in proportion to the benefit. Property owners can participate in budgeting of the works and assessing contributions.

A related tax (impuesto a la plusvalia) was introduced recently to tax the appreciation of land value arising from administrative decisions related to the use of land included in the master plans. This tax can range from 30-50 percent of the difference between the market value of property before and after the change of the master plan. Up to now, this second type of levies has not been utilized by Colombian cities.

Other countries

In Argentina, provinces and municipalities may finance certain public works by betterment taxes (contribuciones de mejoras) when those works raise land values. Governments identify the group of beneficiaries, and apportion

some part of the construction costs among them in proportion to estimated benefits. In Australia, most states charge fees to developers to compensate local governments for improvements in infrastructure necessitated by development.

The United Kingdom have attempted to institute various forms of betterment taxes and other fiscal instruments intended to capture increments in land value attributed to public policy changes. However, these instruments have proved to be both politically highly contentious and administratively complex so that no such taxes existed until recently. Gordon Brown's Cabinet attempted to re-introduce the betterment tax in the form of a "planning gain supplement" (PGS) proposed in Kate Barker's report in 2003. In its original form, PGS was never implemented. Instead, in 2007 a new Community Infrastructure Levy (CIL) per square meter of new building was chosen by the UK Government as a preferred method of securing generalized contributions from developers. The UK Government legislated for CIL in the 2008 Planning Act. Implementing Regulations followed, and CIL came into force in England and Wales on 6 April 2010. By now a number of local authorities have already implemented CIL, including Newark and Sherwood District Council, which was the first in England to publish a preliminary draft charging schedule, in November 2010. Others followed, and on 1 January 2012 the London Borough of Redbridge became the first local authority to bring CIL into legal force in its area.

In summary, country experiences with betterment levies vary from relatively successful as in Colombia to rather tortuous in the United Kingdom (in line with the overall situation with property taxation in those two countries). Potentially such levies can act as a form of marginal cost pricing of public infrastructure and hence induce more efficient development patterns and discourage urban sprawl. This requires several important conditions: 1) careful identification of beneficiaries for a particular project and the extent of benefits in terms of incremental property value; 2) careful costing of projects; 3) ensuring that costs do not exceed estimated benefits, which would be indicated by consent to this charge by affected property owners; 4) prompt construction of projects and collection of assessed contributions.

APPENDIX VI.

INTERNATIONAL EXPERIENCES REGARDING PRESUMPTIVE TAXATION[64]

Developed tax systems involve relatively complex tax rate and base structures which require sophisticated accounting and record keeping on the part of taxpayers and burdensome tax administration procedures. In many cases, it is easier for individual entrepreneurs/professionals and small enterprises (versus large corporations) to remain outside of the tax net for the simple reason that they can remain inconspicuous to the tax administration. For these types of taxpayers, complicated and administratively burdensome tax systems further discourage compliance with the tax laws. Additionally, complicated tax systems make it difficult and expensive for start-up firms (particularly small enterprises) to act in good faith in terms of tax compliance due to the costs associated with record keeping and the need for specialized information to comply with complex tax laws. In many countries, simplified regimes based on imputed or presumptive taxation has traditionally been used as a way to get some tax revenue from these taxpayers, which might otherwise go completely untaxed.

There are about as many different simplified (presumptive or imputed) systems as countries that have used them. Differences are due to taxes that are folded into the system (in some countries only income and wealth taxes are rolled in, in other countries consumption taxes are also part of the simplified system); tax bases (some countries use assets, others turnover or gross receipts, others simply define the

[64] This section heavily draws on Sally Wallace. (2002). "Imputed and Presumptive Taxes: International Experiences and Lessons for Russia," ISP Working Paper 02-03.

base by the type of business and industry); tax levies (lump-sum, or flat or even progressive rate structures); and eligibility requirements (size of taxpayer defined by assets, turnover, gross sales or receipts, number of employees, etc.). It is difficult to derive a set of consistent lessons from countries that have used simplified/presumptive tax regimes. One of the primary benefits exhibited by simplified tax regimes on small businesses is bringing these taxpayers into the tax net, which besides yielding additional revenue, increases perceived fairness of the system and thus compliance in other sectors. However, there should be a clear eligibility requirement associated with an enterprise's scale of operation. If this is not done, then the presumptive or imputed scheme becomes a hard-to-eliminate alternative tax structure.

Imputed or presumptive taxes are taxes based on notional income rather than actual income. Imputed systems tend to calculate taxable income based on key factors which are associated with income generation (sales, turnover, number of employees, size of firm, assets of the taxpayer, etc.). Imputed tax bases are typically calculated based on coefficients for different factors applied to specific taxpayers or specific types of taxpayers (certain sized enterprises in particular industries). By contrast, presumptive taxes tend to be calculated based on more aggregate indicators, such as industry and region, or external indicators of income, with less specific calculations for particular taxpayers. In both cases, the tax base definitions take advantage of data that are easier to come by than data required calculating actual taxable income as specified by law.

Based on international experience, presumptive and imputed tax calculations may be classified into four basic groups although there are certainly others:[65]

1. Systems which analyze taxpayer income for a representative sample of tax returns and apply the derived formula to all taxpayers (by type of taxpayer or by individual taxpayer). Estimation of taxpayer income may be a very simple calculation (such as a lump sum tax based on the average income of a particular profession) or a more complex calculation using information on sales, employees, assets, location, etc;
2. Systems which apply an assets tax (used more gener-

[65] Bulutoglu, Kenan (1995), "Presumptive Taxation," in *Tax Policy Handbook*, ed. Parthasarathi Shome (IMF: Washington, D.C.).

ally for all businesses and as a minimum tax);

3. Systems which apply a gross receipts or turnover tax (used more generally for all businesses and as a minimum tax);
4. Systems which base the tax on external indicators of income (personal expenditures, wealth, etc.).

For every country, reliance on presumptive taxation has evolved over time in accordance with economic development, improvements in tax compliance culture, and decline of the informal sector. However, despite the changing role and place of presumptive taxation, it remains an element of any tax system. Thus, in developed countries (e.g., the United States) presumptive taxation mostly plays a role of a minimum tax that has to be paid if the declared tax liability falls below a certain minimum threshold. In Israel, since its official abolishment in 1975, the "tahshivim" (or manuals for imputing taxable income) have been used internally by the tax authorities to identify businesses with abnormally low declared income that have to be thoroughly audited unless they agree to pay tax on the imputed income produced by the "tahshivim." What varies among the countries is the form of linking these presumptive elements to the regular tax system— be that in the form of a minimum tax, a non-refundable tax credit against the regular income tax, or others.

Experience with presumptive and imputed taxes in selected countries

Bulgaria:

Individuals, including sole traders, who are engaged in certain business activities specified in the Local Taxes and Fees Act are subject to the annual patent tax on the income from these activities, providing that the turnover of the individual for the previous year did not exceed BGN 50,000 (USD 32,660), and that the individual was not registered under the VAT Act, except for the registration for Intra-Community Acquisition. For the income from patent activities performed, individuals are not taxed under the regular procedure of the Personal Income Tax Act. This patent tax was introduced in 1998. In 2008 the patent tax be-

came a local tax, but no significant differences in the provisions have been introduced. In the 2000s this tax was covering about one third of entrepreneurs.

Returns for the patent tax and the declarations of change in the circumstances, which are related to the tax assessment, must be filed at the municipality where the commercial premises are located. When the patent activity is not performed in commercial premises or from a permanent establishment, these returns are filed in the municipality which is the permanent residence of the individual. In the event a return is submitted by a proxy of a foreign individual, the tax return is filed in the municipality corresponding to the permanent address of the proxy and in all other cases in the municipality of Sofia. The deadline for filing the patent tax return has is January 31. The changes in the circumstances, related to tax assessment, must be declared within 7 days after the occurrence of the respective changes.

The patent tax is paid in four equal installments by January 31, by April 30, by July 31 and by October 31, for the respective quarters of the year. A 5% discount is granted to the individuals who by 31 January file the patent tax return and within the same term pay the full amount of the tax, which is assessed according to the circumstances declared.

Greece:

Individuals may be taxed according to imputed income when imputed income is higher than actual income declared, and the taxpayer can not substantiate the difference. Imputed income is calculated based on criteria such as: rent of a second home, operating expenses of vehicles and planes, costs of domestic servant, and assets (cars, boats, ships, planes). Additions to imputed income as of January 1, 1995 include the purchase of enterprise shares, purchase or construction of immovable property (excluding first residence of up to 120 square meters), and loans to sole proprietorships, partnerships, and limited liability companies.[66]

France:

The forfait (contractual system) has been established for certain taxpayers whose income falls below a set threshold: sole proprietorships, individuals and unincorporated businesses. Those covered have traditionally included farmers, unincorporated businesses, and professionals whose gross receipts fall below a certain threshold (in 1998 taxation of many categories was moved from

[66] Coopers and Lybrand, 1997 International Tax Summaries.

forfait to a system based on turnover). For small businesses selling goods, the threshold is EUR 152,450; for other small businesses (mostly service providers), the threshold is EUR 76,225. The eligibility thresholds used under the forfait system have not been adjusted for inflation. Over time, the result is that there has been a natural transition from the forfait as fewer taxpayers fall below the eligibility threshold.

The taxpayer must agree with the tax administration to be taxed based on estimated income versus actual income. The tax administration calculates income based on a sophisticated and detailed estimation procedure, which is well developed in tax administration procedure manuals for each by industry. The taxpayer must supply the following information to the tax administration: purchases, sales, value of closing inventory, number of employees, wages paid, and number of cars owned. These indicators are used to impute income instead of verifying tax returns or reported income. Similarly, deductible expenses are also estimated by the tax administration.

Israel:

The "tachshiv" of Israel is another widely referred to method of presumptive taxation. Tachshivim are standard assessment guides, produced for self-employed in a variety of industries. The assessments are based on a variety of factors including physical location, size of store-front, etc. The assessments may be negotiated with industry representatives, but not with individual taxpayers.

Mexico:

Mexico adjusted its tax scheme for small businesses after a major tax reform in 1988. Prior to 1988, there was a Special Basis Taxpayer regime (for transport, primary and publishing enterprises) and a Minor Taxpayers Regime (for all sectors, with a threshold of gross income below $100,000). Under the first scheme, taxpayers were divided into two groups: those below a turnover threshold were taxed based on an asset-based lump sum levy and those above the threshold were taxed based on a profit coefficient on actual turnover. The second scheme applied to enterprises below the gross income threshold in all other industries. The form of taxation was similar to the first scheme. A modification of these schemes has been in place in Mexico since the 1988 reform. The base is cash flow, and the tax is a set percent of cash flow. As part of the 1988 Tax Reform, Mexico also intro-

duced a presumptive minimum tax effective since 1989. Business assets were taxed at 2 percent until 1997, and are now taxed at 1.8 percent of gross assets. The tax liability is creditable against regular corporate tax liability.

Russia:

There are two special taxes on small businesses: the Single Tax and the Imputed Income Tax. The *Single Tax* is aimed at reducing the complexity of the tax system for small businesses by replacing many taxes with one tax, and also reducing accounting and reporting costs. Small businesses qualify for the Single Tax based on thresholds of the number of employees and gross receipts. The system is optional for small businesses and is largely regulated by regional authorities. The current threshold (gross sales of USD 1.5 mln over a 9-month period) is relatively high by international standards. Individual entrepreneurs pay a business license fee, which varies based on industry and region. Legal entities are taxed based on gross receipts or an alternative income calculation (at the discretion of the regional authorities). The alternative income base allows deductions for some inputs but not all.

The *Imputed Income Tax* applies to a limited number of industries (public catering, retail trade, and transportation services; taxi cab services were added later), and also imposes eligibility restrictions based on the number of employees. A tax rate of 20 percent is applied to imputed income, which is calculated via a complex formula. The formula is based on the following factors (among others): location, quality of services, quality of premises, distance from highway, inflation, and seasonality. The actual calculation is at the discretion of regional authorities. The tax replaces most taxes, with the major exceptions of: state duty and customs duty, land tax, tax on purchase of foreign currency, income tax withheld from employees' wages, and VAT.

Other Experiences:

Other European and middle-income countries elsewhere (e.g. Uruguay) have experience with presumptive taxes, specifically on small businesses, as summarized in the table below. In most of those countries, eligibility is defined by turnover. These systems are of the most straightforward presumptive systems where few calculations are required and administration is relatively inexpensive.

Appendix Table 2: Presumptive/ Imputed Tax Treatment of Small Businesses

Country	Conditions	Comments
Romania	Microenterprises have the possibility to choose between a unique level of taxation on profit of 16% or a tax of 3% on gross revenues if they fulfill the conditions: a) production of goods, service provision and/or commerce; b) Has 1 to 9 employees; c) have revenues not exceeding EUR 100.000, equivalent sum in RON; d) Has the registered capital owned by entities, other than the state, local authorities and public institutions.	In 2006 almost 60% of SME chose to pay the income tax of 3%
Hungary	The simplified business tax (EVA) can be chosen by self-employed people and joint businesses including unlimited partnerships, deposit companies, limited liability companies, cooperatives, lawyers' offices etc., whose annual revenues is below a certain limit.	EVA replaces corporate profit tax, entrepreneurial personal income tax, VAT, dividend tax and company car tax. The flat rate on gross sales has been gradually raised from 15% in 2003 to 25% in 2006 to 30% in 2011 to 37% 2012.
Belgium	Small businesses: Flat rate for three years	Forfait scheme applying to small businesses based on profession for income below EUR 750,000
Greece	Small businesses: Flat rate applied to purchases and receipts	Minimum tax on income imputed from taxpayer's expenses
Spain	Small businesses: Forfait scheme for twenty-eight industries	Began in 1992
	Other small businesses covered by a standard flat rate tax	Tax base: sales minus limited expenses
Israel	Small businesses and professionals (no threshold): Tachiv applies to 140 occupations	Tax Base: a mix of total turnover and inputs
Mexico	Small businesses and professional with turnover under $91,300): all industries at 2% rate on gross income Incorporated businesses: presumpted taxable income varies by industry	Tax Base: cash flow
Uruguay	Small businesses: all industries with turnover less than $22,000; taxed as a flat amount (unindexed)	Tax Base: Turnover

Source: Wallace (2002)

Lessons Learned from International Experience

The results of imputed and presumptive taxes used in various countries are difficult to quantify. However, there are some general lessons consistent among countries:

- Governments must decide on their goals for presumptive or imputed taxation since the best structure for one goal may or may not be different for others. The goals in general are: reduce tax evasion/avoidance of small, hard-to-tax firms; reduce compliance costs for taxpayers; reduce tax avoidance in general; or reduce tax evasion/avoidance of individuals.
- It is difficult to transition away from imputed or presumptive systems aimed at capturing the small taxpayers. If a goal is to use such a system to bring a taxpayer into the tax net and then to transition the taxpayer to the regular tax system, the tax laws need to keep this in mind. This might be accomplished by setting tax rates under the simplified system at a reasonable rate (not too high nor too low) and creating incentives to move to the regular system (for example, allowing certain deductions only under the regular tax), or imposing a limit regarding the number of years that a taxpayer of a particular size—measured by economic activity—may remain on the simplified system. Finally, the French method of non-indexed thresholds may also be a natural way to move taxpayers off the imputed or presumptive system to the regular tax system.
- Mass assessment is likely less corrupted than individual assessment. Presumptive assessment on a taxpayer-by-taxpayer basis might be more accurate, but it does not outweigh the corruption risk.
- Taxpayers should be able to appeal their tax assessments which are based on presumptive or imputed means and they should be able to convert to the regular tax system without an ability to move back to the imputed or presumptive tax structure.

- In general, thresholds should be indexed for inflation. Lump-sum taxes should be indexed for inflation to maintain the integrity of the system. The case for non-indexation of eligibility thresholds can be made when the government allows inflation to transition taxpayers to the normal tax system.
- Presumptive minimum taxes have been relatively effective at raising taxpayer awareness. In some countries (Mexico), these taxes appear to have encouraged an increase in compliance with the regular tax system.

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APPENDIX VII.

Computation of per capita own revenue capacity based on weighted proxies

	PIT per capita, 2010	PIT, % diff	Housing m² per person	Housing, % diff	Estimated %revenue disparity	Estimated own revenues per capita	Own revenues per capita, 2010	Tax effort	Estimated own revenues per locality
	(1)	(2)= %[(1)-mean(1)]	(3)	(4)= %[(3)-mean(3)]	(5)= 0.72*(2)+ 0.28*(4)	(6)=mean (7)*[1+(5)]	(6)	(7)= (5)/(6)	(8) = (6)*pop2009
Arachinovo	847	-60.81%	15	-42.07%	-55.56%	863	161	0.19	10,785,192
Berovo	2,292	6.09%	27	9.12%	6.93%	2,077	1,719	0.83	27,969,541
Bitola	4,333	100.55%	27	7.07%	74.38%	3,388	2,859	0.84	317,373,476
Bogdantsi	2,344	8.50%	28	10.67%	9.11%	2,120	1,114	0.53	18,109,249
Bogovinje	618	-71.40%	21	-16.99%	-56.16%	852	903	1.06	25,599,756
Bosilovo	685	-68.30%	25	1.06%	-48.88%	993	1,059	1.07	14,057,230
Brvenitsa	1,142	-47.15%	20	-22.31%	-40.19%	1,162	1,089	0.94	19,028,301
Valandovo	2,271	5.14%	25	-0.47%	3.57%	2,012	1,306	0.65	23,977,429
Vasilevo	533	-75.35%	19	-23.59%	-60.85%	760	1,471	1.93	9,498,817
Vevchani	2,372	9.78%	32	27.93%	14.86%	2,231	1,848	0.83	5,573,840
Veles	2,499	15.66%	22	-11.69%	8.00%	2,098	1,673	0.80	115,540,907
Vinitsa	2,044	-5.38%	24	-5.39%	-5.39%	1,838	1,365	0.74	35,845,106
Vraneshtitsa	1,300	-39.84%	58	130.37%	7.81%	2,094	1,219	0.58	2,695,561
Vrapchishte	571	-73.59%	22	-13.87%	-56.87%	838	725	0.87	22,337,874
Gevgelija	4,005	85.39%	30	18.81%	66.75%	3,239	2,942	0.91	74,221,698
Gostivar	1,646	-23.80%	23	-8.73%	-19.58%	1,562	1,703	1.09	128,771,482
Gradsko	1,861	-13.86%	26	3.60%	-8.98%	1,768	2,335	1.32	6,418,846
Debar	1,923	-11.00%	23	-8.20%	-10.22%	1,744	1,568	0.90	35,084,807
Debartsa	1,241	-42.57%	63	152.75%	12.12%	2,178	1,644	0.75	10,604,940
Delchevo	2,270	5.07%	28	9.71%	6.37%	2,066	1,505	0.73	35,241,363
Demir Hisar	1,045	-51.65%	36	42.97%	-25.15%	1,454	670	0.46	12,985,593

	PIT per capita, 2010	PIT, % diff	Housing m² per person	Housing, % diff	Estimated %revenue disparity	Estimated own revenues per capita	Own revenues per capita, 2010	Tax effort	Estimated own revenues per locality
Demir Kapija	5,333	146.86%	27	6.78%	107.64%	4,034	2,295	0.57	16,808,465
Dojran	2,498	15.65%	48	91.33%	36.84%	2,658	5,597	2.11	8,873,136
Dolneni	508	-76.49%	21	-15.20%	-59.33%	790	773	0.98	10,797,268
Drugovo	2,177	0.79%	50	99.40%	28.40%	2,494	1,095	0.44	7,530,360
Zhelino	474	-78.08%	15	-38.59%	-67.02%	641	524	0.82	16,931,881
Zajas	552	-74.45%	23	-7.00%	-55.56%	863	426	0.49	10,225,473
Zelenikovo	2,370	9.69%	24	-6.23%	5.23%	2,044	672	0.33	9,242,029
Zrnovtsi	601	-72.17%	27	6.85%	-50.05%	970	866	0.89	3,068,476
Ilinden	3,165	46.48%	22	-13.42%	29.71%	2,520	5,264	2.09	41,479,048
Jegunovtse	1,247	-42.26%	24	-4.55%	-31.70%	1,327	1,452	1.09	14,397,959
Kavadartsi	3,272	51.45%	27	6.76%	38.93%	2,699	2,207	0.82	105,244,759
Karbintsi	659	-69.51%	21	-16.34%	-54.63%	881	886	1.01	3,598,016
Kichevo	3,234	49.68%	25	1.01%	36.05%	2,643	2,284	0.86	79,798,421
Konche	625	-71.05%	21	-15.91%	-55.61%	862	770	0.89	3,076,116
Kochani	2,118	-1.97%	23	-6.44%	-3.22%	1880	1,863	0.99	71,766,430
Kratovo	2,224	2.95%	29	16.72%	6.80%	2,075	1,015	0.49	20,575,890
Kriva Palan-ka	2,726	26.20%	26	2.93%	19.68%	2,325	1,317	0.57	47,571,560
Krivo-gashtani	490	-77.33%	27	8.57%	-53.28%	908	564	0.62	5,362,140
Krushevo	1,840	-14.83%	27	9.45%	-8.03%	1,787	1,135	0.64	17,112,111
Kumanovo	2,174	0.63%	22	-11.21%	-2.69%	1,890	2,444	1.29	202,265,149
Lipkovo	620	-71.31%	16	-37.05%	-61.71%	744	251	0.34	21,533,737
Lozovo	1,257	-41.82%	24	-5.68%	-31.70%	1,327	977	0.74	3,506,862

	PIT per capita, 2010	PIT, % diff	Housing m² per person	Housing, % diff	Estimated %revenue disparity	Estimated own revenues per capita	Own revenues per capita, 2010	Tax effort	Estimated own revenues per locality
Mavrovo and Rostusha	1,102	-49.00%	49	93.23%	-9.18%	1,764	1,482	0.84	15,561,678
M.Brod	2,690	24.52%	39	53.51%	32.64%	2,577	1,739	0.68	17,165,946
M. Kamenitsa	2,965	37.23%	22	-13.81%	22.94%	2,388	954	0.40	18,876,943
Mogila	1,121	-48.13%	24	-4.64%	-35.95%	1,244	843	0.68	8,178,543
Negotino	2,814	30.26%	25	1.42%	22.19%	2,374	2,693	1.13	46,060,497
Novatsi	3,265	51.15%	34	33.85%	46.30%	2,842	1,042	0.37	9,742,967
Novo Selo	1,061	-50.89%	31	22.68%	-30.29%	1,354	1,307	0.97	15,088,842
Oslomej	958	-55.64%	26	2.79%	-39.28%	1,180	621	0.53	12,495,904
Ohrid	3,156	46.11%	37	46.71%	46.28%	2,842	3,322	1.17	156,355,419
Petrovets	2,366	9.50%	26	4.09%	7.98%	2,098	1,864	0.89	18,048,952
Pehchevo	2,024	-6.30%	37	45.98%	8.34%	2,105	1,446	0.69	11,011,377
Plasnitsa	393	-81.83%	18	-26.63%	-66.37%	653	602	0.92	3,094,502
Prilep	2,508	16.08%	26	5.17%	13.02%	2,196	2,055	0.94	167,887,097
Probishtip	2,458	13.77%	27	9.19%	12.49%	2,185	1,325	0.61	34,383,202
Radovish	1,962	-9.18%	23	-8.70%	-9.04%	1,767	1,411	0.80	50,556,305
Rankovtse	984	-54.43%	29	14.88%	-35.02%	1,262	811	0.64	4,897,515
Resen	2,468	14.26%	48	90.37%	35.57%	2,634	1,121	0.43	42,802,607
Rosoman	1,428	-33.91%	24	-4.46%	-25.67%	1,444	1,213	0.84	5,985,319
Staro Nagorichane	397	-81.60%	41	61.81%	-41.45%	1,137	1,535	1.35	5,052,615
Sveti Nikole	2,364	9.43%	24	-3.02%	5.95%	2,058	1,631	0.79	37,408,663
Sopishte	2,474	14.50%	32	25.93%	17.70%	2,286	3,011	1.32	13,347,844
Struga	1,561	-27.76%	30	17.80%	-15.00%	1651	1,968	1.19	106,153,800

	PIT per capita, 2010	PIT, % diff	Housing m² per person	Housing, % diff	Estimated %revenue disparity	Estimated own revenues per capita	Own revenues per capita, 2010	Tax effort	Estimated own revenues per locality
Strumitsa	2,329	7.80%	24	-6.04%	3.92%	2,019	4,669	2.31	112,874,238
Studenichani	846	-60.84%	14	-42.74%	-55.77%	859	471	0.55	16,298,816
Teartse	1,021	-52.74%	21	-14.75%	-42.10%	1,125	823	0.73	25,526,709
Tetovo	2,122	-1.78%	20	-21.28%	-7.24%	1,802	2,347	1.30	160,976,156
Tsentar Zhupa	477	-77.90%	19	-25.41%	-63.20%	715	717	1.00	4,898,694
Chashka	701	-67.55%	30	19.47%	-43.19%	1,104	1,143	1.04	8,415,550
Cheshinovo	688	-68.16%	26	5.41%	-47.56%	1,019	1,118	1.10	7,419,913
Chucher-Sandevo	1,917	-11.24%	24	-3.78%	-9.15%	1,765	2,513	1.42	16,561,551
Shtip	3,736	72.93%	24	-6.30%	50.74%	2,928	2,520	0.86	141,681,429
Municipali-ties outside Skopje	2,160	0.00%	25	0.00%	0.00%	1,943	1,943	1.00	2,967,295,889

Source: Own calculations based on data from the Ministry of Finance and 2002 Census.

APPENDIX VIII.

COMPUTATION OF REVENUE DISPARITY BASED ON WEIGHTED PROXIES

To address disparity in local revenue base, the methodology can employ proxies highly correlated with a locality's capacity to collect revenues from own revenue sources. As a proxy for the property tax base, we will use data on housing stock from the survey of dwellings carried out as part of the population surveys in 2002 (and eventually in 2011). To capture the impact of local economic well-being on real-estate prices and profitability of local businesses, we use the locally retained share of the personal income tax collections as a proxy of the tax base. When using several factors, we need to decide on their relative contributions to local revenue capacity, which would be represented by relative weights attached to these variables in the computation formula. These weights are estimated from actual data as elasticities of local tax revenues with respect to those factors. Thus we assume that percentage differentials (%Δ) in local revenue capacity from the national average are proportional to the percentage differentials in PIT collections and housing stock. Therefore, as demonstrated in column (5) of the table below, we can compute percentage differentials (%Δ) in local revenue capacity using the estimates of elasticity of own source revenues with respect to these two factors, estimated as 0.72 and 0.28 respectively.

$$\%\Delta\left(\frac{Capacity_i}{POP_i}\right) = 0.72 \bullet \%\Delta\left(\frac{PIT_i}{POP_i}\right) + 0.28 \bullet \%\Delta\left(\frac{Hou\sin g_i}{POP_i}\right)$$

By definition, percentage differentials (%Δ) in local revenue capacity from the national average are:

$$\%\Delta\left(\frac{Capacity_i}{POP_i}\right)=\frac{Capacity_i \big/ POP_i - or}{or}$$

where $or=(\Sigma_i OR_i) / (\Sigma_i POP_i)$ is the national average per capita value of own-source revenue, which by definition is also the national average per capita value of revenue capacity.

Therefore, we can compute the revenue shortfall relative to the amount the municipality would collect had it the national average level of per capita revenue capacity:

$$or \bullet POP_i - Capacity_i = -\%\Delta\left(\frac{Capacity_i}{POP_i}\right) \bullet or \bullet POP_i$$

To partially close this revenue shortfall, the VAT grant formula will allocate a certain share of the equalization fund (e.g. 10%) proportional to the revenue shortfall for each municipality, by including the revenue shortfall as an allocation factor in the VAT formula with a certain weight (e.g. 0.10). Because proportional allocation does not change when the allocation factor is multiplied by a constant value, the calculation of the allocation factor can be further simplified as

$$\%\Delta\left(\frac{Capacity_i}{POP_i}\right) \bullet POP_i$$

which is shown in column (6) of the table below. As an illustration, in column (8) this allocation factor is used to allocate MKD 100 mln, which roughly corresponds to 10 percent of the VAT grant pool.

Appendix Table 3

	PIT per capita, 2010	PIT, % diff	Housing m² per person	Housing, % diff	Estimated % revenue disparity	Revenue disparity factor	Revenue disparity share	Grant allocation
	(1)	(2)= %[(1)-mean(1)]	(3)	(4)= %[(3)-mean(3)]	(5)= 0.72*(2)+ 0.28*(4)	(6)=max(0, (5)* pop2009)	(7)=(6)/ sum(6)	(8)= (7)* 100 mln. MKD
Arachinovo	847	-60.81%	15	-42.07%	-55.56%	6,942	3.17%	3,167,519
Berovo	2,292	6.09%	27	9.12%	6.93%	0	0.00%	0
Bitola	4,333	100.55%	27	7.07%	74.38%	0	0.00%	0
Bogdantsi	2,344	8.50%	28	10.67%	9.11%	0	0.00%	0
Bogovinje	618	-71.40%	21	-16.99%	-56.16%	16,883	7.70%	7,703,318
Bosilovo	685	-68.30%	25	1.06%	-48.88%	6,920	3.16%	3,157,332
Brvenitsa	1,142	-47.15%	20	-22.31%	-40.19%	6,583	3.00%	3,003,600
Valandovo	2,271	5.14%	25	-0.47%	3.57%	0	0.00%	0
Vasilevo	533	-75.35%	19	-23.59%	-60.85%	7,601	3.47%	3,468,285
Vevchani	2,372	9.78%	32	27.93%	14.86%	0	0.00%	0
Veles	2,499	15.66%	22	-11.69%	8.00%	0	0.00%	0
Vinitsa	2,044	-5.38%	24	-5.39%	-5.39%	1,050	0.48%	479,187
Vraneshtitsa	1,300	-39.84%	58	130.37%	7.81%	0	0.00%	0
Vrapchishte	571	-73.59%	22	-13.87%	-56.87%	15,161	6.92%	6,917,663
Gevgelija	4,005	85.39%	30	18.81%	66.75%	0	0.00%	0
Gostivar	1,646	-23.80%	23	-8.73%	-19.58%	16,138	7.36%	7,363,344
Gradsko	1,861	-13.86%	26	3.60%	-8.98%	326	0.15%	148,657
Debar	1,923	-11.00%	23	-8.20%	-10.22%	2,056	0.94%	937,912
Debartsa	1,241	-42.57%	63	152.75%	12.12%	0	0.00%	0
Delchevo	2,270	5.07%	28	9.71%	6.37%	0	0.00%	0
Demir Hisar	1,045	-51.65%	36	42.97%	-25.15%	2,246	1.03%	1,025,007

	PIT per capita, 2010	PIT, % diff	Housing m^2 per person	Housing, % diff	Estimated % revenue disparity	Revenue disparity factor	Revenue disparity share	Grant allocation
Demir Kapija	5,333	146.86%	27	6.78%	107.64%	0	0.00%	0
Dojran	2,498	15.65%	48	91.33%	36.84%	0	0.00%	0
Dolneni	508	-76.49%	21	-15.20%	-59.33%	8,108	3.70%	3,699,434
Drugovo	2,177	0.79%	50	99.40%	28.40%	0	0.00%	0
Zhelino	474	-78.08%	15	-38.59%	-67.02%	17,712	8.08%	8,081,528
Zajas	552	-74.45%	23	-7.00%	-55.56%	6,581	3.00%	3,002,861
Zelenikovo	2,370	9.69%	24	-6.23%	5.23%	0	0.00%	0
Zrnovtsi	601	-72.17%	27	6.85%	-50.05%	1,582	0.72%	722,032
Ilinden	3,165	46.48%	22	-13.42%	29.71%	0	0.00%	0
Jegunovtse	1,247	-42.26%	24	-4.55%	-31.70%	3,440	1.57%	1,569,780
Kavadartsi	3,272	51.45%	27	6.76%	38.93%	0	0.00%	0
Karbintsi	659	-69.51%	21	-16.34%	-54.63%	2,230	1.02%	1,017,428
Kichevo	3,234	49.68%	25	1.01%	36.05%	0	0.00%	0
Konche	625	-71.05%	21	-15.91%	-55.61%	1,984	0.91%	905,028
Kochani	2,118	-1.97%	23	-6.44%	-3.22%	1,229	0.56%	560,855
Kratovo	2,224	2.95%	29	16.72%	6.80%	0	0.00%	0
Kriva Palanka	2,726	26.20%	26	2.93%	19.68%	0	0.00%	0
Krivogashtani	490	-77.33%	27	8.57%	-53.28%	3,148	1.44%	1,436,237
Krushevo	1,840	-14.83%	27	9.45%	-8.03%	769	0.35%	351,009
Kumanovo	2,174	0.63%	22	-11.21%	-2.69%	2,874	1.31%	1,311,390
Lipkovo	620	-71.31%	16	-37.05%	-61.71%	17,868	8.15%	8,152,765
Lozovo	1,257	-41.82%	24	-5.68%	-31.70%	838	0.38%	382,262
Mavrovo and Rostusha	1,102	-49.00%	49	93.23%	-9.18%	809	0.37%	369,309
M.Brod	2,690	24.52%	39	53.51%	32.64%	0	0.00%	0

	PIT per capita, 2010	PIT, % diff	Housing m^2 per person	Housing, % diff	Estimated % revenue disparity	Revenue disparity factor	Revenue disparity share	Grant allocation
M. Kamenitsa	2,965	37.23%	22	-13.81%	22.94%	0	0.00%	0
Mogila	1,121	-48.13%	24	-4.64%	-35.95%	2,363	1.08%	1,078,162
Negotino	2,814	30.26%	25	1.42%	22.19%	0	0.00%	0
Novatsi	3,265	51.15%	34	33.85%	46.30%	0	0.00%	0
Novo Selo	1,061	-50.89%	31	22.68%	-30.29%	3,375	1.54%	1,539,830
Oslomej	958	-55.64%	26	2.79%	-39.28%	4,162	1.90%	1,898,802
Ohrid	3,156	46.11%	37	46.71%	46.28%	0	0.00%	0
Petrovets	2,366	9.50%	26	4.09%	7.98%	0	0.00%	0
Pehchevo	2,024	-6.30%	37	45.98%	8.34%	0	0.00%	0
Plasnitsa	393	-81.83%	18	-26.63%	-66.37%	3,144	1.43%	1,434,548
Prilep	2,508	16.08%	26	5.17%	13.02%	0	0.00%	0
Probishtip	2,458	13.77%	27	9.19%	12.49%	0	0.00%	0
Radovish	1,962	-9.18%	23	-8.70%	-9.04%	2,587	1.18%	1,180,570
Rankovtse	984	-54.43%	29	14.88%	-35.02%	1,359	0.62%	620,044
Resen	2,468	14.26%	48	90.37%	35.57%	0	0.00%	0
Rosoman	1,428	-33.91%	24	-4.46%	-25.67%	1,064	0.49%	485,461
Staro Nagorichane	397	-81.60%	41	61.81%	-41.45%	1,841	0.84%	840,040
Sveti Nikole	2,364	9.43%	24	-3.02%	5.95%	0	0.00%	0
Sopishte	2,474	14.50%	32	25.93%	17.70%	0	0.00%	0
Struga	1,561	-27.76%	30	17.80%	-15.00%	9,643	4.40%	4,399,753
Strumitsa	2,329	7.80%	24	-6.04%	3.92%	0	0.00%	0
Studenichani	846	-60.84%	14	-42.74%	-55.77%	10,580	4.83%	4,827,339
Teartse	1,021	-52.74%	21	-14.75%	-42.10%	9,556	4.36%	4,360,030
Tetovo	2,122	-1.78%	20	-21.28%	-7.24%	6,466	2.95%	2,950,364

	PIT per capita, 2010	PIT, % diff	Housing m^2 per person	Housing, % diff	Estimated % revenue disparity	Revenue disparity factor	Revenue disparity share	Grant allocation
Tsentar Zhupa	477	-77.90%	19	-25.41%	-63.20%	4,331	1.98%	1,976,265
Chashka	701	-67.55%	30	19.47%	-43.19%	3,293	1.50%	1,502,494
Cheshinovo	688	-68.16%	26	5.41%	-47.56%	3,464	1.58%	1,580,753
Chucher-Sandevo	1,917	-11.24%	24	-3.78%	-9.15%	859	0.39%	391,804
Shtip	3,736	72.93%	24	-6.30%	50.74%	0	0.00%	0
Municipalities outside Skopje	2,160	0.00%	25	0.00%	0.00%	219,167	100.00%	100,000,000

Source: Own calculations based on data from the Ministry of Finance and 2002 Census.

APPENDIX IX.

COMPUTATION OF REVENUE-RAISING REWARD BASED ON WEIGHTED PROXIES

Alternatively, the grant formula can address revenue capacity by giving more funds for higher revenue-raising effort (own revenue relative to the local capacity) rather than less funds in response to higher capacity. An international analogue of such arrangements would be ensuring an equal service for an equal level of taxation, also called "tax power equalization." In other words, if two municipalities introduced the same property tax rate, the grant formula will ensure that they have the same amount of resources. However, if some municipality has weak economic base but does not bother to work with it (e.g., collects no revenues from non-agricultural land in rural areas), then it will not be compensated because it does not undertake any revenue-raising effort.

Mathematically, equal resources for an equal level of taxation can be expressed as:

$$\mathrm{Re}venue_i + Grant_i = \frac{\mathrm{Re}venue_i}{Base_i} \bullet \overline{base} \bullet POP_i$$

where $\overline{base}$ is the national average of per capita revenue base. In other words, after receiving grants, the municipality would have the same amount of resources as if it were applying the same revenue-raising effort ($Revenue_i/Base_i$) to the national average of per capita revenue base.

By rearranging, the expression above, we can derive the amount of grants required to fully equalize tax power:

$$Grant_i = \text{Re}venue_i \bullet \left(\frac{\overline{base} \bullet POP_i}{Base_i} - 1 \right)$$

Thus, in order to equalize tax power, the grant formula should give the municipality ($\overline{base} \bullet POP_i / Base_i - 1$) denars for each denar raised locally. This matching rate ($\overline{base} \bullet POP_i / Base_i - 1$) will be higher for municipalities with lower revenue base.

As we might not have enough funds to completely equalize tax power, the VAT grant formula will allocate a certain share of the equalization fund (e.g. 10%) proportional to the required match, by including the $Revenue \bullet (\overline{base} \bullet POP_i / Base_i - 1)$ as an allocation factor in the VAT formula with a certain weight (e.g. 0.10).

The matching rate ($\overline{base} \bullet POP_i / Base_i - 1$) can be also expressed in terms of percentage differentials (%Δ) in local revenue capacity from the national average:

$(\overline{base} \bullet POP_i / Base_i - 1) = -\%\Delta/(1+\%\Delta)$

and

$$\%\Delta = 0.72 \bullet \%\Delta\left(\frac{PIT_i}{POP_i} \right) + 0.28 \bullet \%\Delta\left(\frac{Hou\sin g_i}{POP_i} \right)$$

This approach is illustrated in the table below, which shows the calculation of the matching rates in column (6) and the calculation of the allocation factor in column (8). As an illustration, in column (10) this allocation factor is used to allocate MKD 100 mln, which roughly corresponds to 10 percent of the VAT grant pool.

Appendix Table 4

	PIT per capita, 2010	PIT, % diff	Housing m^2 per person	Housing, % diff	Estimated % capacity disparity	Matching rate	Own revenues, 2010	Revenue effort factor	Revenue effort share	Grant allocation
	(1)	(2)= % [(1)-mean(1)]	(3)	(4)= % [(3)-mean(3)]	(5)= 0.72*(2)+ 0.28*(4)	(6)= max{0, -(5)/ [1+(5)}	(7)	(8)= (6)*(7)	(9)=(6)/ sum(6)	(10)= (7)* 100 mln. MKD
Arachinovo	847	-60.81%	15	-42.07%	-55.56%	1.25	2,011,948	2,515,798	0.67%	669,055
Berovo	2,292	6.09%	27	9.12%	6.93%	0.00	23,142,872	0	0.00%	0
Bitola	4,333	100.55%	27	7.07%	74.38%	0.00	267,901,264	0	0.00%	0
Bogdantsi	2,344	8.50%	28	10.67%	9.11%	0.00	9,519,683	0	0.00%	0
Bogovinje	618	-71.40%	21	-16.99%	-56.16%	1.28	27,154,182	34,789,351	9.25%	9,251,927
Bosilovo	685	-68.30%	25	1.06%	-48.88%	0.96	14,986,722	14,331,600	3.81%	3,811,365
Brvenitsa	1,142	-47.15%	20	-22.31%	-40.19%	0.67	17,840,382	11,989,852	3.19%	3,188,597
Valandovo	2,271	5.14%	25	-0.47%	3.57%	0.00	15,566,691	0	0.00%	0
Vasilevo	533	-75.35%	19	-23.59%	-60.85%	1.55	18,378,194	28,570,355	7.60%	7,598,039
Vevchani	2,372	9.78%	32	27.93%	14.86%	0.00	4,617,195	0	0.00%	0
Veles	2,499	15.66%	22	-11.69%	8.00%	0.00	92,121,197	0	0.00%	0
Vinitsa	2,044	-5.38%	24	-5.39%	-5.39%	0.06	26,614,215	1,514,805	0.40%	402,849
Vraneshtitsa	1,300	-39.84%	58	130.37%	7.81%	0.00	1,569,407	0	0.00%	0
Vrapchishte	571	-73.59%	22	-13.87%	-56.87%	1.32	19,329,674	25,486,470	6.78%	6,777,906
Gevgelija	4,005	85.39%	30	18.81%	66.75%	0.00	67,410,109	0	0.00%	0
Gostivar	1,646	-23.80%	23	-8.73%	-19.58%	0.24	140,337,738	34,166,263	9.09%	9,086,222
Gradsko	1,861	-13.86%	26	3.60%	-8.98%	0.10	8,475,184	835,690	0.22%	222,245
Debar	1,923	-11.00%	23	-8.20%	-10.22%	0.11	31,551,438	3,591,118	0.96%	955,027
Debartsa	1,241	-42.57%	63	152.75%	12.12%	0.00	8,005,400	0	0.00%	0
Delchevo	2,270	5.07%	28	9.71%	6.37%	0.00	25,676,262	0	0.00%	0

	PIT per capita, 2010	PIT, % diff	Housing m^2 per person	Housing, % diff	Estimated % capacity disparity	Matching rate	Own revenues, 2010	Revenue effort factor	Revenue effort share	Grant allocation
Demir Hisar	1,045	-51.65%	36	42.97%	-25.15%	0.34	5,984,372	2,011,182	0.53%	534,856
Demir Kapija	5,333	146.86%	27	6.78%	107.64%	0.00	9,561,349	0	0.00%	0
Dojran	2,498	15.65%	48	91.33%	36.84%	0.00	18,681,884	0	0.00%	0
Dolneni	508	-76.49%	21	-15.20%	-59.33%	1.46	10,561,188	15,406,421	4.10%	4,097,204
Drugovo	2,177	0.79%	50	99.40%	28.40%	0.00	3,306,728	0	0.00%	0
Zhelino	474	-78.08%	15	-38.59%	-67.02%	2.03	13,848,835	28,142,915	7.48%	7,484,365
Zajas	552	-74.45%	23	-7.00%	-55.56%	1.25	5,050,878	6,315,188	1.68%	1,679,470
Zelenikovo	2,370	9.69%	24	-6.23%	5.23%	0.00	3,039,474	0	0.00%	0
Zrnovtsi	601	-72.17%	27	6.85%	-50.05%	1.00	2,739,388	2,744,446	0.73%	729,862
Ilinden	3,165	46.48%	22	-13.42%	29.71%	0.00	86,644,720	0	0.00%	0
Jegunovtse	1,247	-42.26%	24	-4.55%	-31.70%	0.46	15,762,231	7,316,833	1.95%	1,945,848
Kavadartsi	3,272	51.45%	27	6.76%	38.93%	0.00	86,061,223	0	0.00%	0
Karbintsi	659	-69.51%	21	-16.34%	-54.63%	1.20	3,616,937	4,354,609	1.16%	1,158,071
Kichevo	3,234	49.68%	25	1.01%	36.05%	0.00	68,943,925	0	0.00%	0
Konche	625	-71.05%	21	-15.91%	-55.61%	1.25	2,744,970	3,438,464	0.91%	914,430
Kochani	2,118	-1.97%	23	-6.44%	-3.22%	0.03	71,114,650	2,366,223	0.63%	629,276
Kratovo	2,224	2.95%	29	16.72%	6.80%	0.00	10,061,840	0	0.00%	0
Kriva Palanka	2,726	26.20%	26	2.93%	19.68%	0.00	26,948,390	0	0.00%	0
Krivogashtani	490	-77.33%	27	8.57%	-53.28%	1.14	3,333,561	3,801,578	1.01%	1,010,997
Krushevo	1,840	-14.83%	27	9.45%	-8.03%	0.09	10,870,600	949,371	0.25%	252,477
Kumanovo	2,174	0.63%	22	-11.21%	-2.69%	0.03	261,495,355	7,218,426	1.92%	1,919,678
Lipkovo	620	-71.31%	16	-37.05%	-61.71%	1.61	7,254,416	11,693,797	3.11%	3,109,864
Lozovo	1,257	-41.82%	24	-5.68%	-31.70%	0.46	2,581,060	1,197,864	0.32%	318,562
Mavrovo and Rostusha	1,102	-49.00%	49	93.23%	-9.18%	0.10	13,070,777	1,320,695	0.35%	351,227

	PIT per capita, 2010	PIT, % diff	Housing m² per person	Housing, % diff	Estimated % capacity disparity	Matching rate	Own revenues, 2010	Revenue effort factor	Revenue effort share	Grant allocation
M.Brod	2,690	24.52%	39	53.51%	32.64%	0.00	11,587,973	0	0.00%	0
M. Kamenitsa	2,965	37.23%	22	-13.81%	22.94%	0.00	7,537,293	0	0.00%	0
Mogila	1,121	-48.13%	24	-4.64%	-35.95%	0.56	5,538,107	3,108,400	0.83%	826,652
Negotino	2,814	30.26%	25	1.42%	22.19%	0.00	52,258,965	0	0.00%	0
Novatsi	3,265	51.15%	34	33.85%	46.30%	0.00	3,571,910	0	0.00%	0
Novo Selo	1,061	-50.89%	31	22.68%	-30.29%	0.43	14,563,418	6,327,725	1.68%	1,682,804
Oslomej	958	-55.64%	26	2.79%	-39.28%	0.65	6,581,783	4,258,172	1.13%	1,132,424
Ohrid	3,156	46.11%	37	46.71%	46.28%	0.00	182,778,054	0	0.00%	0
Petrovets	2,366	9.50%	26	4.09%	7.98%	0.00	16,034,255	0	0.00%	0
Pehchevo	2,024	-6.30%	37	45.98%	8.34%	0.00	7,566,687	0	0.00%	0
Plasnitsa	393	-81.83%	18	-26.63%	-66.37%	1.97	2,849,889	5,624,964	1.50%	1,495,910
Prilep	2,508	16.08%	26	5.17%	13.02%	0.00	157,155,367	0	0.00%	0
Probishtip	2,458	13.77%	27	9.19%	12.49%	0.00	20,840,531	0	0.00%	0
Radovish	1,962	-9.18%	23	-8.70%	-9.04%	0.10	40,361,334	4,012,818	1.07%	1,067,174
Rankovtse	984	-54.43%	29	14.88%	-35.02%	0.54	3,146,368	1,695,992	0.45%	451,034
Resen	2,468	14.26%	48	90.37%	35.57%	0.00	18,210,604	0	0.00%	0
Rosoman	1,428	-33.91%	24	-4.46%	-25.67%	0.35	5,026,691	1,735,868	0.46%	461,639
Staro Nagorichane	397	-81.60%	41	61.81%	-41.45%	0.71	6,819,480	4,827,283	1.28%	1,283,774
Sveti Nikole	2,364	9.43%	24	-3.02%	5.95%	0.00	29,647,044	0	0.00%	0
Sopishte	2,474	14.50%	32	25.93%	17.70%	0.00	17,579,397	0	0.00%	0
Struga	1,561	-27.76%	30	17.80%	-15.00%	0.18	126,537,317	22,329,496	5.94%	5,938,336
Strumitsa	2,329	7.80%	24	-6.04%	3.92%	0.00	261,052,314	0	0.00%	0
Studenichani	846	-60.84%	14	-42.74%	-55.77%	1.26	8,927,165	11,257,265	2.99%	2,993,772
Teartse	1,021	-52.74%	21	-14.75%	-42.10%	0.73	18,683,741	13,587,078	3.61%	3,613,366

	PIT per capita, 2010	PIT, % diff	Housing m² per person	Housing, % diff	Estimated % capacity disparity	Matching rate	Own revenues, 2010	Revenue effort factor	Revenue effort share	Grant allocation
Tetovo	2,122	-1.78%	20	-21.28%	-7.24%	0.08	209,695,513	16,363,297	4.35%	4,351,677
Tsentar Zhupa	477	-77.90%	19	-25.41%	-63.20%	1.72	4,912,968	8,438,714	2.24%	2,244,203
Chashka	701	-67.55%	30	19.47%	-43.19%	0.76	8,716,633	6,625,924	1.76%	1,762,107
Cheshinovo	688	-68.16%	26	5.41%	-47.56%	0.91	8,142,000	7,385,225	1.96%	1,964,037
Chucher-Sandevo	1,917	-11.24%	24	-3.78%	-9.15%	0.10	23,581,412	2,375,226	0.63%	631,671
Shtip	3,736	72.93%	24	-6.30%	50.74%	0.00	121,903,187	0	0.00%	0
Municipalities outside Skopje	2,160	0.00%	25	0.00%	0.00%	0.00	2,967,295,889	376,022,763	100.00%	100,000,000

Source: Own calculations based on data from the Ministry of Finance and 2002 Census.

May, 2012