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Fiscal Federalism and Government Size in Transition Economies: The Case of Moldova

Prepared by Luiz de Mello[1]

Authorized for distribution by Sanjeev Gupta

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Abstract

This paper examines the relationship between fiscal decentralization—the assignment of revenue sources and expenditure functions across government levels—and government size in Moldova. The empirical results—based on data for a cross-section of Moldovan subnational governments in 1998—suggest that fiscal decentralization is associated with larger subnational governments and that the country's revenue-sharing system imposes a constraint on subnational spending. Moldova is currently undergoing unprecedented reform of its system of intergovernmental fiscal relations, and consolidation of its local government. This reform package is crucial to ensure that decentralization does not increase the size of government.

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Contents

Page

I. Introduction 3
II. Fiscal Federalism in Moldova 4
III. Fiscal Federalism and Government Size: The Testable Hypotheses 7
IV. Empirical Evidence 11
  A. Data 11
  B. The Resutls 13
V. Current Reform in Fiscal Federalism 17
VI. Conclusions 19

Tables
1. Fiscal Decentralization Indicators, 1998 6
2. Subnational Governments' Budget, 1998 8
3. Decentralization and Government Size 16

Figure
1. Decentralization and Government Size 14

Appendix Tables
4. Variable Definitions 21
5. Descriptive Statistics, 1988 22
6. New Revenue-Sharing System 23
7. Subnational Government Expenditure Estimates by Category, 1999 24
8. Subnational Government Revenue Estimates, 1999 25

References 26

I. Introduction

Since the breakup of the former Soviet Union, the size of government has fallen steadily in most BRO countries.[2] At the same time, pressures have emerged in a number of these countries to decentralize and devolve a number of expenditure functions and revenue sources to lower levels of government.[3] Against this background, an important policy question is whether fiscal decentralization—the assignment of revenue sources and expenditure functions across government levels—has an impact on the size of government.

A number of cross-sectional and country-specific studies on the relationship between fiscal federalism and government size are available,[4] but little attention has been devoted to transition economies. In BRO countries, the size of government is also affected by the changing role of the state, which adds to the difficulties of estimating the relationship between decentralization and government size. To bridge this gap in the literature, rather than pursuing a more comprehensive analysis for a cross-section of transition economies, this paper focuses on the case of Moldova, because of the unprecedented reform the country is currently undergoing in its system of intergovernmental fiscal relations and in consolidating its local governments.

In dealing with the relationship between fiscal federalism—and decentralization, in particular—and government size, the recent empirical literature singles out three basic testable hypotheses. First, fiscal decentralization may lead to a reduction in central government spending in tandem with an increase in the size of subnational governments, including middle-tier governments, such as states and provinces, and local governments, such as municipalities and communes (Oates, 1985; Wallis and Oates, 1988). In other words, the delegation of spending assignments to subnational governments through fiscal decentralization alters the composition of total government spending in favor of lower-level jurisdictions, thereby increasing their share in total government spending.

Second, despite the expected fall in central government spending as a result of fiscal decentralization, when subnational governments are granted autonomy in fiscal policymaking and are free to set tax bases and rates, they may compete with each other. In this case, competition among subnational governments may lead to a fall, rather than an increase, in the size of subnational governments (Brennan and Buchanan, 1977). This is because subnational governments may be forced to lower tax rates for fear of losing residents and business, and hence revenues, to competing jurisdictions. Leaner governments also tend to be more efficient.

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[2] Government size is conventionally measured in the literature as the share of government expenditures in GDP, the share of subnational government spending in total government spending, and total expenditures per capita.

[3] See Ter-Minassian (1997) and Mercer-Blackman and Norregaard (1999), for greater details.

[4] See, for instance, Ehadie (1994).

Third, if subnational governments collude to mitigate the competition arising from fiscal decentralization, in this case, fiscal decentralization may result in larger, rather than smaller, subnational governments (Brennan and Buchanan, 1980).

The remainder of the paper is organized as follows. Section II provides a bird's-eye view of intergovernmental fiscal relations and the institutional characteristics of fiscal federalism in Moldova. Section III presents the main hypotheses to be tested in the paper. Section IV presents the data and the estimating equation, and reports the empirical results. Given that Moldova is currently undergoing a comprehensive reform of its system of intergovernmental fiscal relations, Section V describes the country's new system of fiscal federalism and revenue sharing. Section VI concludes.

II. Fiscal Federalism in Moldova

Moldova has two levels of government: the central government and subnational governments. These subnational governments are made up of 38 *rayons*, excluding Transnistria,[5] and local governments (municipalities, cities, villages, and communes). Each subnational government has a separate budget, which is consolidated with the central government budget (the State budget) and the Social Fund budget—an extrabudgetary fund responsible for funding unemployment insurance, social assistance, and pensions—in the general government accounts.

In broad terms, the assignment of tax bases to subnational governments in Moldova is in accordance with general public finance principles.[6] Mobile tax bases are assigned to the State budget (central government) and immobile tax bases are assigned to subnational budgets. The main tax bases assigned to subnational governments (*rayons* and local governments) are personal income, real estate, and land taxes. The personal income tax has a mobile base and should therefore, in principle, be assigned to the central government (State budget). This is because individuals often receive income from different sources and in different jurisdictions. In most BRO countries, however, the personal income tax is assigned to local and middle-tier governments.[7]

Subnational governments are also allowed to collect nontax revenues in the form of royalties and fees for the use and exploitation of natural resources, user charges for goods and services provided locally, and land fees and duties. The central government collects excises, the

[5] Transnistria is a breakaway region of Moldova which has not been recognized internationally as an independent State.

[6] For a detailed analysis of fiscal federalism, decentralization, and intergovernmental fiscal relations in BRO countries, see Lutz and others (1997), and Craig, Norregaard, and Tsibouris (1997).

[7] In a number of countries, subnational governments levy a subnational income tax in addition to that of the central government (piggy-backing). When subnational governments are free to apply an income tax surcharge, the link between the benefits of local public provision and tax obligations is strengthened, at least at the margin (Norregaard, 1997).

special road tax, and foreign trade taxes.[8] The revenues of the corporate income tax and VAT are shared between the central and subnational governments on a derivative basis.[9] The central government is entitled to 50 percent of corporate income tax revenues, and the subnational governments keep the remaining 50 percent on a derivative basis.[10] In the case of VAT, the subnational governments' share of total revenues collected on a derivative basis ranges between 20 and 30 percent.[11] [12]

Owing to the assignment of tax bases to subnational governments, own tax revenues amounted to 46.9 percent of *rayons*' total revenues on average in 1998. Nontax revenues totaled 12.5 percent of *rayons*' total revenues on average in the same year. Transfers from the State budget constitute another important source of revenue of subnational budgets. Vertical imbalances—or the share of grants and transfers (shared revenues) from the State budget in the total revenues of subnational governments—amounted to 40.7 percent on average in 1998 (Table 1).[13] These vertical imbalances also vary significantly across *rayons* depending on their revenue-mobilization capacity. For instance, transfers from the State budget ranged between nearly 16.8 percent of total local budget revenues in Chişinău and 72.2 percent in Leova.

Subnational governments as a whole are relatively large when compared to the central government. The revenues of subnational governments totaled 34 percent of central government revenues, or Mdl 186 (Moldovan lei) per capita and 6.7 percent of GDP in 1998.

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[8] See Republic of Moldova (1998a).

[9] Because their tax bases are narrow, subnational goverments are often unable to mobilize resources locally and finance spending in their jurisdictions. In this case, revenues are often shared between local and higher levels of government, whose tax bases tend to be broader and generate more revenues.

[10] The exceptions are Gagauzia and the municipalities of Chişinău and Bălţi, which keep, respectively, 70 percent, and 40 percent of corporate income taxes collected in their jurisdictions.

[11] The share of VAT revenues of the municipalities of Chişinău and Bălţi is 10 percent.

[12] See Republic of Moldova (1998a).

[13] These indicators can be compared with those of other countries. In a transition economy such as Russia, tax and nontax autonomy (the share of taxes and nontaxes in the total revenues of subnational governments), and vertical imbalances (the share of transfers and grants from higher levels of government in the total revenues of subnational governments) amount to, respectively, 75 percent, 8 percent, and 17 percent of total subnational revenues. Subnational spending totals 38 percent of total government spending (1994–95 averages). In a decentralized federation such as Canada, tax and nontax autonomy, and vertical imbalances amount to, respectively, 57 percent, 14 percent, and 29 percent of total subnational revenues. The subnational share of total government spending is 61 percent (1971–94 averages). In contrast, in a centralized unitary State such as France, tax and nontax autonomy, and vertical imbalances amount to, respectively, 43 percent, 18 percent, and 39 percent of total subnational revenues. The subnational share of total government spending is 18 percent (1972–95 averages). See Fukasaku and de Mello (1998), for more details.

Table 1: Fiscal Decentralization Indicators, 1998

Subnational Governments	Decentralization indicators		
	Autonomy 1/		Vertical
	Tax	Nontax 2/	Imbalances 3/
Chisinau	63.3	19.9	16.8
Balti	39.0	9.5	51.5
Anenii Noi	47.1	8.6	44.3
Besarabeasca	39.8	10.0	50.2
Briceni	33.6	9.1	57.3
Cahul	29.8	12.3	57.9
Camenca	34.2	10.3	55.5
Cantemir	30.1	5.3	64.6
Cainari	41.6	5.7	52.7
Calarasi	36.9	5.5	57.6
Causeni	42.8	7.6	49.5
Gagauzia	45.9	6.6	47.5
Cimisla	35.8	11.9	52.2
Criuleni	41.9	8.1	50.0
Donduseni	41.2	8.2	50.6
Drocia	52.7	8.0	39.3
Dubaseri	24.8	5.9	69.3
Edinet	39.1	5.7	55.2
Falesti	39.3	8.3	52.4
Floresti	51.2	6.8	42.0
Glodeni	40.7	9.4	49.9
Hincesti	37.9	12.7	49.4
Ialoveni	45.0	11.3	43.8
Leova	20.6	7.2	72.2
Nisporeni	27.1	10.3	62.6
Ocnita	37.7	12.0	50.3
Orhei	40.0	8.4	51.6
Rezina	33.5	5.4	61.1
Riscani	27.8	7.2	65.0
Singerei	45.2	5.5	49.3
Soroca	39.5	12.7	47.8
Straseni	38.0	7.9	54.1
Soldanesti	26.0	6.3	67.7
Stefan-Voda	29.7	7.7	62.6
Taraclia	41.7	9.6	48.7
Telenesti	34.7	7.2	58.2
Ungeni	37.0	12.5	50.5
Vulcanesti	47.9	7.3	44.8
Average 4/	46.9	12.5	40.7

Sources: Ministry of Finance; and IMF staff calculations.

1/ The share of rayon tax and nontax revenues in total rayon revenues.
2/ Includes capital revenues.
3/ The share of transfers from the State budget in total revenues.
4/ Weighted average.

Rayons spent on average Mdl 298 per capita, or approximately 48 percent of total central government spending and 11 percent of GDP in 1998. With regard to expenditure functions, the *rayons* accounted for approximately two-thirds of total (central and subnational) education spending, and approximately 60 percent of total health spending in 1998 (Table 2). Subnational spending is financed through local revenue mobilization (local tax, nontax, and capital revenues) and revenue sharing with the central government.

In its current form, two main features of fiscal federalism in Moldova are noteworthy. First, despite the large ratio of own tax revenues to total revenues, the *rayons* are not free to set tax rates, which limits their policymaking autonomy. Second, the revenue-sharing system in Moldova tends to deepen vertical imbalances between State and local budgets. In the current system, intergovernmental transfers are open ended and gap-filling: they are aimed at bridging the gap between subnational governments' actual revenues and expenditures. Revenue sharing is therefore a function of actual revenues, and not revenue mobilization capacity. As a result, expenditure needs and/or revenue-mobilization capacity are not equalized among subnational jurisdictions on a per capita basis, and regional inequalities are perpetuated.[14] In the current system, subnational governments are unable to ensure minimum provision standards.[15] The *rayons* also face little incentive to collect more local taxes in line with the rising demand for government provision of public goods and services.

III. Fiscal Federalism and Government Size: The Testable Hypotheses

Fiscal federalism may lead to greater autonomy in debt management, tax administration, and budget execution, so that the task of providing public goods and services and performing standard public sector functions can be shared across levels of government. Fiscal federalism, or decentralization, has a bearing on the size of governments; whether its impact on government size is positive or negative remains an area of theoretical debate and is open to empirical investigation.

The main testable hypotheses put forward in the literature on the relationship between fiscal federalism and government size are as follows:

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[14] This is because the demand for public goods and services tends to be higher in richer rayons, leading to more transfers from the State budget for the same level of revenues. In this case, richer rayons may receive more transfers in per capita terms than poorer rayons. See Wildasin (1996) and Ter-Minassian (1997) for further details.

[15] Instead, the central government finances spending in poorer jurisdictions to reduce regional disparities in public sector provision. Central government financing leads to overlapping expenditure functions between the central and subnational governments, and puts further strain on the State budget.

Table 2: Sub-national Governments' Budget, 1998
(In per capita terms)

Subnational Governments	Revenues 1/	Expenditures (on cash basis)	Revenue Gap 2/	Transfers 3/
Chisinau	446	530	84	90
Balti	252	432	180	268
Anenii Noi	148	249	101	118
Besarabeasca	134	255	120	135
Briceni	124	271	146	167
Cahul	120	257	137	164
Camenca	34	73	39	42
Cantemir	94	262	168	171
Cainari	110	223	112	123
Calarasi	129	258	129	176
Causeni	124	247	123	122
Gagauzia	141	276	135	128
Cimisla	118	251	132	130
Criuleni	134	254	120	134
Donduseni	107	199	92	109
Drocia	153	254	101	99
Dubaseri	31	102	72	70
Edinet	135	221	86	166
Falesti	95	183	89	104
Floresti	158	299	141	114
Glodeni	154	299	146	153
Hincesti	165	298	133	161
Ialoveni	102	181	79	79
Leova	72	234	163	186
Nisporeni	70	176	106	117
Ocnita	108	198	90	109
Orhei	116	215	99	124
Rezina	103	236	133	161
Riscani	84	239	155	157
Singerei	117	206	89	114
Soroca	115	219	104	105
Straseni	102	196	94	120
Soldanesti	80	247	167	168
Stefan-Voda	112	280	168	188
Taraclia	147	239	92	139
Telenesti	97	225	128	135
Ungeni	107	206	99	109
Vulcanesti	117	203	86	95
Average 4/	186	298	112	128
Memorandum item:				
State Budget	440	621		
of which: transfers		128		

Sources: Ministry of Finance; and IMF staff calculations.
1/ Includes rayon tax (net of transfers), nontax, and capital revenues.
2/ Expenditures minus revenues (net of transfers).
3/ From the State budget to local budgets.
4/ Weighted average.

1. **Fiscal decentralization increases the size of subnational government** (the Wallis Hypothesis). Emphasis on subnational government provision may put pressure on these governments to increase spending and take on a wider range of expenditure functions and fiscal responsibilities, thereby leading to higher spending levels.[16] One of the tenets of the fiscal federalism theory is that, under subsidiarity, the performance of the public sector can be enhanced by taking account of local differences in culture, environment, endowment of natural resources, and economic and social indicators. Local preferences and needs are believed to be best met by local, rather than national, governments, which are "closer" to the citizenry. Lower-tier governments can also extract information on these local preferences and needs more cheaply and accurately than the central government, and better knowledge of local needs and preferences may increase the demand for local government provision. With the delegation of expenditure mandates to subnational governments, the expected increase in subnational spending is likely to occur simultaneously with the fall in central government spending.[17] [18]

2. **Fiscal decentralization reduces the overall size of government** (the Brennan/Buchanan Decentralization Hypothesis). Greater autonomy in policymaking also calls for autonomy to set tax bases and rates (McLure, 1997; Ter-Minassian, 1999). However, subnational government spending and taxing powers are likely to be constrained by factor mobility. In a Tiebout-like world (Tiebout, 1956), people are said to "vote with their feet," since any attempt by one jurisdiction to raise the tax price of the public goods and services it supplies will result in taxpayer flight to lower-tax jurisdictions. In this case, interjurisdictional competition for mobile taxpayers and other economic resources is likely to constrain the government's taxing powers, encourage a more cost-efficient provision of local public goods and services, and therefore restrain the overall size of the public sector.[19] Because central government spending is also likely to fall as a result of the delegation of spending functions to subnational governments, total government spending may be lower as a result of fiscal decentralization.

3. **Fiscal decentralization encourages collusive behavior among subnational governments and increases the size of subnational governments** (the Brennan/Buchanan Collusion Hypothesis). When fiscal decentralization does not foster competition among

[16] See Wallis and Oates (1988) for further details.

[17] The devolution of fiscal responsibilities to subnational levels of government is also likely to increase efficiency in service delivery, and reduce information and transaction costs associated with the provision of public goods and services (World Bank, 1997). Accountability and transparency in government actions can also be enhanced by bringing expenditure assignments closer to revenue sources.

[18] Also, fiscal federalism may lead to larger governments because the management of broader tax bases by subnational governments may require an increase in government employment and administration at the subnational level. Better expenditure management at the subnational level may also require an increase in public sector employment and in overhead and payroll costs in local budgets.

[19] See Brennan and Buchanan (1977) for further details.

subnational governments, local expenditures may increase, rather than fall. This is because, rather than competing with each other, as hypothesized in a Tiebout-like economy, subnational governments may collude among themselves (and with the central government), and finance local expenditures through revenue sharing. Through collusion, subnational governments are able to increase their total revenues, and hence spending, beyond the level that would otherwise be attained in a competitive environment. In doing so, they circumvent the competitive pressures of fiscal federalism at the subnational level of government.[20]

Another strand of literature also postulates a positive relationship between fiscal decentralization and the size of government when emphasis is placed on revenue sharing, rather than local revenue mobilization, to finance subnational government spending. If subnational governments have control over tax rates and receive lump-sum transfers, this is due to the following:

- Revenue sharing allows subnational governments to finance expenditures that would otherwise overwhelm their revenue-mobilization capacity. However, it also drives a wedge between expenditures and revenue sources in subnational jurisdictions, and hence the costs and benefits of public sector provision. As a result, if a large percentage of subnational spending is financed through revenue sharing, subnational governments may face an incentive to underutilize their own tax bases at the expense of national sharable revenues (Inman and Rubinfeld, 1996). In doing so, they minimize the costs of decentralized provision borne by local taxpayers, which can be financed by a common pool of resources mobilized elsewhere in the economy. The burden of providing public goods and services can be shared across government jurisdictions, whereas the benefits of public sector spending can be internalized and generate a political payoff to local governments (de Mello, 1999a).

- By exporting the burden of public sector provision to other jurisdictions, revenue sharing reduces the perceived tax price of local services, allowing subnational governments to increase spending above levels otherwise tolerated by voters/taxpayers.[21]

- Reliance on grants and transfers from the central government to finance subnational government spending creates an incentive for subnational governments to inflate expenditures and engage in perennial negotiations with the central government to attract more grants and transfers (Ahmad, Hewitt, and Ruggiero, 1997).

- Free riding induces competition among subnational governments to secure a larger portion of sharable funds in the form of grants and transfers from the central government because each subnational government has an incentive to inflate its

[20] See Brennan and Buchanan (1980) for further details.

[21] This is also known as the Fiscal Illusion Hypothesis. See Wiener (1983) for further details.

budget for fear of losing sharable revenues to competing jurisdictions (de Mello, 1999b; Fukasaku and de Mello, 1999).

IV. Empirical Evidence

A. Data

The impact of fiscal decentralization on government size can be estimated by regressing a measure of government size on a set of regressors of three types: (i) a fiscal decentralization indicator; (ii) an indicator of subnational government collusion; and (iii) control variables. The basic equation to be estimated is as follows.

$$S_i = \beta_0 + \beta_1 D_i + \beta_2 C_i + \beta_3 X_i + \varepsilon_i, \tag{1}$$

where i indexes the subnational governments in the sample, S_i denotes the government size variable, D_i denotes the decentralization indicator, C_i is the collusion indicator, X_i denotes the vector of control variables, and ε_i is an error term.

Variable definitions and data sources are provided in Appendix Table 4. Appendix Table 5 reports basic descriptive statistics of the relevant variables to highlight the cross-sectional variations in the sample.

Equation (1) is estimated for a cross-section of Moldovan subnational governments (*rayons*) using 1998 budget outturn data. In the baseline model, following the literature and taking account of data limitations, government size is defined as *rayons*' per capita net expenditures (total expenditures excluding grants and transfers from the central government).[22] Decentralization is measured as the *rayons*' relative size, that is, the share of *rayons*' expenditures in total government spending. As in the literature, collusion is proxied by the share of grants and transfers from the central government in the *rayons*' total revenues (the vertical imbalance indicator reported in Table 1). The control variables are the *rayons*' resident population, urbanization rate, income (measured by the *rayons*' average nominal wage), and schooling (proxied by the *rayons*' secondary school attainment measure).

The expected signs are as follows. Decentralization is expected to be positively signed, under the Wallis Hypothesis. Collusion is expected to be positively signed, under the Brennan/Buchanan Collusion Hypothesis. With regard to the control variables, population is a scale variable measuring the demand for public goods and services to be provided by local governments. It is expected to be positively signed. Income also proxies for the demand for

[22] Alternative measures of government size, such as subnational government employment, could not be used here because of data deficiencies.

public provision, which is expected to be positively signed (Wagner's hypothesis).[23] Schooling and urbanization are expected to affect government spending positively.

Unfortunately, the empirical analysis suffers from a number of data limitations:

- Information is not available on disaggregated central government spending in each *rayon*.[24] This variable could be used to test the hypothesis that an increase in subnational spending could be offset, at least in part, by lower central government spending in each subnational jurisdiction. In other words, the possibility of defining total government spending (central and subnational) in each rayon would allow for testing the Brennan/Buchanan Decentralization Hypothesis of lower total, rather than subnational, government spending as a result of decentralization.[25]

- GDP data disaggregated at the rayon level are not available in Moldova. This would have allowed for the definition of government size as the share of expenditures in rayon GDP, rather than expenditures per capita, as in Grossman and West (1994) and Shadbegian (1999).

- Data that distinguish grants from transfers from the central government are not available. These would have allowed for testing the hypothesis that emphasis on grants, rather than transfers (revenue sharing), in financing subnational spending would have a different impact on subnational government size. It is often argued that grants are aimed at inducing an optimal level of provision in the presence of externalities.[26] In this case, emphasis on grants could suggest a positive association between government size and a large share of grants and transfers in subnational governments' total revenues owing to an externality effect, rather than to collusion.[27]

- As in other transition economies, expenditures are recorded on a cash, rather than commitment, basis, and include netting operations. This underestimates the size of

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[23] Marlow (1988), Grossman and West (1994), and Shadbegian (1999) also use income per capita and population as the control variables in their government size equations.

[24] Joulfaian and Marlow (1990) include disaggregated central government spending in each subnational jurisdiction in their measure of total government spending and find a negative relationship between government size and decentralization.

[25] A long enough time series of total government spending is not available. This would have allowed for a time-series, rather than cross-sectional, approach to testing the Brennan/Buchanan Decentralization Hypothesis.

[26] Owing to externalities, the underprovision of public goods and services is known to occur in the absence of "internalizing" grants from higher levels of government.

[27] It is also argued that matching grants have a stronger positive impact on expenditures than revenue-sharing transfers (Gramlich, 1979).

> government when domestic expenditure arrears are accumulated.[28] Data on expenditure arrears disaggregated at the rayon level are not readily available, which prevents the construction of an aggregate subnational expenditure data set on a commitment basis.

A visual inspection of Figure 1 (Panel A) shows a positive association between decentralization and subnational (rayon) government size, as posited under the Wallis Hypothesis. Figure 1 (Panel B) shows a negative relationship between the collusion variable and rayon government size. This negative relationship runs counter to the Collusion Hypothesis of Brennan and Buchanan (1980). These bivariate correlations should nevertheless be interpreted with caution, given the caveats above, and because they ignore the associations of each of these variables with other determinants of government size. In what follows, a more rigorous, multivariate analysis is conducted on the relationship between federalism and government size.

B. The Results

The results of the estimation of equation (1) are reported in Table 3. The key parameter estimates are statistically significant and of reasonable magnitudes. The coefficient of the baseline decentralization indicator (relative size) is positive, in line with the Wallis Hypothesis and Figure 1, Panel A. In particular, a one-percent increase in the size of subnational governments (the share of rayons' spending in total government spending) increases government size (net expenditures per capita) by 0.93 percent (Baseline model). The result is also robust to the inclusion of urbanization and schooling as additional controls (Model 1). The findings reported in Table 3 are robust to the definition of government size as gross expenditures per capita (including grants and transfers from the central government),[29] and the share of subnational government (gross and net) expenditures in GDP.[30]

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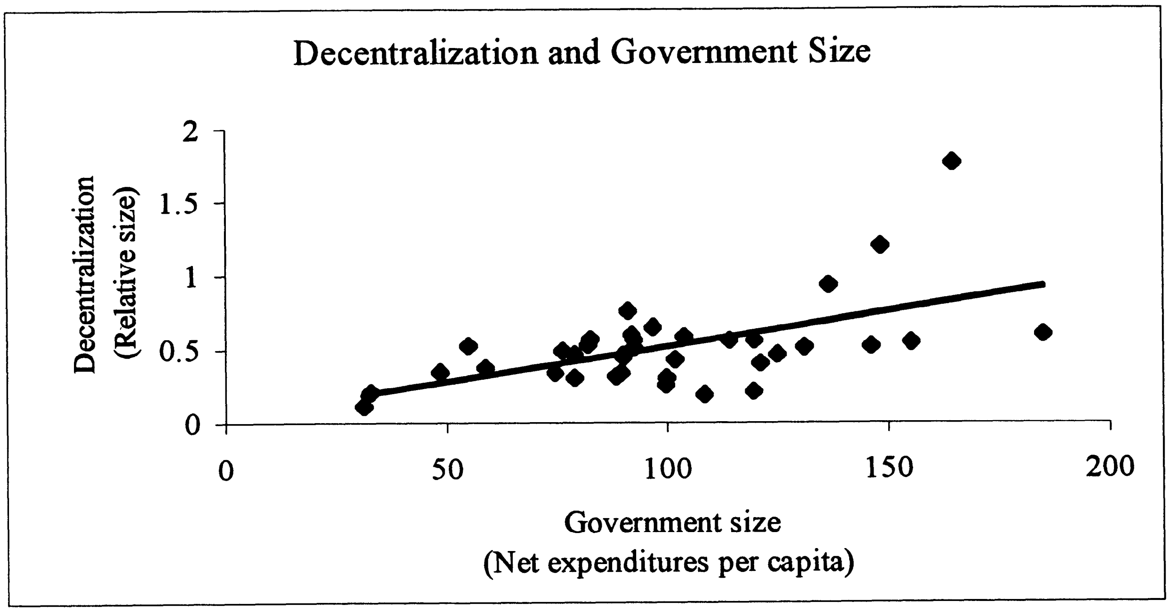
[28] In 1998, the accumulation of arrears reached nearly 5 percent of GDP and constituted an important source of deficit financing in Moldova.

[29] Grossman and West (1994) and Shadbegian (1999) use gross, rather than net, expenditures, by including transfer receipts from other levels of government, but exclude transfers made to other jurisdictions in the definition of government size.

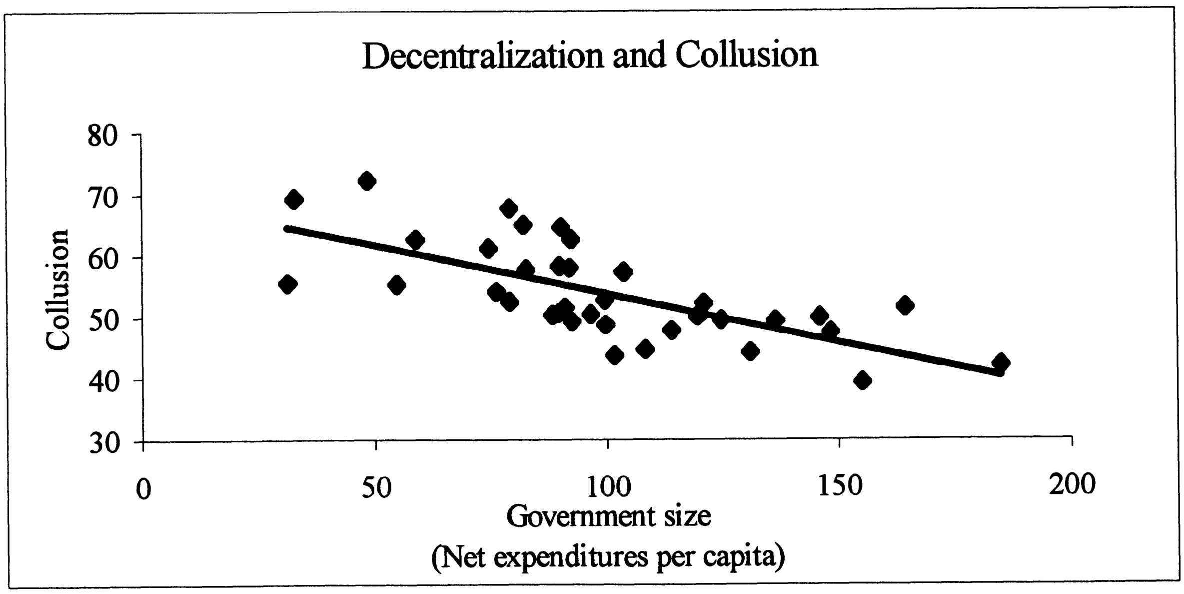
[30] The parameter estimates are also robust to the exclusion of the Municipality of Chişinău from the sample. Because this is the largest subnational jurisdiction in terms of both revenue mobilization and expenditures, it could be driving the results.

Figure 1: Decentralization and Government Size 1/

Panel A



Panel B



1/ Excludes the Municipality of Chişinău.

To better capture the assumption of increased competition among subnational governments as a result of decentralization—a key assumption in the Brennan/Buchanan Decentralization Hypothesis—the fragmentation ratio was also used as the decentralization indicator. The fragmentation ratio (defined in Appendix Table 4) measuring the extent of intrarayon competition is found to affect government size negatively (Model 2). This finding is consistent with Zax (1989).[31] In addition, to better capture the impact of federalism on revenue mobilization, two revenue-based indicators of decentralization were used: tax and nontax autonomy, as reported in Table 1 (Models 3 and 4). Nevertheless, no statistically significant relationship was found when tax and nontax autonomy were used as decentralization indicators. This is not surprising, given that subnational policymaking autonomy is limited in Moldova, and subnational governments are not free to set tax bases and rates. As suggested above, autonomy to set tax bases and rates is a key assumption of the Brennan-Buchanan competitive federalism model.

Collusion is negatively signed in all models, which runs counter to the Collusion Hypothesis of Brennan and Buchanan (1980). The negative coefficient confirms the bivariate correlation in Figure 1, Panel B. One explanation put forward in the literature to justify the negative sign of the collusion variable coefficient is that different subnational governments may operate under different fiscal rules (Grossman and West, 1994). Accordingly, revenue mobilization and/or expenditure constraints embedded in subnational government constitutions may limit their taxing and spending powers, regardless of the policymaking autonomy granted by decentralization. These institutional constraints may reduce competition among subnational governments, thereby weakening the collusion argument.

In the case of Moldova, an alternative explanation is more likely to apply. Because the rayons' are not free to set tax bases and rates, the negative sign of the collusion variable may suggest that the ability of subnational governments to provide goods and services is constrained by the availability of funds transferred to them by the central government through revenue sharing. In this case, rather than measuring the scope for collusion among subnational jurisdictions, vertical imbalances may be measuring the constraint imposed on subnational spending, and hence the size of subnational governments, by the current revenue-sharing system. In this regard, with limited policymaking autonomy at the subnational level to set tax rates, fiscal decentralization is unlikely to foster interrayon competition to raise revenue by means of more grants and transfers from the central government, thereby weakening the collusion argument.[32]

[31] Zax (1989) measures fragmentation as the number of general-purpose governments per square mile and the total number of special-purpose governments (school districts, for instance) per square mile.

[32] Typically, norm-based closed-ended grants and transfers are expected to impose constraints on subnational spending. Open-ended gap-filling grants tend to have the opposite effect, by allowing for the dissociation of benefits and costs of public provision, relaxing budget constraints at the subnational level, and creating incentives for the provision of subsidized services with limited concern for cost-effectiveness.

Table 3: Decentralization and Government Size 1/
(Dependent Variable: Net expenditure per capita)

	Baseline	Models			
		1	2	3	4
Decentralization	0.93** (0.053)	0.92** (0.061)	-0.09+ (0.069)	0.54 (0.323)	-0.001 (0.213)
Collusion	-1.18** (0.167)	-1.20** (0.174)	-1.36** (0.299)	-0.85* (0.404)	-1.35** (0.265)
Population	-1.05** (0.0718)	-1.04** (0.076)	-0.003 (0.084)	0.05 (0.083)	-0.02 (0.082)
Real income	-0.11 (0.112)	-0.03 (0.147)	0.18 (0.386)	0.29 (0.922)	0.34 (0.989)
$\overline{R}^2$	0.90	0.90	0.57	0.59	0.57
Breusch-Pagan test (4 d.f.)	5.54	14.38	5.46	4.40	4.15
F test	86.96	57.55	14.11	14.59	13.55
Decentralization Indicator	Relative size	Relative size	Fragmentation ratio	Tax autonomy	Nontax autonomy
Additional Controls	No	Urbanization Schooling	No	No	No

1/ All variables are defined in logarithmic form. Heteroscedasticity-consistent standard errors in parentheses. (+), (*) and (**) denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively. The number of observations is 38. All models include an intercept. The OLS estimator is used in all models. The Breusch-Pagan statistics tests for the null hypothesis of homoscedasticity. The F statistic tests for the null hypothesis of zero slope.

V. Current Reforms in Fiscal Federalism

The Moldovan government is currently implementing a series of institutional reforms aimed at rationalizing public sector operations and strengthening intergovernmental fiscal relations. In 1998, the Moldovan Parliament passed the Law on the Administrative Territorial Reform, reducing the number of subnational jurisdictions from the existing 38 rayons to 11 regional governments. The reform was implemented in July 1, 1999. These new regional governments comprise 9 *judets*, an autonomous regional authority (UTA Gagauzia), and the Municipality of Chişinău. The Law on Local Public Finances, passed by Parliament in July 1999, deals, among other things, with the assignment of expenditure functions and revenue sources to the new regional and local governments, and their relationship with the central government through revenue-sharing arrangements.[33]

In the new fiscal federalism system, the assignment of tax bases to subnational governments remains virtually unchanged: the main taxes assigned to subnational governments are personal income, real estate, and land taxes. The central government collects excises, the special road tax, and foreign trade taxes. The revenues of the corporate income tax and VAT are shared between the central government and the *judets* according to a revenue-sharing formula.[34] In the new system of local public finances, revenue sharing is aimed at equalizing expenditure levels among subnational jurisdictions on a per capita basis. In addition to the changes in the parameters of the revenue-sharing formula, the main improvements of the new system over the current gap-filling system of revenue sharing are as follows.

First, the new system defines per capita expenditure norms for each subnational jurisdiction. Resources are then transferred to these jurisdictions to close the gap between per capita revenues and the respective per capita expenditure norms, rather than the actual expenditures (Appendix Table 6).[35] By shifting emphasis from actual spending to expenditure norms in the revenue-sharing formula, a minimum level of provision of public goods and services can be ensured, despite differences in revenue mobilization capacity across subnational jurisdictions.

Second, the new system excludes local tax and nontax revenues from the revenue estimates used in the revenue-sharing formula (Appendix Table 8). This encourages subnational

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[33] In conjunction with the Law on Local Public Administration (Republic of Moldova, 1998b), the Law on Local Public Finances also contains provisions on tax administration, expenditure management, and budget execution.

[34] The shares (deductions) have nevertheless changed in the new system, but are still being negotiated by the authorities with the *judets*. For the purpose of the analytical exercise below, it is assumed that the central government is entitled to 30 percent of corporate income tax revenues, and the *judets* keep the remaining 70 percent on a derivative basis. In the case of VAT, it is assumed that the *judets* are entitled to 20 percent of total revenues on a derivative basis.

[35] Appendix Table 7 presents the expenditure norms for each new subnational unit using 1999 estimates. These norms were calculated by the authorities and are yet to be negotiated with subnational governments.

governments to utilize fully their local bases and nontax sources of finance. Tax effort is encouraged because revenues collected locally are not shared horizontally with other regional governments. A stronger association is therefore created between the costs and benefits of public sector provision. As suggested above, autonomy to set tax bases and rates is crucial if competitive federalism is to be strengthened in Moldova in order to mobilize fully the revenue-generation potential of lower-tier governments.

The new system nevertheless suffers from three main limitations. First, in terms of expenditure function assignments, there is a potential overlap in the assignment of road construction and maintenance spending functions between *judets* and local governments.[36] The legislation is also unclear as to whether *judets* or local budgets should fund secondary education (lyceums and gymnasiums),[37] and health spending (medical centers and local clinics).[38] Cofinancing may be envisaged in these areas as long as institutional arrangements and norms are in place and a suitable cofinancing formula is defined.

Second, the new revenue-sharing system is based on actual revenues to define the shortfall to be transferred to subnational governments, rather than indicators of fiscal capacity.[39] In this case, the system may create an incentive for revenue-rich units to hide sharable revenues.[40] It may also discourage tax effort, as low-effort jurisdictions may free ride on the sharable resources mobilized by high-effort subnational governments.

In addition to advances in the area of revenue sharing, the new system improves upon the current system in two main areas. First, the new legislation contains important provisions to limit subnational budget imbalances.[41] A balanced budget constraint was introduced according to which local legislatures are required to approve balanced budgets. This is expected to impose a hard budget constraint on subnational governments. The new legislation allows for longer-term borrowing by subnational governments to finance capital outlays. It also imposes a limit on short-term borrowing based on revenue performance: short-term borrowing is limited to 5 percent of expected revenues, and total borrowing to 20 percent of expected revenues. The legislation also bans State budget guarantees on

[36] In this case, externalities in the provision of public goods and services would require cofinancing by the jurisdictions benefiting from the public investment.

[37] Typically, these institutions draw students from a wider area covering more than one municipality/commune and should therefore be funded by the regional government.

[38] See Republic of Moldova (1999).

[39] The main indicators of fiscal capacity are per capita income, or average wage, of different subnational jurisdictions; the breadth of local tax bases; provision costs; and sources of nontax revenues (natural resource endowments, for instance).

[40] The use of extrabudgetary funds is encouraged in this case as a means to conceal sharable resources from the budget.

[41] See Republic of Moldova (1999).

subnational debt issuance. This is expected to reduce the scope for central government bailouts of profligate subnational governments.

The new legislation also improves upon the current system in the area of budget execution. Subnational budget execution is required in conformity with the State budget law. The consolidation of public sector accounts is expected to be improved owing to more frequent reporting of subnational fiscal positions, and more stringent financial control of subnational budgets. More adequate and timely information is expected to be available on spending plans, revenue projections, and borrowing requirements for each tier of government. Expenditure management is likely to be improved due to the extension of the treasury system to local governments. In 1998, the treasury system was extended to the regional governments and is due to be extended further to local governments. More effective cash management is expected to follow from the increase in the coverage of the treasury system.

VI. Conclusions

A number of transition economies have gone a long way in fiscal decentralization, by raising subnational spending ratios substantially, devolving revenue sources and expenditure functions to subnational jurisdictions, and granting significant autonomy in policymaking at the subnational level. To shed more light on this phenomenon, this paper has examined the relationship between decentralization and government size in Moldova. Two hypotheses have been tested: the Wallis Hypothesis that decentralization increases subnational government size, and the Brennan/Buchanan Collusion Hypothesis that subnational government's try to circumvent the competition brought about by decentralization.

Despite data inadequacies and limitations, the results reported here suggest that decentralization is associated with higher levels of subnational spending in Moldova. Tax policy autonomy is limited in Moldova, since subnational governments are not free to set tax rates and therefore do not face strong tax competition. In this case, the Collusion Hypothesis put forward by Brennan and Buchanan (1980) is rejected, and the revenue-sharing system in Moldova is shown to constrain subnational spending. Also, by examining the fiscal federalism determinants of government size, this paper contributes to the current policy debate and efforts made by a number of transition economies toward reducing the scale and scope of government.

Moldova is currently reforming its system of intergovernmental fiscal relations and consolidating local government. Against this background, the paper has also examined the main changes in the new system, implemented in July 1999. By tackling the main problems highlighted in Section II on Moldova's system of inter-governmental fiscal relations, the current reforms are crucial to build a leaner, more efficient government. This is a pre-requisite for deepening and consolidating structural reforms, strengthening sound policies, and achieving macroeconomic stability and self-sustained, high-quality growth.

The key policy implications of the empirical findings reported above can be summarized as follows.[42] First, subnational governments should be granted autonomy to set their own tax rates. The definition of local tax revenue sources and autonomy to set local tax rates create incentives for subnational units to utilize their tax bases fully.[43] In the case of Moldova, this is conditional on the Parliament's passing the legislation on land, property, and real estate taxes, and its subsequent implementation; and its privatization of rural properties, particularly collective farms; the creation of rural property cadastres; and the proper valuation of rural properties. Second, the devolution of expenditure functions to subnational governments should be matched by sensible reassignment of revenue sources across government levels, without depriving the center of revenue sources and the tax instruments which it is best equipped to use more efficiently. Third, intergovernmental transfer systems should be designed to encourage revenue mobilization at the local level. Finally, subnational governments should be granted autonomy to set tax rates and strengthen accountability in service delivery. The system of intergovernmental fiscal relations should be based on nondistortionary, nonnegotiable parameters and aimed at effective equalization of expenditure needs and revenue-mobilization capacity.

[42] See Tanzi (1995; 1999).

[43] In principle, local tax bases should be narrow to avoid tax exportation and to allow the State budget to reap the benefits of economies of scale and externalities in the provision of public goods and services.

Appendix Table 4: Variable Definitions

Variable	Definition
Government Size	Rayons' net expenditures (total expenditures minus grants and transfers) per capita.
Decentralization Indicators	
Relative size	Share of rayons' total expenditures in total government spending.
Tax autonomy	Share of rayons' tax revenues in total revenues.
Nontax autonomy	Share of rayons' nontax revenues in total revenues.
Fragmentation ratio	Number of local jurisdictions (cities and communes) in each rayon.
Collusion	Vertical imbalance: share of transfers and grants from the State budget in rayons' total revenues.
Population	Rayons' resident population.
Urbanization	Rayons' share of urban population in total resident population.
Income	Average nominal wage in rayon.
Schooling	Secondary school attainment.

Appendix Table 5: Descriptive Statistics, 1998 1/

	Mean	Standard Deviation	Minimum	Maximum
Relative size (in percent)	0.8	1.6	0.1	10.
Collusion (in percent)	52.8	9.7	16.8	72.2
Government size (in current Mdl)	109.0	64.7	31.2	440.2
Tax autonomy (in percent)	38.4	8.3	20.6	63.3
Nontax autonomy (in percent)	7.9	2.2	4.9	15.3
Population	98,324	111,321	31,898	743,569
Urbanization (in percent)	29.3	19.8	8.3	97.9
Income (in current Mdl)	152.6	37.8	98.8	291.4
Fragmentation ratio	22.9	7.2	1.0	36.0
Schooling	52.5	26.8	11.0	100.0

1/ Unweighted averages. The sample size is 38.

Appendix Table 6: New Revenue-Sharing System, 1999 1/
(In per capita terms, unless otherwise indicated)

Subnational Governments	Expenditure Norms 2/	Revenues 2/	Revenue Gap 3/	Cost to the Budget 4/ (in thousands of lei)
Balti	201	181	20	10,474
Cahul	211	152	59	14,904
Chisinau	209	123	86	33,233
Edinet	183	188	-5	-1,660
Lapusna	217	117	100	29,701
Orhei	205	137	67	20,419
Soroca	190	162	29	9,143
Tighina	206	140	67	13,558
Ungheni	209	121	88	26,503
Average (*judets*) 5/	203	149	54	17,364
UTA Gagauzia	212	145	67	11,726
Mun. Chisinau	214	390	-176	-138,768
Average 5/	206	198	8	29,234

Sources: Ministry of Finance; and IMF staff calculations.

1/ Under the Law on the Administrative-Territorial Reform and the Law on Local Public Finances.
2/ 1999 estimates.
3/ Expenditures minus revenues (net of transfers).
4/ Revenue gap times population.
5/ Weighted average.

Appendix Table 7. Subnational Government Expenditure Estimates by Category, 1999
(In thousands of lei)

Subnational Governments	Agriculture	Road Maintenance	Social Spending				Other	Total
			Education	Culture	Health	Social assistance		
Balti	796	5,600	55,526	1,337	34,349	1,414	6,412	105,435
Cahul	386		32,028	648	16,716	688	3,108	53,574
Chisinau	591		49,588	991	24,172	1,053	4,755	81,149
Edinet	497		31,024	829	22,332	877	3,977	59,536
Lapusna	452		40,656	758	18,124	805	3,636	64,430
Orhei	460		36,696	772	19,462	820	3,703	61,913
Soroca	485		33,219	814	21,433	864	3,902	60,717
Tighina	310		24,902	520	13,229	552	2,495	42,008
Ungheni	458		37,439	769	19,774	817	3,688	62,945
Total (*judets*)	4,434	5,600	341,078	7,438	189,591	7,890	35,675	591,706
UTA Gagauzia	266		22,869	447	10,822	470	2,142	37,016
Mun. Chisinau	1,200	13,100	93,453	2,015	47,287	2,140	9,683	168,878
Total	5,900	18,700	457,400	9,900	247,700	10,500	47,500	797,600

Sources: Ministry of Finance; and IMF staff calculations.

Appendix Table 8. Subnational Government Revenue Estimates, 1999
(In thousands of lei)

Subnational Governments	Own Revenues	Corporate Income Tax 1/	VAT 2/	Total	Local Taxes 3/	Transfers 4/
Balti	63,875	15,084	16,001	94,960	6,055	-10,474
Cahul	31,537	3,725	3,407	38,669	1,608	-14,904
Chisinau	35,358	6,565	5,993	47,916	2,097	-33,233
Edinet	45,722	6,146	9,328	61,196	2,686	1,660
Lapusna	30,417	2,403	1,909	34,729	2,435	-29,701
Orhei	31,039	5,319	5,136	41,494	1,465	-20,419
Soroca	41,568	4,302	5,703	51,573	2,064	-9,143
Tighina	23,536	2,554	2,360	28,450	966	-13,558
Ungheni	27,100	4,343	4,999	36,442	1,358	-26,503
Total (*judets*)	330,153	50,442	54,836	435,430	20,733	-156,276
UTA Gagauzia	19,007	3,083	3,200	25,290	1,410	-11,726
Mun. Chisinau	199,854	63,132	44,660	307,646	21,682	138,768
Total	549,014	116,657	102,696	768,366	43,825	-29,234

Sources: Ministry of Finance; and IMF staff calculations.

1/ Calculated as 70 percent of total collection in each jurisdiction.
2/ Calculated as 20 percent of total collection in each jurisdiction.
3/ Includes local nontax revenues (user charges, fees, etc.)
4/ A negative sign indicates a net receipt of transfers.

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