UNMASKING INTER-REGIONAL TRANSFERS IN THE 1999 BUDGET THROUGH FORMULA FINANCING

In 1997, and even more in 1998, Ukraine abandoned the traditional technique of tax sharing to fund oblast budgets and achieved a clear separation of revenue sources between central and subnational budgets. Income taxes were assigned exclusively to finance subnational budgets and the VAT became solely a central government revenue instrument. Excise taxes, partially shared in 1997, also were devoted entirely to the central budget in 1998. The 1999 budget reintroduced tax sharing of both income and excise taxes and marked a reversion to the traditional method of funding regional budgets. This article demonstrates that, when you cut through the fiscal smokescreen thrown up by tax sharing, the outcome in the 1999 budget is not significantly different from what would have occurred if the revenue separation arrangements had been preserved and a formula had been used to channel transfers from richer to poorer oblasts. Despite appearances to the contrary, the aggregate resource transfer to local governments is about the same as would have taken place under the system of separate revenue sources and no tax sharing. Moreover, a simple formula, if it accepts the regional pattern of per capita expenditure differentials found in the 1999 budget, can transparently replicate the bewildering array of inter-regional transfers that are a hallmark of the 1999 budget. At the same time, however, the regional expenditure differentials contained in the 1999 budget do not seem, for the most part, to accurately mirror objective measures of regional differences in expenditure needs and the availability of social assets.

This article begins by setting out and discussing a generic formula for determining the size and direction of inter-regional transfers. Subsequent sections indicate how the formula can be adapted to take into account regional differences in expenditure needs and costs and regional inequality in the distribution of social assets, or the provision of public services by State-owned enterprises. A final section shows how such a modified formula, one that eschews tax sharing and transfers resources directly from richer to poorer oblasts, provides an alternative approach to achieving the results of the 1999 budget .

I. THE ESSENTIAL ELEMENTS OF A FORMULA APPROACH

Although different countries have adopted slightly different formulas to distribute unconditional transfers to subcentral governments, the formula in almost every case is guided by the principle that the size of the transfer should depend on the difference between a region's expenditure needs and its revenue means. Countries differ primarily in their interpretation and measurement of "needs" and, to a lesser extent, "means". A general formula that embodies this concept has, in a Ukrainian context, the following form:

$G_i = a(E/P – R/P \times FCI_i) \times P_i$ where

G_i = positive or negative transfer received or paid by the ith oblast;

E/P = average per capita expenditure in all oblasts;

R/P = average per capita own revenues in all oblasts;

FCI_i = an index of the fiscal capacity of the ith oblast relative to average capacity;

P_i = population of the ith oblast;

a = the degree of fiscal equalization, $0<a<1$.

According to this formula, every oblast would either receive or make a transfer payment that would enable it to achieve the same level of per capita spending. These transfers would not guarantee a uniform level of per capita spending but they would exert strong pressures in that direction and go some distance towards satisfying the fiscal equity objective of providing every citizen with reasonably equal access to public services regardless of their place of residence.

One of the strengths of this particular formula is its simplicity and, therefore, transparency. Every oblast can easily comprehend how its transfer entitlement or obligation is determined. Simplicity, however, may be bought at some cost of failing to recognize legitimate differences in either regional needs or costs. Only a regionally differentiated expenditure standard could account for these differences but there is a danger that efforts to incorporate these differences into the formula would inevitably generate controversy over how these differences are to be measured, leading to the type of bargained settlement the formula is intended to avoid. This important issue is considered in greater detail below.

A further strength of the formula is that it divorces the size of the transfer from the actual fiscal behavior of every oblast. Expenditure needs are not measured by actual expenditures. Nor are revenue means measured by actual revenues. All of the factors that enter into the calculation of the formula are beyond the fiscal influence of an individual oblast so that no oblast can materially affect the size of its transfer entitlement or obligation by altering its own expenditure level or revenue effort.

Average per capita spending is the expenditure standard in the formula to which transfers are geared. An oblast would receive a transfer payment if its per capita revenue potential, measured as the product of its fiscal capacity index and average per capita own revenues, were less than this expenditure standard. Conversely, an oblast would make a transfer payment if its revenue potential exceeded this expenditure standard. After these transfers have occurred, every oblast would enjoy sufficient revenues to allow it to achieve the expenditure standard.

The difference between average per capita expenditures and average per capita own revenues, when multiplied by total population, provides a measure of the difference between the total expenditure needs and the total revenue means of subnational

governments, or the size of the vertical fiscal imbalance imbedded in the formula[1]. If this difference is positive, a net transfer is required from the central government in order to eliminate this imbalance and provide subnational governments with sufficient funding to meet their expenditure needs.

The parameter "a" is a scaling factor which determines the standard of fiscal equalization. If the value of this parameter is set at less than one, the formula provides for only partial equalization and only a fraction of the fiscal gaps in each oblast will be eliminated by the transfer program. A value for this parameter of one, on the other hand, indicates that the transfer program will provide for perfect equalization and completely compensate for the fiscal gaps in every oblast. Both financial considerations and policy preferences might argue for selecting a value of less than one. Partial equalization is less expensive than complete than full equalization and may be preferred on this ground alone by the central government footing the transfer bill. Alternatively, a country may choose to foster regional economic growth poles and allow richer or faster growing regions to finance a more generous package of fiscal benefits than in poorer regions.

Because the formula is open-ended and requires transfers to be made from rich regions and to poor regions, it might appear that rich regions would have a disincentive to develop their tax bases. This concern is misplaced. Even if the standard of equalization is set at one, regions which would make transfer contributions under the formula would still retain an incentive to promote their economic growth and augment their tax bases. This is because the index of fiscal capacity would be fixed for a considerable length of time so that, at the margin, additional revenue resulting from an increase in fiscal capacity would accrue almost entirely to the region where the increase occurred.

Transfer recipients have no obligation to spend the funds they receive in any particular fashion. That is, the subventions determined by the use of the formula are unconditional and may be used in any way the recipient sees fit. However, if targeted or conditional grants are made at the same time by the central government, the formula must be modified to reflect their presence. These grants must be spent in the manner specified by the grantor and, accordingly, reduce the expenditure needs of the recipient by the amount of the targeted grant. In the formula, average per capita expenditure needs would therefore decline by the per capita amount of the targeted grants so that the total value of the financial assistance provided by the central government would remain at the same level. In other words, the provision of targeted grants reduces the need for unconditional financial support delivered through a formula on a dollar for dollar basis.

[1] That is, if the positive and negative transfers are summed over all oblasts in the transfer formula, the result of this summation is the difference between total expenditure needs and total revenue means, or the size of the vertical fiscal imbalance.

II. ADJUSTING THE EXPENDITURE STANDARD FOR DIFFERENT NEEDS

In principle, a formula should reflect significant differences among regions in their relative needs for public expenditure and in their cost structures for delivering public services. Needs and costs may vary among regions because of inter-regional differences in the demographic composition of the population and the degree of industrialization, or alternatively, the proportion of the region's population living in rural areas and engaged in agrarian pursuits. Recognizing that such differences may exist raises two important questions. First, how important are these differences? Do they exercise much influence on the level of total spending per capita in a particular region? For example, a region may have higher than average per capita expenditures on education because of its rural orientation but that same characteristic may also cause it to have lower than average per capita expenditures in other spending areas.

Secondly, is it possible to measure these differences in a reliable manner? If these differences cannot be accurately determined, there is a risk that they will be incorporated into a formula in an arbitrary fashion and, far from improving the performance of the formula, will instead distort and discredit its use. Moreover, there is a further danger that, even if cost differences can be reliably calculated, some of them will enter the formula inappropriately. That is, only unavoidable cost differences properly belong in the formula and those that reflect conscious policy choices should be excluded. For example, if a region chooses to pay its teachers a higher than average salary, it should not be rewarded for that decision by a higher formula based transfer. On the other hand, if that same region had higher than average heating costs because of its geographic location, the formula should recognize this difference and provide for a higher transfer payment. It therefore becomes necessary to gain an understanding of why costs vary across region as well as whether such costs vary.

To provide a preliminary answer to the first question, it is possible to disaggregate total spending by major functional categories and determine the pattern of expenditure differentials between a pure rural and a pure urban oblast. From observed expenditure differentials within an oblast, it may be inferred that either expenditure needs, costs of service provision, or both, vary across expenditure units. That is, this measurement of expenditure differentials commingles geographic differences in needs and costs and does not identify the source of these differentials. However, the inability to distinguish between differences in needs and costs is, for our purposes, unimportant since either kind of difference should be reflected in the calculation of a formula based expenditure standard. Expenditure differentials could also be measured across oblasts but these comparisons are more susceptible to contamination from differences in revenue availability that may be unrelated to genuine differences in either needs or costs.

An examination of functional expenditure differentials within four oblasts for which data are available suggests that there are important differences between rural and urban areas. Per capita education expenditures appear to be about 20 per cent higher than

average in rural jurisdictions and, conversely, about 20 per cent below average in urban jurisdictions. However, other kinds of expenditure differentials go in the other direction. In urban areas per capita spending on health and social protection are, respectively, about 10 and 25 per cent higher than average while, in rural areas, they are about 10 and 25 per cent, respectively, below average.

The most direct interpretation of these differences is that, in the case of education, the per capita cost of education is relatively higher in the more thinly populated countryside than in the city. In the case of health, per capita costs may be higher in the city because it offers a more sophisticated bundle of services and also caters to some of the needs of rural residents. Subsidies for communal services, the largest component of social protection spending, are also higher in the city than in the countryside where, for cost reasons, these services are available, if at all, only on a much smaller scale.

While the proportion of total expenditure devoted to education, health and social protection varies somewhat from oblast to oblast, on average oblasts direct about a quarter of their budgets to each of these areas. If it is assumed that other types of spending do not vary between rural and urban oblasts on a per capita basis, these expenditure shares can be used to construct a weighted average of the observed expenditure differentials and obtain an impression of how average total costs are likely to differ between purely rural and purely urban oblasts. This comparison is shown below in Table I.

Table I

A COMPARISON OF RURAL AND URBAN SERVICE COSTS

Type of Oblast	**Expenditure Differentials (relative to the average)**				**Average Per Capita Cost Differential**
	Education	**Health**	**Social Protection**	**Other**	
Rural Oblast	1.2	0.9	0.75	1	0.96
Urban Oblast	0.8	1.1	1.25	1	1.04

The conclusion that emerges from Table I is that, while rural and urban oblasts have different cost structures for different functions, by and large these differentials tend to be offsetting in their impact on average total costs per capita. Moreover, it is misleading to focus on only one or a few of these expenditure differentials and infer anything useful about the overall expenditure needs of a particular oblast. While differences in average total costs between urban and rural oblasts can be detected, these differences appear to be relatively small. Urbanized oblasts have only slightly higher cost levels, relative to the average, than rural oblasts.

A more refined index of relative expenditure needs in each oblast can be constructed along the following lines. Each oblast can be considered as a collection of

cities and rural rayons. For reasons already mentioned, per capita expenditures in cities are assumed to exceed those in rural rayons by a constant percentage. An index, I_i, of each oblast's expenditure needs relative to the average for all oblasts can be defined as:

$$I_i = C(P_c/P)_i + R(P_r/P)_i / C(P_c/P)_{uk} + R(P_r/P)_{uk} \text{ where}$$

C = average per capita total expenditures in cities;

R = average per capita total expenditures in rural rayons;

P_c/P = proportion of the population (P) living in cities where the subscripts "i" and "uk" refer, respectively, to a particular oblast and Ukraine as a whole;

P_r/P = proportion of the population (P) living in rural rayons where the subscripts "i" and "uk" refer, respectively, to a particular oblast and Ukraine as a whole.

This index asserts that, if an oblast has an urban population higher than the average for the entire country, it will also have per capita expenditure needs that exceed those for the country as a whole. Conversely, if an oblast has an urban population less than the average, it will also have less than average per capita expenditure needs. Making use of the identity $P = P_c + P_r$, and assuming that the percentage by which C exceeds R is the constant fraction "v", it is possible to simplify the index and express it in the following form:

$$I_i = 1 + v(P_c/P)_i / 1 + v(P_c/P)_{uk}$$

Based upon an examination of expenditure data in four oblasts for which urban and rural total expenditure is available on a per capita basis, an appropriate value for the urban-rural expenditure ratio labeled as "v" is about .4. Using this value for "v" and data on the percentage of the urban population in each oblast, a regionally differentiated expenditure standard can be derived, as shown in the first column of Table II.

As can be seen from Table II, such a regionally differentiated expenditure standard does not depart markedly from a uniform expenditure standard. On a per capita basis, the effect of using this index is to establish a slightly lower expenditure standard for rural oblasts and a slightly higher standard for the more urbanized oblasts. The range established for the index is relatively narrow, varying between 91 per cent of the national average per capita spending in the most rural oblast, Zakarpattia, to 110 per cent in the city oblast of Kiev.

Admittedly, the index is somewhat crude because it implicitly assumes that all cities, no matter what their size, have the same level of per capita spending, and that all rural rayons, regardless of their size or nature, also have identical per capita expenditure levels. This limitation of the index is not so much an inherent flaw in the index itself as it is a limitation of the available data. In particular, it seems likely that the city oblasts of Kiev and Sevastopol have expenditure needs that are somewhat underestimated by the index because these cities export a large than average fraction of their expenditure

benefits to non-residents. These cities may deserve to be treated as special cases and more information is needed on the types and beneficiaries of their expenditures to estimate a more accurate adjustment coefficient.

III. ADJUSTING THE EXPENDITURE STANDARD FOR REGIONAL INEQUALITY IN SOCIAL ASSETS

One of the legacies of the Soviet system is the continued operation of State-owned enterprises which provide public services in the form of education, health care and housing that are close, if not superior, substitutes for the public services provided by local governments. In the Soviet era, the so-called social assets of these enterprises were used to recruit and retain workers. As privatization proceeds, the significance of these assets is declining but, with the relatively slow pace of privatization in Ukraine, they remain an important alternative source of supply for public services. In 1997, for example, expenditures emanating from social assets accounted for nearly 3.5 per cent of GDP and, on a per capita basis, were nearly 25 per cent of the average per capita expenditures undertaken by all local governments.

In Ukraine, all oblasts have social assets but some have much more than others and the distribution of social asset spending on a per capita basis is highly unequal. As a result, ignoring social assets in the construction and application of a formula could create prominent regional disparities in the totality of public services offered by both enterprises and local governments. Certainly, the adoption of a uniform expenditure standard would favor regions with a large endowment of social assets and work to the relative disadvantage of other regions with a smaller endowment. In the presence of social assets, the goal of an equalization program should be to design a transfer system that would compensate for regional inequalities in the provision of services from social assets as well as inequalities arising from different sized tax bases across regions.

A few simple equations can be used to illustrate how the expenditure standard needs to be modified to ensure equal access to the total supply of public services no matter what their source. Let E*/P and S*/P denote, respectively, average per capita local government spending and average per capita spending attributable to social assets. The sum of these two items represents the average per capita total supply of public services and becomes the modified expenditure equalization target when social assets are recognized as alternative sources of service provision. That is, every oblast should have a unique per capita expenditure standard, E_i/P_i, that, when combined with its amount of per capita social asset spending, allows it to reach this expenditure target:

$$E_i/P_i + S_i/P_i = E^*/P + S^*/P$$

Under this formulation of the expenditure standard, every dollar increase in per capita social asset expenditure is matched by a dollar's reduction in the expenditure needs to be met from local budgets. The previous equation can be rearranged to indicate the expenditure equalization in a more direct fashion:

$$E_i/P_i = E^*/P + (S^*/P - S_i/P_i)$$

In this revised format, it can be easily seen that, if an oblast's per capita spending from social assets is equal to the national per capita average, its expenditure standard is unaffected and remains equal to the national average of per capita spending by local governments. However, if per capita social asset spending is less than the national average, the oblast has a relative deficiency of social assets which is compensated by a correspondingly higher expenditure standard. Conversely, if per capita social asset spending exceeds the national average, the oblast has a relative surplus of social assets and has its expenditure standard correspondingly reduced.

This treatment of the compensatory adjustments in the expenditure standard to account for social asset inequality has implicitly assumed that complete equalization of this inequality is desired. If less than perfect equalization of these differences is desired instead, the last equation must be amended to have the following configuration:

$$E_i/P_i = E^*/P + a(S^*/P - S_i/P_i) \text{ where}$$

"a", as before, is the standard of equalization and varies in value between zero and one.

The first column of Table III shows the wide disparity in per capita social asset spending among the oblasts. Data for the city of Sevastopol are not available. The second column of that table indicates the size of the inter-oblast deviations from the average amount of per capita social asset spending and makes it clear that social assets are heavily concentrated in the industrialized oblasts of Dnipropetrovska, Donetska, Zaporizka, Luhanska, and Kharkivska. All of the latter oblasts have a relative surplus of social assets. Other oblasts have a relative deficiency of social assets. In the third column of Table III, the deviation of each oblast from the average is expressed as a percentage of the average amount of local government expenditure in 1997 in order to obtain estimates of the adjustments to a uniform expenditure standard that are required to account for the uneven regional availability of social assets. In general, the adjustments are large and larger than those that appear to have been used in the preparation of the 1999 budget. If the 1999 budget is used as a benchmark, only about one-half of the adjustment seems to have influenced the determination of the per capita expenditure differentials outlined in the budget. For example, the oblast of Donetska does not show per capita expenditures thirty per cent below the average in the 1999 budget but rather an adjustment that is closer to fifteen per cent. Based on this observation, and others of a similar nature, the 1999 budget appears to have adopted a standard of equalization for social assets of about fifty per cent.

IV. COMBINING THE EFFECTS OF UNEQUAL SOCIAL ASSETS AND NEEDS

The index of differential oblast expenditure needs is given in the first column of Table II. When this index is adjusted to equalize access to spending from social assets,

assuming a fifty per cent equalization standard for social assets, the result is as shown in the second column of Table II. Because spending from social assets is concentrated in the more urbanized and industrialized oblasts which have relatively higher expenditure needs, the adjustment for social assets by and large offsets the expenditure differentiation indicated by the needs index and results in a more equal measure of the expenditure standard across oblasts. Relative to average per capita spending, the adjusted expenditure standard varies between 92 per cent of this average in Donetska and Kharkivska and 111 per cent of this average in the city of Kiev.

How does the pattern of regional expenditure differentials emerging from this calculus compare with the regional expenditure disparities contained in the 1999 budget? Regional dispersion in per capita spending in the 1999 budget is presented in the third column of Table II. On the whole, there is no wide discrepancy between the regional expenditure pattern contained in the budget and that suggested by the adjusted needs index. Buy neither is there a tight correlation and some prominent anomalies remain. Why, for instance, is relative spending in the Kyivska oblast so high in the budget? Why is relative spending in the Odeska oblast so low? In what important respect does Zhitomyr differ from Volynska? Both have nearly the same degree of rural population and overall density of population. In what way does Zaporizka differ from either Donetska or Kharkivska? All three oblasts share a similar intensity of spending from social assets.

No attempt is made to answer these questions here. Rather, the focus in the remainder of this article is on the following question. Could a formula based approach to determining inter-oblast transfers have produced results which closely replicated the results of the 1999 budget? This question is posed within the framework of three assumptions about the nature of the formula approach:

- the revenue separation arrangements of 1998 remained in place in 1999;
- the expenditure standard was measured by the 1999 budget differentials displayed in Table II;
- a system of horizontal, or direct transfers, is used to channel resources from rich to poor oblasts.

Since a horizontal transfer mechanism has been chosen as the delivery vehicle for the formula approach, its advantages and application are discussed next.

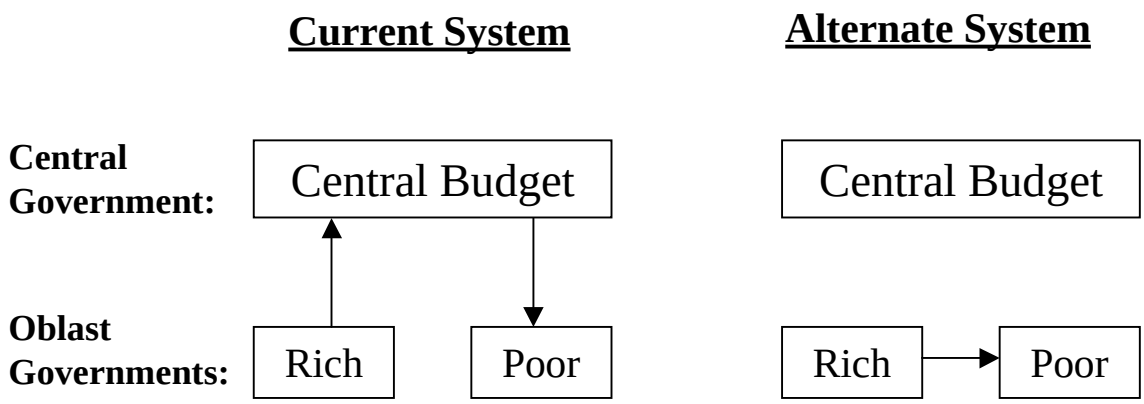
V. AN ALTERNATIVE FORMULA APPROACH: INDEPENDENT SUBNATIONAL BUDGETS

Currently subnational governments feel that their budgets are held hostage to the central budget. Oblasts never know for sure how much they will either receive or have to pay from one year to the next and, as in 1998, can never rest assured that the commitments made in the annual State budget will be honored. The climate of budgetary

uncertainty that is created invites poor budgetary planning and stimulates budgetary arrears. What if, instead, the State budget and subnational budgets were completely delinked? In lieu of transfers going up to the State budget and then back down to oblast budgets in an extremely haphazard fashion, transfers could alternatively flow exclusively among oblast budgets using a formula to achieve a reasonable level of fiscal equalization.

The figure below illustrates how this process would work. Presently, a system of vertical fiscal linkages extracts contributions from rich oblasts and delivers a set of subventions to poorer oblasts. Experience in Ukraine has overwhelmingly demonstrated that these vertical fiscal connections are inimical to a stable system of intergovernmental transfer payments. A more promising approach to providing stable funding for subnational governments may lie in severing completely these vertical linkages and replacing them with a system of horizontal payments between rich and poor oblasts. In providing a well defined source of payments for subventions, this proposal builds on, and is a logical extension of, the 1998 reforms which created separate revenue sources for subnational governments.

Figure 1: Current and Proposed Transfer Systems



The proposal to make the central and subnational budgets independent has several advantages over the current system. First, it would represent important progress towards realizing the goal of fiscal decentralization, a goal that until now has been severely compromised by the revenue entanglement of central and subnational budgets. Subnational governments would no longer receive net transfers from the State budget but they would have unimpeded access to the revenue sources that have been assigned to them. Subnational governments would no longer have to fear that the revenue sources granted to them in 1997 might subsequently be poached upon, as the 1999 budget, discussed below, has done. In short, budgetary independence would smash the traditional budgetary "matroshka" that impedes the effective preparation of subnational budgets until the central budget has received Parliamentary approval. Secondly, if the source of financing oblast transfers were derived entirely from the exclusive revenue sources of oblast governments, the transparency of the transfer process would immeasurably enhanced, particularly when compared to the reversion to tax sharing found in the 1999

budget In short, the goals of achieving more stable and transparent funding levels of subnational governments would be more readily accomplished by a system of direct, horizontal transfers among the oblasts than by a terribly convoluted system of indirect transfers requiring the messy interaction of central and subnational budgets.

Moreover, if, along the lines discussed below, a formula were used to calculate transfer entitlements and obligations, every oblast would have a much more reliable basis for forecasting its total revenue which would enable it to formulate its budget on a more realistic basis. More reliable revenue forecasts, and consequently more realistic budgets, would, in turn, promote greater expenditure efficiency and discourage the growth of expenditure arrears.

There would still be a residual role for the central government to play in establishing the institutional arrangements for an inter-oblast equalization fund and in setting national standards for some important subnational expenditures but the central government would no longer act as the marginal source of funding , or extraction, for subnational governments.

The fundamental reason that a system of direct, horizontal transfers could have been a viable and attractive alternative to the 1999 budget is that the combination of tax sharing and central transfers to oblasts in that budget yields approximately the same level of total funding for subnational governments as would a system of separate revenue sources, i.e., no tax sharing, and inter-oblast transfers. Thus the total resources under the command of local governments are the same in either case. These alternatives differ only in their choice of how they would redistribute this total among the oblasts.

A glance at the 1999 budget in Table IV confirms these assertions. Total expenditures of local governments in the 1999 budget are 12,783 million UAH, or 254.5 UAH per capita. This amount would be redistributed among different oblasts by a selective reclaiming, through variable tax sharing rates, of income tax revenue worth 2,401 million UAH, the sharing of excise tax revenue worth 598 million UAH, and the payment of net transfers to the oblasts worth 1,703 million UAH. On the other hand, if there were no transfers, either positive or negative, between central and subnational budgets and the 1998 revenue assignments were in place, i.e., no tax sharing, subnational total revenue and expenditure would have been 12,924 million UAH, or 257 UAH per capita. Moreover, a formula could have been used to redistribute this aggregate amount among the oblasts in a manner that would closely mimic the allocative pattern of the 1999 budget.

Consider, first, the highly nontransparent fashion in which the 1999 budget redistributed resources among the various oblasts. A number of oblasts made an implicit transfer to the State budget in the form shared income taxes and received an implicit transfer in the guise of shared excise taxes. In addition, all oblasts, save the city of Kiev, received an explicit transfer in the form of a subvention and every oblast enjoyed a targeted educational grant. The city of Kiev made an explicit contribution to the State budget and the oblast of Zakarpattia received a special targeted grant. The sum of all of

these implicit and explicit transfers measures the magnitude of the total net transfer between the State and oblast budgets. As shown in Table V, eight donor oblasts made a net contribution to the State budget, losing more in shared income taxes than they gained in shared excises, subventions and targeted grants. Nineteen recipient oblasts received a positive net transfer from the State budget through a combination of shared excises, targeted grants and subventions.

Consider next the nature of the formula that, in the absence of tax sharing of any kind, is capable of closely replicating the pattern of inter-oblast transfers found in the 1999 budget. The formula adopts the expenditure standard for each oblast contained in the 1999 budget and outlined in Table II Conceptually, the formula would prescribe a pattern of positive and negative oblast transfers that would enable each oblast to achieve its regionally differentiated expenditure standard. In more concrete terms, the formula would have the following contours:

$$G_i = (257xI_i - 257xFCI_i) \times P_i,$$

where all symbols are defined as before. In implementing this formula, the fiscal capacity index is calculated on the basis of the total revenue forecasts for each oblast in the 1999 budget. Excise taxes were ignored in making this calculation because of the assumption that they are a revenue source for only the central government in this counterfactual experiment.

Table VI compares the size of the inter-regional transfers found in the 1999 budget with those that would have resulted from the use of the simple formula described above. The first two columns show the effective, or de facto, contributions and subventions for each oblast that are featured in the 1999 budget and calculated in Table V. The next two columns indicate the contributions and subventions associated with the use of a formula based transfer system that would route these financial flows directly from the richer to the poorer oblasts. As can be seen from Table VI, although the formula cannot exactly duplicate the pattern of inter-oblast transfers in the 1999 budget, it comes very close in almost every instance. The deviation of the formula result from the budget outcome is less than ten per cent in every oblast except Kyivska. Kyivska oblast appears to be an outlier because of the unusually large road duties that are projected for it and which seem to exaggerate its index of fiscal capacity. Nonetheless, the important conclusion to be drawn from Table VI is that a transparent, formula driven transfer system is a viable alternative to an opaque system of tax sharing and offers an opportunity to disentangle subnational and State budgets in a way that would promote far greater revenue stability for subnational governments.

Several features of this alternative transfer scheme deserve further comment. First, it reflects the particular configuration of revenue and expenditure assignments that were in effect for 1998. If these assignments were revised, the elements of the formula, and possibly its structure as well, would have to be modified accordingly. Secondly, the system of inter-oblast transfers requires a collection and disbursement mechanism to channel funds from rich to poor oblasts. Some form of revenue sharing could be used to

extract funds from contributor oblasts. For example, the collection of transfers could be arranged so that each contributor oblast pays a fraction of its income tax receipts into a special depository account with that fraction determined as the ratio of contributions to expected income tax collections. Either a special department in the Ministry of Finance or a quasi-independent grants commission could be given the responsibility of distributing the collected transfers to the subvention oblasts in a timely fashion. This department or commission would also have the responsibility for monitoring the execution of the formula and for suggesting any changes that might be made to it in the future.