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Public Services and Expenditure Need Equalization

Reflections on Principles and Worldwide Comparative Practices

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Abstract

This paper reviews the conceptual challenges as well as lessons from worldwide experiences in implementing public services and expenditure need compensation in fiscal equalization transfers with a view to developing guidance for practitioners.

The paper concludes that while in theory a strong case for a comprehensive fiscal equalization can be made, in practice fiscal need equalization as part of a comprehensive equalization program introduces significant complexity. This works against the simplicity, transparency and general acceptability of the program. This does not imply that fiscal need equalization should be abandoned in the interest of simplicity and transparency. Instead simplicity, transparency and local autonomy are preserved by having fiscal need equalization through public service oriented (specific purpose block transfers) output based fiscal transfers that impose no spending requirements for any functions or objects of expenditures. Such transfers contrast with traditional earmarked transfers, which impose conditions on spending for specific purposes or objects of expenditure and subsequent verification/certification of such expenditures. Such output-based block transfers would further enhance citizen based accountability for results and thereby offer potential for enhancing public confidence and trust in government operations.

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1. Introduction

Fiscal equalization transfers are conceptually justified on fiscal efficiency and regional fiscal equity grounds. Political imperatives to have a shared sense of political and economic union, paves the way for instituting such transfers in most large especially federal countries. There is also a common consensus that conceptually such transfers should equalize to a specified standard both the fiscal capacities and fiscal needs. In practice, implementing such a comprehensive system of equalization transfers represents a difficult challenge especially the difficulties posed by the objective measurement of expenditure needs. This paper reviews the conceptual challenges as well as lessons from worldwide experiences in implementing public services and expenditure need compensation in fiscal equalization transfers with a view to developing guidance for practitioners.

This paper concludes that while in theory a strong case for a comprehensive fiscal equalization can be made, in practice fiscal need equalization as part of a comprehensive equalization program introduces significant complexity which works against the simplicity, transparency and general acceptability of the program. This does not imply that fiscal need equalization should be abandoned in the interest of simplicity and transparency. Instead simplicity, transparency and local autonomy are preserved by having fiscal need equalization through public service oriented (specific purpose block transfers) output based fiscal transfers that impose no spending requirements for any functions or objects of expenditures. Such transfers contrast with traditional earmarked transfers, which impose conditions on spending for specific purpose or object of expenditure and subsequent verification/certification of such expenditures. Such output-based block transfers would further enhance citizens' based accountability for results and thereby offering potential for enhancing public confidence and trust in government operations.

The rest of the paper is organized as follows. Section 2 presents conceptual justification of equalization transfers. Section 3 discusses practical considerations in designing fiscal need equalization transfers. Section 4 provides a brief survey of international practices in fiscal needs equalization. Section 5 discusses practical difficulties in equalizing expenditure

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needs with special emphasis on the pioneering work done in Australia. Section 6 discusses output-based transfers as a simpler and better alternative to expenditure need equalization. A final section presents concluding remarks.

2. Bridging the Fiscal Divide through Fiscal Equalization Transfers – Conceptual Considerations

Fiscal equalization transfers are advocated to deal with fiscal inefficiency and fiscal inequity concerns arising from decentralized decision making (Boadway, 2007). These transfers are also justified on political considerations. Large regional fiscal disparities can be politically divisive and may even contribute to the threats of secession (Shankar and Shah 2003). This threat is quite real: since 1975 about 40 new countries have been created by the break-up of existing political unions. Fiscal equalization transfers could potentially forestall such threats and create a sense of political participation, as demonstrated by the impact of such transfers on the separatist movement in Quebec, Canada.

Decentralized decision making results in differential net fiscal benefits (imputed benefits from public spending minus tax burden) for citizens depending on the fiscal capacities of their place of residence. This leads to both fiscal inequity and fiscal inefficiency in resource allocation. Fiscal inequity arises as citizens with identical incomes are treated differently depending on their place of residence. Fiscal inefficiency in resource allocation results from people in their relocation decisions comparing gross income (private income plus net public sector benefits minus cost of moving) at new locations; economic efficiency considerations warrant comparing private income minus moving costs only without any regard to public sector benefits. A nation that values horizontal equity (the equal treatment of all citizens nationwide) and fiscal efficiency needs to correct the fiscal inequity and inefficiency that naturally arise in a decentralized government. Grants from the central government to states and/or local governments can eliminate these differences in net fiscal benefits if the transfers depend on the tax capacity of each state relative to others and on the relative need for and cost of providing public services. The more decentralized the tax system is, the greater the need for equalizing transfers. Boadway (2007) notes that differential net fiscal benefits may also arise in regional/local policy choices in response to local preferences. Such differentials, however, should not be considered for equalization purposes.

The elimination of net fiscal benefits requires a comprehensive fiscal equalization program that equalizes fiscal capacity (the ability to raise revenues from own bases using national average tax rates) to a national average standard and provides compensation for differential expenditure needs and costs due to inherent cost disabilities rather than differences that reflect different policies. Some economists argue that if public sector tax burdens and service benefits are fully capitalized in property values, the case for fiscal equalization transfers is weaker, as residents in rich states pay more for private services and less for public services and vice versa in poorer states. According to this view, as argued by Oates (1982), fiscal equalization is a matter of political taste. This view gained currency at the federal level in the United States and explains why there is no federal fiscal equalization

program there. In contrast, local fiscal equalization drives most state assistance to local governments in the USA, especially school finance. Conceptually, full capitalization requires a small open area with costless mobility. Most federations and even states in large countries do not fulfill this condition. As a result, criticism of fiscal equalization using the capitalization argument may have only weak empirical support (Shah, 1988a).

3. Designing Fiscal Need Equalization Transfers: Alternate Approaches

The case for fiscal equalization rests on eliminating different net fiscal benefits across states that give rise to fiscally induced migration. Such differential net fiscal benefits can arise as a result of decentralization of taxing authority and decentralized public expenditures. Differences in the demographic composition of the population across jurisdictions will result in differential needs for decentralized public services, such as education, health and social welfare. Differences in age distribution affect the need for schools, hospitals, and recreational facilities. Differences in the incidence of poverty and disease may affect the need for education, training, health, social services, and transfer payments. Jurisdictions with higher need factors would have greater need for revenues to provide comparable levels of public services at comparable levels of taxation. These need differentials are likely to cause substantial variations across jurisdictions in the level and mix of public goods provided, resulting in different net fiscal benefits A strong case for equalization can be established on grounds of efficiency and equity to compensate for need differentials that give rise to different net fiscal benefits.

The fiscal federalism literature treats differential costs as synonymous with differential needs, but some cost differences may arise from deliberate policy decisions by sub national governments rather than differences in need. Boadway (2004) argues that even for inherent cost disadvantages, such as differences between urban and rural areas, the equity advantage of more equal provision must be weighed against the efficiency costs. If it is more costly to deliver public services in rural areas than urban areas, it is inefficient for an equalization program to neutralize these cost differences. Even in unitary states, the level of public services in remote, rural, or mountainous areas is usually lower than in more densely populated urban areas. Under a decentralized fiscal system, a policy choice must be made about minimum standards, but there is no justification for providing the same level of services in remote and urban areas, as, for example, the Australian fiscal need equalization program does for its Northern Territories. Instead, as Boadway suggests, one could stratify locations in all regions by their costs and equalize across regions within comparable strata. Equalization grants should partially offset only inherent disabilities, disregarding cost differences that reflect deliberate policy decisions or differences in the efficiency with which resources are used.

In practice, expenditure need is more difficult to define and derive than fiscal capacity. The difficulties include defining an equalization standard; understanding differences in demographics, service areas, populations, local needs, and policies; and understanding strategic behavior of recipient states. Despite these formidable difficulties, numerous attempts have been made to measure expenditure need. The approaches can be broadly

classified into three main categories: (a) ad hoc determination of expenditure needs, (b) representative expenditure system using direct imputation methods, and (c) the theory-based representative expenditure system.

(a) Ad hoc determination of expenditure needs

This approach uses simple measures of expenditure needs in general-purpose transfers. The factors used and their relative weights are arbitrarily determined. Germany uses population size and population density adjustments, China uses the number of public employees, and India uses measures of backwardness.

(b) The representative expenditure system using direct imputation methods (RES-DIM) or the standardized cost approach (RES-SCA)

This approach seeks to create a parallel system on the expenditure side to the one given by the representative tax system on the revenue side. This is done by dividing sub national expenditures into various functions, determining total expenditures by each jurisdiction for each function, identifying relative need/cost factors, assigning relative weights using direct imputation methods or regression analysis, and allocating total expenditures of all jurisdictions on each function across jurisdictions on the basis of their relative costs and needs for each function (see Table 1 adapted from Barati and Szalai, 2000), for a compilation of need factors used in European countries and Table 2 for need factors used in grant financing of health care worldwide).

The advantage of this approach is that it obviates the need for the very elaborate calculations and assumptions needed to quantify the provision of services at some defined level. It does so by using the sum of actual total expenditures as the point of departure for measuring expenditure needs, reducing the problem to one of allocating total need among sub national governments on the basis of selected indicators of need, including proxies for need if desired. The disadvantage of this approach is that it does not necessarily exclude expenses incurred by any of the provinces that go beyond the concept of a "reasonable level of public service." However, the approach can be adjusted to exclude identifiable excesses from total expenditures (for example gold standards for some services or relatively unaffordable benefits provided by some rich states) in respect of which needs are to be allocated.

The following hypothetical example illustrates the treatment of welfare expenditures using a crude approach for establishing expenditure needs under a representative expenditure system. Assume that there are 10 states in Grantland, that the unit costs of welfare are equal in all states, and that needs for welfare vary based on the percentage of the working-age population that is unemployed, the percentage of the population that is not of working age, and the percentage of families with a single parent. The independent grants commission assigns a 40 percent weight to the percentage of the working-age population that is unemployed, a 35 percent weight to the percentage of the population that is not of working age, and a 25 percent weight to the percentage of families with a

single parent. Assume that expenditures by all states for welfare total $5 billion and that state *A* accounts for 4.8 percent of the 10-state total for the first factor, 3.0 percent of the

TABLE 10.3 Measurement of Fiscal Needs, by Service Category

Category	Fiscal need indicator	Per unit cost	Components of adjustment index
Education, primary and secondary	Population of school ages (e.g. ages 7–18)	National per capita public expenditure on primary and secondary education	Wage index = ratio of wage level in sector to national average; rental cost index = ratio of per square rental cost to national average; student disability index = ratio of percentage of students with physical disabilities to the national average; poor family index = the ratio of the percentage students from low-income families to national average
Health	Total population	National per capita public expenditure on health care	Health price index = ratio of health care cost to national average; infant infant mortality index = ratio ofi nfant mortality rate to national average; inverse life expectancy index = ratio of national average life expectancy to life expectancy in region; inverse population density index = ratio of national average population density to density in region
Police and fire	Total population in region	National per capita public expenditure on police and fire protection	Wage index = ratio of wage level to national average; crime index = ratio of per capita crime rate to national average; fire index = ratio of per capita number of fires to national average; urbanization index = ratio of proportion of population in urban areas in region of municipality to national average
Social welfare	Total population in region	National per capita public expenditure on social welfare	Minimum wage index = ratio of minimum wage level to national average; poverty index = ratio of percentage of low-income population to national average; old age index = ratio of percentage ofold population (e.g., age 60 or above) to national average; unemployment index = ratio of unemployment rate to national average; disability index = ratio of percentage of physically disabled people to national average
Transportation	Total length of roads in region	National per capita public expenditure on transportation	Wage index = ratio of wage level to national average; grade index = ratio of average road grade to national average; snow index = ratio of annual snowfall to national average; inverse population density index = ratio of national average population density to density in region
Other services	Total population in region	National per capita public expenditure on other services	Wage index = ratio of wage level to national average; real cost index = ratio of per square rental cost to national average; urbanization index of region = ratio of proportion of population in urban areas in region of municipality to national average

Source: Barati and Szalai, 2000

Table 2. Need Factors Used for Grant Financing of Health Care in Selected Countries

Country name	*Need Factors for Health Care Grants*
(a) Need based top-up for health care in general grants	
Belgium	Age, gender, unemployment, disability
Finland (to local governments)	Age, disability, remoteness, local tax base
Germany	Age, gender
Netherlands	Age, gender, urbanization, income base
Switzerland	Age, gender, region, income
(b) Need-based specific purpose transfers for core health services	
Denmark	Age, children of single parents
England	Age, sex, mortality, unemployment, elderly living alone
France	Age
Italy (two-thirds)	Age, gender, mortality
Northern Ireland	Age, gender, mortality, low birth weight
Norway (50 percent)	Age, gender, mortality, elderly living alone
Portugal (15 percent)	Burden of illness: diabetes, hypertension, AIDS, tuberculosis
Scotland	Age, gender, mortality, rural costs
Spain	Cross-boundary flows
Sweden	Age, living alone, employment status, housing
Wales	Age, gender, mortality, rural costs
(c) Health transfers using composite indexes based upon principal component analysis	
Brazil	Infant mortality, 1–64 mortality, 65+ mortality, mortality rate by infectious and parasitic diseases, mortality rate for neoplasia, mortality rate for cardiovascular conditions, adolescent mother percentage, illiteracy percentage, percentage of homes without sanitation, percentage of homes without running water, percentage of homes without garbage collection.
South Africa	Percentage female; percentage children under 5; percentage living in rural area; percentage older than 25 without schooling; percentage unemployed; percentage living in traditional dwelling, shack or tent; percentage without piped water in house or on site; percentage without access to refuse disposal; percentage without access to phone; percentage without access to electricity; percentage living in household headed by a woman.

Source: World Bank (2006).

total for the second factor, and 2.2 percent of the total for the third factor. State *A*'s estimated need for a standard level of welfare expenditure would then equal:

$5 billion x (0.048 x 0.40) + (0.03 x 0.35) + (0.022 x 0.25) = $176 million,

or 3.2 percent of all state expenditures.

Shah (1994a) provides an application of the approach using provincial-local expenditure functions for Canada and uses quantitative analysis in selection and weighting of factors for various expenditure functions (see Table 3).

Table 3 : Weighting of factors for provincial-local expenditure functions for Canada

Expenditure Category	Need/Cost Factors	Relative Weights
Transportation & Communications	Snowfall (Annual - in centimeters) SNOW	0.1020
	Highway Construction Price Index (HCPI)	0.6580
	Paved roads and streets per square kilometer of area (RSPR)	0.0005
	Non-cultivatable area as a proportion of total area (NCAR)	0.2357
	Total	1.0000
	Index = (0.10*ISNOW +0.66*IHCPI + 0.0005*IRSPR + 0.24*INCAR)*ISRP	
Post-Secondary Education (PSE)	Full time enrollment in grade 13+(000)(PSS)	0.048
	Percentage of Population having a minority language as mother tongue (ML)	0.19
	Provincial Unemployment Rate (UR)	0.018
	Education Price Index (EPI)	0.717
	Help Wanted Index (HWI)	0.010
	Foreign Post-Secondary Students (FPS)	0.017
	Total	1.000
	Index = (0.18*IPSS + .70*IML + .08*IUR + .04*IFPS)*IHWI*IEPI	
Elementary and Secondary Education (ESE)	Population under 18 (PO17)	0.014
	Population Density (PD)	0.017
	Education Price Index (EPI)	0.969
	Total	1.000
	Index = (.02*IPD + .98*IEPI)*IP017	
Health (HE)	Alcoholism (Hospital separations for Alcohol related cases) (ALCO)	0.123
	Urban Population (PU)	0.877
	Total	1.000
	Index = (0.123*IALCO + 0.877*IPU)	
Social Services (SS)	Single Parent Families (SPF)	1.00
Police Protection	Criminal Code Offenses (CCO)	0.39
	Proportion of Population in Metropolitan (PMAR) Areas	0.61
	Total	1.00
	Index = (.39*ICCO + .61*IPMAR)	
General Services (GS)	Private sector wages (Industrial composite) (AMW)	0.769

Percentage of population having a minority language as mother tongue (ML)	0.001
Population Density (PD)	0.023
Population (POPF)	0.039
Snowfall (Annual - in centimeters) (SNOW)	0.168
Total	1.000
Index = (. 001*ML + 0.175*ISNOW + 0.80*IAMW + .024*IPD)*IPOPF	

Note: Calculations based on regression coefficients. The use of a variable prefixed by I means that a relative index of the variable is used. Source : Shah (1994a).

This approach is subjective and therefore potentially controversial. Recent experience in Australia vividly demonstrates the problems that arise if such an approach is followed in practice as discussed in the following section. Some subjectivity and imprecision can be alleviated by using quantitative analysis in choosing factors and weights as done in Denmark, Finland, Japan, Netherland and Norway and termed as the "standardized cost" approach. However, these refinements add multiple layers of complexity.

(c) The theory-based representative expenditure system (RES-TB)

The theory based representative expenditure attempts to implement conceptually desirable view of expenditure needs equalization objectively i.e. localities to be compensated for inherent cost disabilities rather than differences that reflect different policies, preferences and differential fiscal capacities. This means that the influences of these latter factors must be isolated. By doing so, the representative expenditure system can be significantly improved. This is done by using a conceptual framework that embodies appropriately defined concept of fiscal need and properly specified expenditure functions that are estimated using objective quantitative analysis, as proposed by Shah (1996) for Canada. Under this refined approach, the so-called *the theory-based representative expenditure system*, the equalization entitlement from expenditure category *i* equals the per capita potential expenditure of jurisdiction *A* for category *i* based on own need factors if it had national average fiscal capacity *minus* per capita potential expenditure of jurisdiction *A* on expenditure category *i* if it had national average need factors and national average fiscal capacity. The formula for equalization entitlement based on expenditure classification *i* for state x could be stated as follows:

$$EE_x^i = (POP)_x\,[(PCSE)_x^i - (PCSE)_{na}^i],$$

where EE_x^i is the equalization entitlement for expenditure classification *i* for state *x*, POP_x is the population of state *x*, $PCSE_x^i$ is the per capita standardized expenditure by state *x* on expenditure classification *i* (or the estimated amount the state would have spent to meet actual needs if it had national average fiscal capacity), and $PCSE_{na}^i$ is the national average per capita standardized expenditure for classification *i*. This is the estimated expenditure for all states, based on national average values of fiscal capacity and need. The equalization entitlement for a particular expenditure classification could be positive, negative, or zero. The total of these entitlements in all expenditure categories is

considered for equalization. This approach in practice has not been used by any country as of this date in equalization grant application. This is understandable due to the complexity of this approach.

A comprehensive system of equalization determines the overall entitlement of a state by considering its separate entitlements from the representative tax system and the representative expenditure system. Only states with positive net entitlements are eligible for transfers of all or some fraction of the total amount, with the fraction determined by the central government based on the availability of funds.

This approach is even more difficult to implement than the less refined approach of the RES-DIM/SCA used in many OECD countries, but it has the advantage of objectivity and it enables the analyst to derive measures based on actual observed behavior rather than ad hoc value judgments. The relative weights assigned to various need factors and their impact on allocation of grant funds are determined by econometric analysis. Furthermore, this approach yields both the total pool and the allocation of fiscal need equalization grants among recipient units. This method requires specifying determinants for each service category, including relevant fiscal capacity and public service need variables. A properly specified regression equation yields quantitative estimates of the influence each factor has in determining spending levels of a category of public service. This information can be analyzed to determine what each local jurisdiction would actually have spent if it had national average fiscal capacity and but actual need factors. This then can be compared to the standard expenditure for each service based upon an evaluation of the same equation for determining what each local jurisdiction would have spent if it had the national average fiscal capacity and also national average need factors. The sum of differences of these two expressions for all expenditure categories would determine whether or not the local jurisdiction had more (if sum was positive) or less than the average needs (if sum was negative) (see Shah 1996 for a Canadian application of this approach).

4. The Practice of Equalizing Expenditure Needs: A Review of Worldwide Experiences

A number of countries use expenditure needs equalization in grant allocation. In this section, we review selective experiences to draw some general lessons. Countries are grouped by a stylized view of their approach to expenditure need determination.

(a) Ad hoc approaches to determining expenditure needs

Canada

Federal fiscal equalization program is solely focused on fiscal capacity equalization to a specified standard. A recent Government of Canada Panel studied the desirability and feasibility of introducing expenditure need compensation in the equalization formula but concluded against its introduction to preserve transparency and objectivity of the system (see Canada, 2006). However, to compensate for expenditure needs, equal per capita

block federal transfers are made available to provinces to finance health and post-secondary education with conditions on minimum service standards and access and no condition on spending and no federal oversight on provincial spending on assisted services. Federal transfers to the three territories nevertheless take expenditure needs into account in a crude manner by simply adjusting base year expenditure per capita by the average growth in provincial spending.

The Canadian provinces use simple measures of expenditure need in their general-purpose transfers to municipalities These include population size, population density, population growth factors, road length, number of dwelling units, location factors (such as northern location), urbanization factors (primary urban population and urban/rural class) and social assistance payments (see Shah 1994b). One of the more sophisticated of these approaches is taken by Saskatchewan, where the standard municipal expenditure of a class of municipalities is assumed to be a function of the total population of the class. Regression analysis is used to derive a graduated standard per capita expenditure table for municipal governments by population class. In general simpler approaches used by the Canadian provinces have proven to be manageable and less controversial. Service specific need variables are also considered in provincial specific purpose transfers to local governments (Shah, 1983, 1994).

Germany

Germany uses an ad hoc approach in determining expenditure needs. Lander-local transfers in Germany use a number of expenditure need factors in allocating lander transfers to local governments. The most important factor is weighted local population size with weights that progressively increase with the population size of the jurisdiction. Landers of Hesse and Saarland also give higher weights to local jurisdiction with population size smaller than 5000 inhabitants. In addition to weighted population, a majority of landers use additional factors such as military forces, police officers, children, pupils/students, area, roads, and regional income ("regional centrality"), growth rate, health resort and mining. Factor weights are arbitrarily determined (see Otter, 2008).

Italy

Italy's 2001 Constitution identifies health and social protection as "essential services" minimum levels of which must be provided at the regional level. This is interpreted to mean that there must equalization of expenditure needs to enable regional governments to meet minimum standards of such services. For the remaining regional and local services, constitution seems to imply that fiscal capacity equalization without an explicit consideration of expenditure needs would be fine. Subsequent national legislation has extended these essential services to a still undefined list of municipal and regional functions (see Brosio and Piperno, 2008, p.143). While this issue, remains to be clarified, currently VAT is allocated among regional governments based upon fiscal capacity and expenditure needs. For this purpose, expenditure needs are disaggregated by health and non-health needs. Health needs are primarily determined either by using population or population weighted by age groups for various health services such as outpatient services,

inpatient care, and public health promotion and prevention programs. For non-health needs, information on factors used is not available but in the past population or service area received primary consideration (see Brosio and Piperno, 2008 for details).

South Africa

South Africa uses expenditure need factors in its equitable share transfers to the provinces (South Africa 2006). The equitable share formula applicable for 2006–08 focuses almost entirely on need factors, with only a 1 percent weight given to negative needs (per capita GDP). The formula uses the following shares:

- A basic share (14 percent weight) is derived from each province's share of the national population.
- An education share (51 percent) is based on the size of the school-age population (5–17) and the average number of learners (grades R–12) enrolled in public ordinary schools over the past three years.
- A health share (26 percent) is based on the proportion of the population with and without access to medical aid.
- An institutional component (5 percent) is divided equally among the provinces.
- A poverty component (3 percent) is based on incidence of poverty.
- An economic output component (1 percent) is based on data on GDP by region.

Switzerland

Switzerland introduced cost equalization component financed solely by the Federal Government in the Federal Equalization Program introduced in 2008. It allocates about 18% of the total pool using the need/cost factors, the remaining 82% are distributed by the fiscal capacity component based upon factor incomes. The cost factors used are: population size, population density, area, population 80 plus years, large cities, foreign adult residents for more than 10 years, unemployed, and people requiring cantonal assistance.

United States of America

USA has no formal federal-state and federal-local fiscal equalization program for reasons outlined earlier but state transfers to local governments take both fiscal capacity and expenditure need into consideration – the latter mainly in specific purpose block transfers such as school finance (see Box 1).

Box 1, Financing Schools in the United States

U.S. states have taken various approaches to school finance. The states of Hawaii, Idaho, and Washington fully finance primary and secondary education. In contrast, New Hampshire covers only 9 percent of school finance.

Delaware and North Carolina finance education through bloc grants that are indexed to population, GDP, and inflation growth rates. The grants are derived by calculating equal amounts per unit based on the number of students, teachers, classrooms, courses, classes, and other factors. The units can be standardized using various yardsticks, such as class size and teacher:pupil ratios. Various measures of students, including enrollment, average daily attendance, enrollment weighted by grades, types of programs, and number of students with special needs, are used.

Other states use equalization grants, including foundation grants, percentage equalization grants, and district power equalization grants.

Foundation grants vary inversely with the fiscal capacity of a school board. The grant allocation is based on an application of the representative tax system approach to fiscal capacity equalization per student across school districts. The following formula is used:

foundation grant = (maximum per student grant – own school district contribution per student based on mandated minimum tax rate applied to per student tax base) × enrollment

Forty-two states have adopted variants of this approach, with 22 states specifying the minimum mandated tax rate. Various measures are used to determine enrollment, including the number of students on the rolls on a specified date, average daily attendance, and average attendance over a period. Most states (36) use a scheme that weights enrollment by grade, program, and student disabilities.

Rhode Island uses a *percentage equalization grant*—a matching cum equalization grant for school spending based on the following formula:

grant per student = [1– matching rate x (per capita tax capacity in the district/ state average district tax capacity per capita)] × district spending per capita

District power equalization grants, used in Indiana and Washington, include incentives for increased tax effort in an equalizing grant. The formula used is:

grant = (per capita average fiscal capacity – per capita fiscal capacity of the district) × district tax rate

Source: Vaillancourt (1998).

(b) Representative expenditure system/ standardized cost approaches

Australia

A sophisticated variant of this methodology is used by the Commonwealth Grants Commission (CGC) of Australia, which simply equalizes what all states on average actually spend. The CGC defines standard expenditure as the cost of supplying average performance levels for the existing mix of state-local programs. Relative expenditure needs are then determined empirically using direct imputation methods for 41 state-local expenditures. The use of expenditure need factors is extensive. Several hundred factors specific to 41 areas of expenditures in three broad categories are used: (a) scale factors;

(b) demographic factors – these include dispersion, urbanization, social composition and age structure; and (c) environmental factors including physical and economic factors (see Table 4).

Table 4. Costs/Need Factors Used in the Australian Expenditure Need Calculations

Factors	*Justification*
Indigenous influences	Higher cost of services
Socio-demographic composition	Effects of age, sex, cultural and linguistic diversity, income and cross-border use of services
Wage levels	Wage differentials across states
Other input costs	Costs of office rent and electricity, interest costs, isolation from major sources of supply, retirement benefits
Administrative scale of service provision	Effects of sub-optimal service area and population
Urban influences	Effects of urban complexity, urban traffic management, urban transit capital and pricing subsidies
Population dispersion	Net effects of population dispersion and geographical location on hospital costs and patient transport
Economic Environment	Effects of structure and nature of state economies, road use, availability of private medical services, national capital region etc.
Physical Environment	Effects of climate, natural hazards, conservation tasks, water availability, physical environment, road and bridge length
Expenses - other	Miscellaneous factors, and interaction among factors

Source: Spasojevic, 2008

State-local transfers in Australia follow the CGC methodology and are faced with similar measurement issues although the degree of difficulty may be considerably less as local governments in Australia have extremely limited expenditure responsibilities i.e. mainly roads and rubbish.

Denmark

Denmark uses a variant of the representative expenditure system approach where statistical analysis aids in identifying need factors that are further scrutinized for their incentive effects. Demographic factors (population by age groups with the highest weight for school age population and commuting time) with are assigned 70% of the weight whereas socio-economic factors receive 30% weight (see Table 5) (Mau, 2008).

Table 5 : Expenditure Need Factors and Weights: Denmark, Netherlands and Norway

Denmark Expenditure needs criteria	DK Weight Pct.	Norway Expenditure needs criteria	Norway Weight pct.	Netherlands Expenditure needs criteria	NL Weight pct.
Age groups:		Basic subsidy	2,5	Inhabitants	23
0-6	9,8				
7-16	21,2	Age groups		Dwellings	14
17-19	1,1	0-15	2,3		
20-24	2,0	6-15	30,8	Age group 0-19 years	10
25-34	5,4	16-66	12,0		
35-39	2,9	67-79	8,5	Local regional functions	9
40-64	11,7	80-89	13,3		
65-74	4,2	90 years or more	4,9	High density	9
75-84	5,6				
85 years or more	4,8	16-59 years divorced	3,8	Low income individuals	5
		16-59 years unemployed	1,1		
Commuting time	1,4			Social cash benefits	5
		Commuting time	1,5		
20-59 years unemployed > 5%*	5,4			Social support	5
		Travel distance I	1,0		
24-49 without vocational training*	5,2			Minorities	4
		Travel distance II	1,1		
Rented dwelling*	1,5			Regional regional functions	3
		Mortality	2,5		
Psychiatric patients*	1,5			Pupils secondary education	3
		Single 67 years or more	2,5		
Families in certain types of dwellingsr*	4,5			Selected physical features	17
		Immigrants	0,5		
Children of poorly educated parents*	4,5			Population characteristics	7
		16 years or more mentally handicapped	6,6		
Single more than 65 years old*	0,7			Tax capacity	-20
		Less than 16 years mentally handicapped	0,4		
Low income individuals*	3,0			Others	6
		Degree of urbanization	4,2		
Handicapped*	1,5				
		Rural districts	0,5		
Immigrants and descendants*	0,7				
Number of living years lost*	0,7				
Decline in populations numbers*	0,7				
Talt	100,0		100,0		100,0

Source: Mau, 2008, p.85

Finland

Finland equalizes revenues through inter-municipal tax base equalization system. This is supplemented by cost equalization financed solely by the central government through a small general grant (only 2% of total grant expenditures) and major block grants for health and social welfare and education. The general grant incorporates population and rural and urban geographical and demographic factors Need factors for health grant include population age structure, incidence of disease and remoteness of the municipality. Allocation for social and welfare services takes into consideration population share of children and the elderly, incidence of unemployment, remoteness, need for child daycare, child welfare and aid for handicapped. For education, need factors include: number of pupils, share of pupils at the upper level of comprehensive schools, handicapped pupils, pupils in remedial instruction, and pupils from foreign origin and from Sweden. The above factors are used to develop standardized average expenditure for the service and all municipalities are brought up to 65% of the national average standard for each service (Moisio, Loikkanen, Oulasvirta, 2010).

Japan

Japan uses a "standard cost" approach per unit of service for 24 local service functions in determining the expenditure needs of local governments. Expenditure need for each service is determined by applying average cost to the service units in each local government multiplied by an adjustment coefficient. Unit costs are average unit cost for the nation as a whole and are obtained by dividing net costs (gross costs minus earmarked revenues) by the number of measurement units. These calculations are done by the Ministry of Internal Affairs and Telecommunications. The modification coefficient takes into account the size of the municipality with smaller municipalities having an adjustment factor greater than one. A few example of such calculation are reported below (see Mochida, 2008, p.177):

Fire/ambulance service: Standard unit cost x population x adjustment factor
Roads improvement: standard unit cost x road length (km) x adjustment factor
Elementary school; standard unit cost x number of classes x adjustment factor
Welfare for the elderly: standard unit cost x population 65 and older x adjustment factor

Netherlands

Expenditure need allocation for the Municipal Fund is based upon the "difference analysis" (Huigsloot, 2008, p.106). For this purpose 14 clusters of local services are analyzed for cost differences among municipalities due to exogenous factors. First municipal expenditures are corrected for any differences in definitions and recording of expenditures. Then statistical analysis is carried out to isolate contributions of exogenous and endogenous factors in contributing to cost differences. A deliberative political and policy review process is then used to decide on the choice of exogenous factors for formula allocation for each of the 14 service categories from among those identified by statistical analysis (see Table 5 for the types of indicated selected and see Huigsloot, 2008 for further details).

Norway

The General Purpose Grant Scheme in Norway incorporates expenditure need equalization consideration due to "involuntary production costs" (costs attributable to exogenous factors) among municipalities and counties. Statistical analysis is carried out separately for counties and municipalities to identify objective exogenous factors (see Table 5 for factors and weights) and municipalities and counties with below average expenditure needs contribute to the grant pool and above average expenditure needs receive from the pool (Lilleschulstad, 2008). Mostly demographic and travel time factors are used in expenditure needs determination.

Sweden

Both counties and municipalities are subject to cost equalization grant (above average costs) and cost equalization charge (below average costs). Cost equalization grant/charge takes into account both the demand (need) and supply (cost) considerations. For example it costs more to deliver schooling in rural areas due to small class size and a greater need for transportation by pupils. Standardized costs are calculated for each category of local service and the influence of age, ethnicity, socioeconomic conditions and geography is used to determine differential expenditure needs (see Table 6). Aggregating over all service categories determines the net result. About 55% of the municipalities receive the cost equalization grant and the remaining 45% receive a charge for cost equalization. Overall cost equalization constitutes about 8% of grant funds for counties and municipalities (see Tingvall, 2008).

Table 6. The Cost Equalization Approach Used by Sweden

Service	Structural factors
Municipalities	
Pre-school services and out-of-school care	Age structure, parents' activity rate, tax capacity and population density.
Compulsory school and pre-school classes	Age structure, children with a foreign background, rural area.
Upper secondary school	Age structure, programme choice, settlement structure
Care of the elderly	Age structure, sex distribution, professional background, civil status, non-Nordic background and rural area.
Individual and family care	• Refugees born abroad and close relatives, other people born abroad from countries outside the Nordic region and the EU, unemployed people without benefit, single women with children, proportion of men with low incomes and settlement density.
	• Children of lone parents, young people prosecuted, children with a foreign background and local authority population.
Children with a foreign background	Children aged 0-19 years with a foreign background.
Population change	• Population reduction > 2% in the past 10 years.
	• Change (positive and negative) in the number of school pupils.
	• Compensation for revenue delay in event of population increase.
Settlement structure	• Heating
	• Streets and roads
	• Building costs
	• Rural-specific extra costs for administration, travel and rescue services
County councils	
Health and medical care	Care-demanding groups, sex, age, civil status, employment status, income and type of housing. Supplement for rural areas.
Joint service	
Public transport	Sparseness, work commuting and urban structure

Source: Tingvall, 2008

United Kingdom

General purpose transfers to local governments in the UK are distributed through the Local Government Finance Settlement comprising (a) revenue support grant; (b) redistributed business rates; and (c) Police Grant. The overall system is termed as the Formula Grant (FG). The FG is calculated as follows:

FG= Relative Needs (RN) *minus* Relative Resources (RR) *plus* central per head allocation (CA) and *plus/minus* stabilization (floor damping) adjustment (SA)

RN is determined by classifying local expenditures into 6 major service groups: children's services, adults' personal social services, police, fire, highway maintenance, environmental, protective and cultural services. Population, social, economic and physical characteristics of each local authority are used as indicators of need. An attempt is made to keep these indicators to a manageable level. Fixed costs of all services are also taken into consideration. RR is calculated separately for four separate groups (upper tier services, lower tier services, fire authorities, police authorities) of authorities by examining a local authority's (LA) tax base per capita against minimum LA tax base per capita. CA is determined residually as the balance of central grant after compensating for needs. SA adjustment is made to ensure that all LAs receive a guaranteed minimum increase in grant over the previous year (see Ponsford, 2007 for further details).

Overall, the UK uses an objective method to assess fiscal capacities and somewhat subjective methods to assess expenditure needs.

5. Practical Difficulties in Implementing Expenditure Needs Equalization with Special Emphasis on the Australian Experience

The previous section highlighted international practices in determining expenditure needs. We observed that these approaches over time have grown in their rigor and complexity in their attempts to achieve a better handle on differential expenditure needs attributable to exogenous factors. Is all this effort worthwhile? We draw upon a half a century of the Australian experience to reflect on this question as most of these approaches have replicated a variant of various models developed initially by the Commonwealth Grant Commission (CGC) for Australia. In view of the demonstration effect of the work by the CGC worldwide, it is useful to review the Australian approach to draw lessons from the Australian experience.

The overall approach in assessing expenditure needs used by the CGC is highly data and subjective judgment intensive. Continuous refinements over time to accommodate opposing points of view have led to super complexity and non-transparency. Further, the approach assumes that costs are independent of management paradigm and resource use is independent of incentives. As an example, expenditure need for government secondary

education is determined separately for government and non-government schools. A mixture of actual and notional enrollments is used with special weights for diplomatic families. Student populations from disadvantaged groups are given weights ranging from 1.1 to 1.7. Year 11 and 12 grades receive 20% upward adjustment in costs. Factors used in expenditure need determination include, administrative scale, administrative input costs, service delivery scale, urban influences, humanitarian refugees, cross border students, vandalism, dispersion, isolation, school input costs, wages, accommodation, electricity, rural students and isolation factors. Somewhat different factors and factor weights are used for government and non-government schools. If private schools have above average costs, additional grants are assessed although the state may or may not finance such education.

The Australian system seeks absolute comparability for all 41 state-local services rather than just merit goods (some would question whether this is worth pursuing). Australia's Commonwealth Grants Commission makes these calculations using broad judgments and sampling services. With the single exception of the Northern Territory, which has a large aboriginal population, there is little cross-state variations in the expenditure needs of the Australian states. A special grant for the Northern Territory would simplify the Australian program while achieving its equalization objectives.

Australia's approach raises several questions. Is equal access to all services in remote areas desirable at any cost? If a rich state decides to buy limousines for its officials, or make higher welfare payments to its aboriginal population, why should equalization payments to poorer states go up? Such an approach diverts states' energies to demonstrate that they "need more to do less" or "money does not buy much" as opposed to "doing more with less." as higher spending is rewarded and cost-saving in delivering improved services is discouraged by the equalization grant formula. Such a system rewards some bad behaviors, including excessive use of some services by specific groups, tax expenditures by states to attract capital and labor, and state assumption of contingent and non-contingent liabilities.

In addition to conceptual difficulties, the Australian program is plagued with measurement problems. The determinants of expenditure needs for various expenditure categories are arrived at based on broad judgments. Arbitrary procedures are used to derive factor weights and combine various factors into functional forms. State disabilities stemming from various factors are multiplied. For highly correlated factors, disabilities are artificially magnified through double counting and multiplication. Table 7 illustrates this point where for government secondary education, category disability is lower than a simple or weighted average of individual disability factors for rich states and vice versa for poor states. Under such a program, use of judgment on factors and weights is inevitable, but such judgments invite controversy and compromise the credibility of the whole program. The results are often disappointing. As the commission acknowledges:

"given the number of conceptual and empirical difficulties… and numerous judgments.. different relativities (and grant outcomes) could be just as valid as those presented [here]". (Commonwealth Grants Commission 2000, p.2)

Table 7. An Example of Expenditure Need Determination in Australia: Secondary Education Expenditure Need Factors

Government Secondary Education Factors -

Disability Factors	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Dispersion	0.9973	0.9921	1.0093	1.0106	0.9972	0.9952	0.9885	1.071
Grade Cost	1.0014	1.0028	0.9966	0.995	0.9992	0.9998	1.0016	0.9979
Input Costs	1.012	0.995	0.986	1.003	0.991	0.99	1.008	1.034
Relevant Population	0.9749	0.8874	1.0983	1.1639	0.9679	1.1422	0.975	1.2226
Administrative Scale	0.9946	0.9946	0.9946	1.0065	1.0105	1.0304	1.0463	1.1139
Service Delivery Scale	0.9922	0.9906	1.0031	1.0153	1.0166	1.038	0.9714	1.1141
Vandalism & Security	1.0023	1.0023	0.9973	0.9973	0.9973	0.9923	0.9923	0.9923
Cross-border	0.9965	1.0001	1.0001	1.0001	1.0001	1.0001	1.066	1.0001
Category Disability	**0.9692**	**0.8658**	**1.0815**	**1.1941**	**0.9772**	**1.1917**	**1.044**	**1.6605**

Source: Commonwealth Grants Commission, Australia, 1995-96 Review

The Australian experience highlights the practical difficulties associated with implementing fiscal need compensation as part of a comprehensive fiscal equalization approach (see Shah, 2004, 2008).

Denmark, Japan, Netherlands and Switzerland among others take great care in equalizing expenditure needs in central-local transfers. However, none of these countries have found a method of determination that escapes controversy and criticism. In fact, experience shows that more complex the approach the greater criticism it invites.

In conclusion, there neither is nor their ever will be a holy grail of expenditure need equalization. All practical methods by their nature are subjective and controversial. Sophisticated and complex methods have not shown to be superior to simpler determination of expenditure need equalization through specific purpose output-based fiscal equalization transfers as discussed in the following section. The opposition to such rough but simple and transparent justice partly comes from a lack of understanding of these newer types of transfers and equating them with traditional earmarked grants. These issues are discussed at length in the following section.

6. A Simpler Approach to Expenditure Need Equalization: Use of Output-Based Transfers for Merit Public Services

Economic rationales for output-based grants (used interchangeably with performance-oriented transfers in this chapter) stem from the emphasis on contract-based management under the new public management framework and strengthening demand for good governance by lowering the transactions costs for citizens in obtaining public services under the new institutional economics approach. The new public management framework seeks to strengthen accountability for results by changing the management paradigm in the public sector from permanent appointments to contractual appointment and

continuation of employment subject to fulfillment of service delivery contracts. It seeks to create a competitive service delivery environment by making financing available on similar conditions to all providers – government and non-government.

The new institutional economics approach argues that dysfunctional governance in the public sector results from opportunistic behavior by public officials, as citizens are either not empowered to hold public officials accountable for their noncompliance with their mandates and/or for corrupt acts or face high transactions costs in doing so. In this framework, citizens are treated as the principals and public officials the agents. The principals have bounded rationality—they act rationally based on the incomplete information they have. Acquiring and processing information about public sector operations is costly. Agents (public officials) are better informed than principals. Their self-interest motivates them to withhold information from the public domain, as releasing such information helps principals hold them accountable. This asymmetry of information allows agents to indulge in opportunistic behavior which goes unchecked due to high transactions costs faced by the principals and a lack of or inadequacy of countervailing institutions to enforce accountable governance. Results-based accountability through output-based grants empowers citizens by increasing their information base and lowering their transactions costs in demanding action.

Output-based transfers link grant finance with service delivery performance. These transfers place conditions on the results to be achieved while providing full flexibility in the design of programs and associated spending levels to achieve those objectives. Such transfers help restore recipients' focus on the results-based chain (figure 1) and the alternate service delivery framework (competitive framework for public service delivery) to achieve those results. In order to achieve grant objectives, a public manager in the recipient government would examine the results-based chain to determine whether or not program activities are expected to yield the desired results. To do so, he or she needs to monitor program activities and inputs, including intermediate inputs (resources used to produce outputs), outputs (quantity and quality of public goods and services produced and access to such goods and services), outcomes (intermediate- to long-run consequences for consumers/taxpayers of public service provision or progress in achieving program objectives), impact (program goals or very long-term consequences of public service provision), and reach (people who benefit from or are hurt by a program). Such a managerial focus reinforces joint ownership and accountability of the principal and the agent in achieving shared goals by highlighting terms of mutual trust. Thus internal and external reporting shifts from the traditional focus on inputs to a focus on outputs, reach, and outcomes—in particular, outputs that lead to results. Flexibility in project definition and implementation is achieved by shifting emphasis from strict monitoring of inputs to monitoring performance results and their measurements. Tracking progress toward expected results is done through indicators, which are negotiated between the provider and the financing agency. This joint goal setting and reporting helps ensure client satisfaction on an ongoing basis while building partnership and ownership into projects (Shah 2005b).

Figure 1. Results Chain with an Application to Education Services

Program Objectives →	Inputs →	Intermediate →	Outputs →	Outcomes →	Impact →	Reach
Improve quantity, quality, and access to education services	Educational spending by age, sex, urban/rural; spending by grade level, teachers, staff, facilities, tools, books, regulations	Enrollments, student-teacher ratio, class size	Achievement scores, graduation rates, drop-out rates	Literacy rates, supply of skilled professio nals	Informed citizenry, civic engagement, enhanced international competitive ness	Winners and losers from government programs

Source: Shah (2005b)

Output-based grants must have conditions on outputs as opposed to outcomes, as outcomes are subject to influence by factors beyond the control of a public manager. Public managers should be held accountable only for factors under their control. Outcome-based conditions diffuse enforcement of accountability for results. Since the grant conditions are concerned with service delivery performance in terms of quality of output and access, the manager is free to choose the program and inputs to deliver results. To achieve those results, he or she faces positive incentives by grant conditions that encourage alternate service delivery mechanisms by contracting out, outsourcing, or simply encouraging competition among government and non-government providers. This can be done by establishing a level playing field through at par financing, by offering franchises through competitive bidding, or by providing rewards for performance through benchmarking or yardstick competition. Such an incentive environment is expected to yield a management paradigm that emphasizes results-based accountability to clients with the following common elements:

- Contracts or work program agreements based on pre-specified outputs and performance targets and budgetary allocations.
- Incentives for replacement of lifelong rotating employment with contractual appointments with task specialization.
- Local autonomy and managerial flexibility but accountability for results to own residents (citizens).
- Redefinition of public sector role as purchaser but not necessarily provider of public services.
- Adoption of the subsidiarity principle—that is, public sector decisions made at the level of government closest to the people, unless a convincing case can be made not to do so.

- Incentives for cost efficiency.
- Incentives for transparency and competitive service provision.

Under such an accountable governance framework, grant-financed budget allocations support contracts and work program agreements, which are based on pre-specified outputs and performance targets. The grant recipient's flexibility in input selection—including hiring and firing of personnel and implementation of programs—is fully respected, but there is strict accountability for achieving results. The incentive and accountability regime created by output-based transfers is expected to create responsive, responsible, and accountable governance without undermining local autonomy. In contrast, traditional conditional (earmarked) grants with input conditionality undermine local autonomy and budgetary flexibility while reinforcing a culture of opportunism and rent seeking where such culture exists (table 8). Even where such a culture of opportunism may not be a concern as in most OECD countries, citizen empowerment engendered through such transfers would be invaluable in strengthening citizen trust and confidence in their governments.

Table 8. Features of Traditional Earmarked and Output-Based Conditional Grants

Feature	*Traditional Earmarked grant*	*Output-based grant*
Grant objectives	Spending levels	Quality and access to public services
Grant design and administration	Complex	Simple and transparent
Eligibility	Recipient government departments/agencies	Recipient government provides funds to all government and non-government providers
Conditions	Expenditures on authorized functions and objects	Outputs -service delivery results
Allocation criteria	Program or project proposals approvals with expenditure details	Demographic data on service population (potential clients)
Compliance verification	Higher level inspections and audits	Client feedback and redress, comparison of baseline and post-grant data on quality and access
Penalties	Audit observations on financial compliance	Public censure, competitive pressures, voice and exit options for clients
Managerial flexibility	Little or none. No tolerance for risk and no accountability for failure.	Rewards for risks but penalties only for persistent failure.
Local government autonomy and budgetary flexibility	Little	Absolute
Transparency	Little	Absolute
Focus	Internal	External, competition, innovation and benchmarking
Accountability	Hierarchical to higher-level government, controls on inputs and process with little or no concern for results	Results-based, bottom-up, client-driven; empowers citizens to hold their governments to account.

Source: Shah (2007).

Output-based grants create incentive regimes that promote a results-based accountability culture. In the following we provide a few hypothetical examples of such fiscal transfers.

Output based operating transfers for setting national minimum standards for merit goods (education, health, social welfare and infrastructure).

(a) *Output based school grants to encourage competition and innovation in education*. Output based grants create incentives regime to promote the results based accountability culture. Consider the case where the national government aims to improve access to education by the needy and poor as well as enhance quality of such education. A commonly practiced approach is to provide grants to government schools through conditional grants. These grants specify the type of expenditures eligible for grant financing, for example, books, computers, teachers' aides etc and also financial reporting and audit requirements. Such input conditionality undermines budgetary autonomy and flexibility without providing any assurance regarding the achievement of results. Such input conditionality, in practice, is difficult to enforce as there may be significant opportunities for fungibility of funds. Experience has also demonstrated that there is no one-one link between increase in public spending and improvement in service delivery performance. To bring about accountability for results, consider an alternate, output based design of such grants. Under the alternate approach, national government allocates funds to local authorities based upon school age population (see Box 2). The local authorities in turn pass these funds to both government and non-government providers based upon school enrollments. Conditions for receipt of these grant funds for non-government providers are that they must admit students on merit and provide tuition subsidy to students whose parents do not have sufficient means to afford such fees. Conditions for the continuation of funds for all providers will be to improve or at the minimum maintain baseline achievement scores on standardized tests, improve graduation rates and reduce dropout rates. Lack of compliance with these conditions will invite public censure and in the extreme case a threat of discontinuation of funds with perpetual non-compliance. In the meanwhile reputation risks associated with poor performance may lead to reduced enrollments and associated reduction in grant funds through parental choices. There are no conditions on the use of funds and schools have full autonomy in the use of grant funds and retain unused funds. Such grant financing would create an incentive environment for both government and non-government schools to compete and excel to retain students and establish reputation for quality education as in the final analysis it is the parental choice that would determine available grant financing to each school. Such an environment is particularly important for government schools where typically staff have life-long appointments and financing is assured regardless of school performance. Budgetary flexibility and retention of savings would encourage innovation to deliver quality education. Thus output based grants preserve autonomy, encourage competition and innovation while bringing strict accountability for results to residents. This accountability regime is self enforcing through consumer (parental choice in the current example) choice. Such a school financing regime is especially helpful for countries where several local jurisdictions are plagued with poor quality of teaching and

worse teacher absenteeism or lack of access to education in rural areas. The incentive regime provided by results based financing will create market mechanism to help overcome these deficiencies over time.

(b) *Output based grants for local health financing*. A similar example of such a grant in health care would allocate funds to local authorities based upon weighted population by age class with higher weights for senior citizens (65 years and over) and children (under 5 years). The distribution by local authorities to providers would be based upon patient use. Minimum standards of service and access to health care will be specified for the eligibility to receive such transfers.

(c) *Output based grants for social welfare*. Such grants would provide matching assistance to local authorities based upon the relevant service population e.g. elderly without care, single mothers, orphans etc. Matching rate would vary with the fiscal capacity of the local jurisdiction with higher matching rate for richer jurisdictions.

(d) *Output based transfers for road maintenance*. Such a grant would be based on classification of roads by types and traffic use and provide per kilometer grants differentiated by the type of road classification. Minimum standards of up-keep service for such roads will be specified and future grant releases will depend upon local authorities certifying those standards are being met and providing information on road conditions and use.

Table 9 notes a few useful applications of such transfers.

Box 2. Fiscal need compensation through output based transfers for school finance - An illustrative example

Allocation basis to state/local governments: school age population – population aged 5-17,

Distribution basis for service providers: Equal per pupil to both government and non-government schools.

Conditions: Universal access to primary and secondary education. Non-government school access to poor on merit. Improvement in achievement scores and graduation rates from baseline. No conditions on the use of funds.

Penalties: Public censure, reduction of grant funds and risk of termination with persistent non-compliance. Grant funds automatically decrease if parents pull out their children from non-performing school.

Incentives: Grant funds increase automatically as school attracts more students. Retention of savings for optional use from better management of resources.

Impact implications: Encourages competition, innovation and accountability to citizens for improving quality and access. Automatic monitoring and enforcement provisions through parental choices

Source: Shah (2007)

Table 9: Better Practices in Simpler and Transparent Equalization Grant Design

Grant objective	Grant design	Examples of better practices	Examples of practices to avoid
Fiscal capacity equalization:			
To enable provincial/Local fiscal capacity to provide comparable levels of public services at comparable burdens of taxation per capita	General non matching fiscal capacity equalization transfers	Fiscal equalization with explicit standard that determines total pool as well as allocation (Canada, Denmark, and Germany)	General revenue sharing with multiple factors (Brazil and India); fiscal equalization with a fixed pool (Australia, China)
Expenditure need equalization:			
To enable provincial/local governments to meet minimum or average standards of merit public services	Conditional nonmatching output-based bloc transfers with conditions on standards of service and access	Road maintenance and primary education grants (Indonesia before 2000, Finland) Education transfers (Brazil, Canada, Chile, Colombia) Health transfers (Brazil, Canada, Finland)	Comprehensive expenditure need equalization as in Australia Conditional transfers with conditions on spending alone (most countries), pork barrel transfers (USA e.g. $200 million earmark in 2006 for a "bridge to nowhere" in Alaska), ad hoc grants
	Conditional capital grants with matching rate that varies inversely with local fiscal capacity	Capital grant for school construction (Indonesia before 2000), highway construction matching grants to states and local governments (United States)	Capital grants with no matching and no future upkeep requirements

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Source: Boadway and Shah (2009)

7. Recent International Initiatives toward Introducing Output-based (Performance-oriented) Grants to Sustain National Minimum Standards for Merit Goods and Achieve Expenditure Needs Equalization[2]

Results based finance has recently been used to sustain national minimum standards for merit goods and achieve expenditure need equalization in a few countries. Most of these practices are in the fields of education and health only but in a limited number of cases such finance has been used in other public goods such as infrastructure. The following paragraphs highlight these examples.

(a) Results Based Financing of Education

Several countries have launched innovative programs to create results based accountability in financing sub-national education programs. These are reviewed in the following paragraphs:

Australia: National Schools Specific Purpose Payments, 2009

The National Education Agreement specifies the following objectives for this grant program:

ensuring that all children are engaged in and befitting from schooling, with a goal of lifting the Year 12 attainment rate to 90 percent by 2015; and
ensuring children meet basic literacy and numeracy standards and continuing to improve overall literacy and numeracy achievements.

These are equal per capita payments for both government and non-government schooling to all States. Out of this the government schools component for each state is based upon each State's share of full time equivalent student enrollments in government schools. The growth factor for government school component is the product of the growth in average government schools recurrent costs and the growth in full time equivalent in government schools. The grant funds are required to be spent on schooling but States have full budget flexibility to allocate funds as they see fit to achieve mutually agreed objectives. The program has not set any benchmarks for performance but as part of an overall reporting and accountability framework, states must provide performance data to the Commonwealth and to the general public. The COAG Reform Council will collate data for all states and will publish such statistics and analytical reviews of performance for government and general public use (The Australian Treasury, 2009).

United States: Race to the Top (RTTT) Competitive Grant Program, 2009

This $4.35 billion program was launched by President Obama on July 24, 2009 to mark a new federal partnership in education reform with states, districts and unions to accelerate change and boost improvements. The program invites states to apply for financing by undertaking to implement four core interconnected reforms as follows:

[2] This section is based upon Shah (2009).

Raising standards: Agreeing to adopt internationally benchmarked K-12 standards
Closing the data gap: Establish data bases to monitor advances in student achievement and identification of effective instructional practices
Improving quality of teachers and principals especially in high poverty schools: Establish strategies for rewarding and retaining top-notch teachers and separation of non-performers
Turning around lower performing schools: Introduce major reforms to change school culture and replace staff and principals

As a part of eligibility for financing, each state's record will be examined for its compatibility with providing a progressive environment for improving education standards and access. For example, states that limit alternative routes to certification for teachers and principals or cap the number of charter schools will be at a competitive disadvantage. States that explicitly prohibit linking data on achievement or student growth to principal and teacher evaluations will be ineligible for the grant until they change their laws (see Duncan, 2009).

United States No Child Left Behind (NCLB) Act of 2001

The NCLB provides federal financing of elementary and secondary education (K-12 schooling) provided states agree to requirements for student testing, accountability and strive for improvements in achievement scores and equity in access to education by various income and ethnic groups. NCLB requires states to test students in reading and mathematics annually in grade 3-8 and once in grade 10-12 and in science once in grades 3-5, 6-8, and 10-12. Individual schools, school districts and states must publicly report test results in the aggregate and for specific student subgroups including low income students, students with disabilities, students with English as a second language and major racial and ethnic groups.

NCLB requires that states, school districts, and schools to ensure all students are proficient in grade-level math and reading by 2014. States define grade level performance. Schools must make "adequate yearly progress" towards this goal, whereby proficiency rates increase in the year leading up to 2014. The rate of increase required is chosen by each state. In order for a school to make adequate yearly progress (AYP), it must meet its targets for student reading and math proficiency each year. Schools that fail to make adequate yearly progress for two consecutive years must draft a school improvement plan. A school failing to meet AYP for three consecutive years must initiate a performance improvement plan and also implement public school choice – students given option to move to other public schools. A fourth year failure requires restructuring and supplemental education services – school financed special instruction. If a school fails to make AYP in the fifth year, it must implement restructuring including changes in staff and management or converting into a charter school run by a private management company.

The NCLB Act also provides for special education finance incentive grant to (i) reward "good school finance" states – those that spend more on public education and distribute

funds equitably; (ii) provide twice the amount of funds to high poverty school districts in "bad school finance states" – those which spend relatively less on education and distribute funds inequitably to school districts (see Foundation for New America, 2009).

Local governments in the Province of Alberta, Canada, use a novel approach to determine the allocation of taxpayers' contribution to school finance. This is done by resident taxpayers through designation of their education component of the property tax bill to either public or parochial (religious, private) school boards. These declarations determine the total amounts of property tax finance available to public and provide providers. Schools receive grants on a per pupil basis and parents retain option to send their children to a school of their choosing regardless of their exercise of voting on school finance. Higher education financing assigns weights to enrollments by different programs with medical and engineering education receiving higher weights than humanities.

Results Based Education Finance: Developing and Transition Country Examples

Conditional non-matching output-based transfers to ensure national minimum standard in merit goods or for fiscal need compensation are rarely used in DTEs. Nevertheless, one finds a few shining examples of programs that marry equity with performance orientation in grant allocation.

Brazil has a noteworthy national minimum standards grant programs for primary education. Under the 14th amendment to the federal constitution, the state and municipal government must contribute 15 percent each of their two principal revenue sources (state value added tax and state share of the federal revenue sharing transfers for states, and services tax and the municipal share of the state revenue sharing transfers for municipalities) to FUNDEF - special fund for primary education. If the sum of the state and municipal required contributions, divided by the number of primary school students, is less than the national standard, the federal government makes up the difference. The total amount of the FUNDEF is then distributed among the state and its municipal providers is distributed on the basis of school enrollments (see Gordon and Vegas, 2004 for a review of the FUNDEF program).

Chile's (and the State of Michigan, USA) school grants finances vouchers for school age population giving parents a choice in sending their children to public or Catholic/private schools. An additional performance grant providing 25% additional grant as salary bonus for teachers in the best performing schools based upon a National System to Evaluate School Performance (SNED in Spanish, see Gonzalez, 2005). Central per capita transfers for education in Colombia and South Africa, and the capitation grant to Malaysian states come close to the concept of such a transfer.

The operating grant for schools (became defunct in 2000) in Indonesia used school age population (ages 7-12) as criteria for distribution of funds to district governments. This was supplemented by a matching capital grant (local government to provide land for school) to achieve minimum standards of access to primary schooling. These grants

enabled Indonesia to achieve a remarkable success both in improving literacy as well as minimum standards of access across the nation.

(b) Resulted Based Financing of Healthcare

Canada and Brazil lead the way in results based intergovernmental finance in health as discussed below.

Canada: Canadian Health Transfers Program (CHT)

A good illustration of a simple yet effective design of such a grant system is the Canadian Health Transfers (CHT) program. Under this program, the federal government provides per capita transfers for health to the provinces with the rate of growth of these transfers tied to the rate of growth of the GDP. There are no conditions on spending but there are strong conditions on the access to health care. As part of the agreement to receive these transfers from the federal government, the provinces undertake to abide by several access related conditions and face penalties as specified below if there was a breach of any condition. The five conditions are:

(1) Universality: To provide universal coverage;
(2) Portability: Residents have the ability to move to another province and retain health coverage in the province of origin for a transition period. Residents and non-residents have equal access;
(3) Public insurance but public/private provision: The province agrees to provide universal insurance to all but financing of public and private providers on equal footing – both get reimbursed from the public insurance system using the same schedule of payments negotiated by the provincial medical association;
(4) Opting in and Opting out: All health providers have the option of opting out of the system and bill patients directly and not follow the prescribed fee schedule. The clients of these providers get reimbursed according to government prescribed schedule of payments by submitting claims; and
(5) No extra billing: All providers opting in the system cannot bill patients directly especially for charges in excess of the prescribed schedule.

Penalties include (a) threat of discontinuation of the grant program if conditions (1) through (4) are breached and dollar for dollar reduction of grant funds for breach of condition (5).

The program has enabled Canadian provinces to ensure universal access to a high quality health care to all residents regardless of their income or place of residence.

Brazil: Unified Heath System (SUS)

Fiscal transfers in support of the Unified Health System – SUS that operationalizes the constitutional obligation of universal right to free health services - are administered under a federal program called annual budget ceilings –TGF. The TGF has two components.

Equal per capita financing from for all municipalities is provided to cover basic health benefit. Funding for hospital admissions and high cost ambulatory care is subject to ceiling for each type of treatment. All registered health care providers – state, municipal, or private are eligible for grant financing through their municipal government (World Bank, 2001, Shah 1991).

Results Based Finance of Other Services

Only a handful of examples available as noted below.

Indonesia - The District/Town Road Improvement Grant used as allocation criteria, length of roads, condition, density (traffic use) and unit costs as criteria for distribution of funds. This grant program helped monitoring the health of the road network on a continuing basis and was successful in keeping roads in good working conditions in most jurisdictions (Shah, 1998).

Chile - Grants to municipal governments for water and sewer access by the poor cover 25-85% (means tested) of a household's water and sewer bill for up to 15 cubic meters a month with the client paying the rest (Gomez-Lobo, 2002).

Argentina – Federal transfers to provinces for social insurance are based upon number of poor women and children enrolled in social insurance and performance on key output measures (Eichler, 2008).

8. Conclusions Regarding the Practice of Fiscal Need Equalization

Fiscal capacity equalization is relatively straightforward to comprehend and is feasible (with some difficulty) to implement once a (political) decision is made on the standard of equalization. Fiscal need equalization is a complex and potentially controversial proposition, because by its very nature it requires making subjective judgments and using imprecise analytical methods. An analytical approach such as regression analysis using historical data is inadequate to handle this challenge when underlying structures are subject to change due to technology and other dynamic considerations. Great care is needed to specify the determinants of each service. An ideal fiscal need equalization system- theory based representative expenditure system as outlined earlier – is difficult to implement and therefore for good reasons has not been implemented anywhere in the world. Instead partial and ad hoc yet complex equalization is quite common place and appears politically popular yet controversial. Such methods tend to make the system opaque and in the long run invite citizens' distrust of government operations. When looked at closely, these complex methods seldom advance equity objectives.

This need not be the case. Fiscal need compensation can be more simply and objectively achieved on a service by service basis for major local merit services such as education, health, infrastructure etc. by the use of output-based national minimum standards grants as done in Canada and Finland for health and post-secondary education. Such grants can

use simple and objective service based indicators such as school age population for school finance, weighted population with greater weights for infants/children and senior citizens for health finance, etc. Continuity of finance can be assured by maintaining minimum standards of access and service quality. Such transfers will preserve local autonomy while enhancing simplicity, transparency and citizen based accountability for service delivery performance.

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