Comment to Anwar Shah’s paper on *Public services and Expenditure needs equalization*

Alessandro Petretto
University of Florence
Need Equalization (NE) approaches surveyed by Shah

- NE => aiming mainly at horizontal equity
- **what are the implications in terms of efficiency of Local Governments?**

Some results of a recent stream of theoretical and empirical literature
Need equalization Principles

- In Worldwide practices there are 3 main systems with several variants and combinations:
  - Expenditure Need equalization
  - Output-based block transfers equalization
  - Fiscal capacity (Revenue) equalization
Need Equalization (NE): the general formula

Expenditure need may be summarized by this formula (lastly Eggert, Koethenbuerger, Smart 2010)

\[ T_i = \alpha(N_i - \bar{\rho}B_i) = T_N - \alpha\bar{\rho}B_i; \alpha \leq 1 \]

\[ T_i = 0 \text{ if } N_i \leq \bar{\rho}B_i \]

\( N_i = \text{Need component} \)

\( T_N = \text{lump sum for allowed need} \)

NE => a linear grant inversely correlated to local Tax Base

Only when \( B_i = \bar{B} \) NE => a pure lump sum grant
How to determine Need factor $N_i$

**Expenditure Needs determination (Shah)**

a) **Ad hoc determination**: $N \sim \text{POP}$, weighted with corrective coefficients (e.g. density)

b) **Representative expenditure system**
   - (RES-DIM) => Direct imputation methods
   - (RES-SCA) => estimate standardized costs per functions

\[
\pi_l^i = \sum_k \frac{X_{il}^k}{X_l^k} c_{il}^k
\]

\[
N_{il} = \text{TOTE}_l^s \pi_i^l;
\]

\[
N_i = \sum_l N_{il}
\]

$k = 1, ... K \Rightarrow \text{need factors}$

$l = 1, ..., L \Rightarrow \text{functions}$

$i = 1, ..., n \Rightarrow \text{jurisdictions}$
c) Theory based **Representative expenditure system (RES-TB):** regression analysis of local public expenditure

\[ E_i = \beta_0 + \sum_k \beta_k X_{ik} + \varepsilon_i; \quad i = 1, \ldots, n \]

\[ N_i = \hat{\beta}_0 + \sum_k \hat{\beta}_k X_{ik} \]

\[ N_i - \bar{N} = \sum_k \hat{\beta}_k (X_{ik} - \bar{X}_k) \]
Need Equalization (NE) and cost-containment in producing services

any RES specification of \( N_i \) tends to reflect

\[ c^{sta} (.) \bar{y} \]

X-efficient unit-cost

Essential (minimum) level

• If actual \( c > c^{sta} \) and actual \( y \) is at the EL, RES is lower than actual expenditure, and, as a fixed-price transfer, it boosts LG to reduce \( c \) => **NE toward more x-efficiency**

• however, if \( y \) is deeply under the EL, RES might exceed actual expenditure => **NE could “finance” both cost and output inefficiency**

Possible solution
Shah => Output-based transfers for merit goods

• Grant finance <=> delivery performance

\[ Y_{outcome} = F(y_{output}, X_1, \ldots, X_n) \]
\[ y_{output} = f(K, L) \Rightarrow production \quad Costs \]

\( X_1, \ldots, X_n \), and then \( Y_{outcome} \) are beyond the control of the public management (PM)

\( K, L \) and then \( y_{output} \) via \( f(.) \), are factors under the control of PM

=> grant linked to \( y_{output} \), given a minimum standard of \( Y_{outcome} \) to be achieved by all \( i \) => choice of cost-minimizing techniques

Italian Essential levels of social provision (LEP)?
Fiscal capacity variant (Smart et al. 1998 => 2010)

Fiscal Capacity criterion: easier to apply but less equitable

Representative Tax System (RTS)

\[ T_i = \alpha \bar{\rho} (\bar{B} - B_i) = \]
\[ = T_{FC} - \alpha \bar{\rho} B_i \]

RTS => a linear grant inversely correlated to local Tax Base

RES ~ RTS <=> T_n ~ T_{FC}
Efficiency implications when equalization (Need and Fiscal capacity) grant is a linear function of local tax base

• 1. Equalization and Overprovision of local public services

• 2. Equalization and tax competition

• 3. Equalization and accountability of local politicians
Equalization $\Rightarrow +$ local tax rates and overprovision of local public services

Local Government (LG) $i$ now faces this effective tax rate

$$\hat{\rho}_i \equiv (\rho_i - \alpha \bar{\rho})$$

instead of the statutory one $\rho_i$

$\Rightarrow$ $MC_PF_i$ with $\alpha > 0$ is lower than $MC_PF_i$ with $\alpha = 0$

and the negative gap with $SM_PF_i$ is going to be wider

$\Rightarrow$ overprovision

A recent strand of literature, starting from Smart (1998):

lastly, Kelders and Koethenbuergergher (2010)
Equalization with tax base sheltering (tax evasion and avoidance)

Given the difference between **Earned income** (pre-tax) and **Reported taxable income**, if Equalization formula (Need and Fiscal capacity) are based on the latter

⇒ **further overprovision effect**: LG_i knows that losses due to sheltering are “compensated” by equalization (Grazzini and Petretto 2010)
Equalization => alleviating tax competition

Fiscal externality

\[ B_i = B_0 - a \rho_i + \sum_{j \neq i} b_j \rho_j \]

Nash Equilibrium =>
strategic complementarity in tax rates

\[ \rho_i = f^i (\{ \rho_j \}_{j \neq i}, \alpha); f_{\rho_i}^i \geq 0, f_{\alpha}^i > 0 \]

Tax competition => Race to the bottom: - \rho_i all i
NES and RTS => + \rho_i all i

=> **Beneficial compensation** (Smart 2007, Egger et a. 2010)

If there is also vertical tax competition RTS => efficient level of \rho_i all i, so it should be preferred to NES (Kotsogiannis 2010)
Equalization and Political economy

RTS, with equalized fiscal resources, citizens attach more importance to any remaining variation in public services supplies ⇒ they can more easily punish the rent-taking and incompetent politicians.

However, the complexity and the lack of transparency in defining the “potential fiscal capacity” to be equalized may introduce a perverse fiscal incentive that reduces accountability.

⇒ Kotsogiannis and Shanger (2009)