

Indexes of Tax Corruption

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To assess of the extent of corruption, various indexes have been used. The objective of this paper is to determine indicators for corruption in tax administrations – the Indexes of Tax Corruption. *Before* proceeding with any calculations all amendments to the tax law should be excluded.

The GDP is the crucial parameter on the basis of which the above-mentioned indexes should be calculated. Imports should be excluded from the GDP. As is known, imports in addition to all other taxes imposed in the country, are subject to import duty. At the same time, tax revenues from imports can be substantially affected by fluctuations in the exchange rate. With respect to imports, the level of tax corruption should be assessed separately.

For the purpose of formalization of indexes, let us introduce the following symbols: Y_0 and Y_1 are the nominal GDP for the base and relative years correspondingly, M_0 and M_1 – total imports for the base and relative years (in US \$) correspondingly, r_0 and r_1 – the exchange rate of the national currency for the base and relative years correspondingly, Y_0' and Y_1' – the adjusted nominal GDP (by excluding imports) for the base and relative years correspondingly ($Y_0' = Y_0 + r_0 M_0$ and $Y_1' = Y_1 - r_1 M_1$), T_0^T and T_1^T – tax revenues for the base and relative years, correspondingly, collected by the tax service, T_0^M and T_1^M – tax revenues collected from imports for the base and relative years correspondingly.

The Index of Tax Corruption represents the correlation of actual tax revenues with potential revenues. The latter should be calculated by multiplying tax revenues ratio to adjusted GDP for the base year by the adjusted GDP for the relative year: $T^{PT} = t_0 Y_1'$ (where: $t_0 = T_0^T / Y_0'$). By subtracting the actual from potential tax revenues, we can get an increase (or decrease) in tax revenues: $T^{PT} - T_1^T$. This could result from improvement of tax administration and changes in the tax legislation. By deriving percentage of such an increase (or decrease) from the potential tax revenues (T^{PT}) we can get a value which shows an increase (or decrease) in additional tax revenue per unit of potential tax revenue, resulting from an improved tax administration and amendments to the tax legislation. If we reflect in our calculations amendments to the tax legislation (in particular, actual tax revenues for the base year should be adjusted on the basis of tax legislation applicable in the relative year), then this ratio will represent the Index of Tax Corruption in Tax Service:

$$I_c^T = \frac{T^{PT} - T_1^T}{T^{PT}} = \frac{t_0 Y_1' - t_1 Y_1'}{t_0 Y_1'} = \frac{t_0 - t_1}{t_0} \quad (\text{where: } t_1 = T_1^T / Y_1').$$

If $I_c^T > 0$ (or $I_c^T < 0$), then we have an increase (or decrease) in the level of corruption at tax

offices.

When we perform similar calculations with respect to customs, we must replace GDP by the value of imports, calculated at the current exchange rate of national currency, and determine the following parameters: m_0 and m_1 – represents the ratio of customs revenues to imports for the base and relative years correspondingly ($m_0 = T_0^M / r_0 M_0$ and $m_1 = T_1^M / r_1 M_1$).

Potential customs revenues should be calculated by multiplying the ratio of tax revenues in customs for the base year by the average exchange rate for the same year and total imports for the relative year: $T^{PC} = m_0 r_0 M_1$.

By analogy with the above index, Index of Tax Corruption in Customs will be:

$$I_c^C = \frac{T^{PC} - T_1^M}{T^{PC}} = \frac{m_0 r_0 M_1 - m_1 r_1 M_1}{m_0 r_0 M_1} = \frac{m_0 r_0 - m_1 r_1}{m_0 r_0} = \frac{m_0 - m_1 I_r}{m_0},$$

where: I_r is the ratio of increase (or decrease) of the national currency exchange rate.

If $I_c^C > 0$ (or $I_c^C < 0$), then we have an increase (or decrease) in the level of corruption at customs offices.

Given the above indexes, it is easy to calculate what the loss or benefit to the State Budget would be as a result of an increase or decrease in the level of corruption at tax offices. If we compare this quantity ($I_c^T T^{PT} + I_c^C T^{PC}$) to all potential tax revenues facilitated by economic development ($T^{PT} + T^{PC}$) and assume that $I_c^T T^{PT} = T^{PT} - T_1^T$ and $I_c^C T^{PC} = T^{PC} - T_1^M$, then we can get the Integrated Index of National Tax Corruption:

$$I_c^N = \frac{I_c^T T^{PT} + I_c^C T^{PC}}{T^{PT} + T^{PC}} = \frac{T^{PT} - T_1^T + T^{PC} - T_1^M}{T^{PT} + T^{PC}} = 1 - \frac{T_1^F}{T^P},$$

where: T_1^F represents actual tax collections made by the tax service in the relative year ($T_1^F = T_1^T + T_1^M$);

T^P – all potential tax revenues for the relative year resulting from economic development ($T^P = T^{PT} + T^{PC}$).

If $I_c^N > 0$ (or $I_c^N < 0$), then we have an overall increase (or decrease) in the degree of tax corruption at the national level.

RESUME

Afin de créer des index de la corruption fiscale, il faut, tout d'abord, déterminer des revenus potentiels fiscaux, assurés seulement par le développement de l'économie; ensuite il faut comparer des revenus de cette dimension potentielle au niveau de leur paiement réel; En outre, avant d'effectuer le calcul préalable, il faut éliminer toute influence des amendements apportés à la législation fiscale. C'est de cette manière que des index de la corruption fiscale sont définis dans les services fiscaux et douaniers. Sur leur base on peut calculer ce qui a manqué au budget d'Etat sur la base de l'élévation de la corruption. Si nous comparons cette dimension au volume du revenu fiscal potentiel, conditionné par le croisement de l'économie, nous obtiendrons l'index national intégré de la corruption fiscale.