# Value-added tax effort

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### *Abstract*

The success of the value-added tax (VAT) towards revenue objectives is limited by the environment within which the VAT
article provides
such estimates for 129 countries with a VAT.

**Key words:**

## 1. INTRODUCTION

Many countries require additional revenue from the VAT towards fiscal consolidation and sustained economic development. Cnossen (2015) confirms this argument for African countries, and de Mooij and Keen (2012) for European countries. To obtain such additional revenues, countries should increase their VAT performance.

Three measures of VAT performance are generally used: a VAT to gross domestic product (GDP) ratio, a VAT to total final consumption ratio, and a C-efficiency ratio, which is similar to a VAT to final consumption ratio, but controls for standard rate differences among countries. Although each of these measures is useful, none of them takes into account that the performance of any VAT is limited by the environment within which that VAT operates. This environment is mostly beyond the control of the policy-maker; policy-makers face VAT capacity constraints. One may therefore argue that taking the different VAT capacity constraints of countries into account will offer an improved comparable measure of VAT performance, namely VAT effort.[2] Following the traditional tax effort approach, I estimate a VAT effort index for 129 countries over a period of 11 years (2004-2014).

The literature on tax effort and VAT performance is relevant for this article. Prominent contributions in the tax effort literature include Lotz and Morss (1967), Bahl (1971), Leuthold (1991), Tanzi (1992), Strotsky and WoldeMariam (1997), Piancastelli (2001), Teera (2002), Alm, Martinez-Vazquez & Schneider (2004), Bahl (2005), and Clist and Morrissey (2011) who use variables representing the economic environment as tax capacity constraints. Following Bird, Martinez-Vazquez and Torgler (2004), demand-side factors such as the political institutional environment have also been included as tax capacity constraints by Gupta (2007), Bird

This article contributes to the tax literature by providing the first VAT effort index. The regression results on VAT capacity factors, although informative, should be interpreted with caution. Endogeneity bias is not addressed for these results and consistent coefficients are beyond the aim of this article. For empirical results on VAT capacity factors, see Aizenman and Jinjarak (2008). The estimated VAT effort index is useful in identifying the potential of countries to increase VAT revenues by either increasing the rate of the tax, broadening the base of the tax or increasing tax compliance.

In the remainder of the article, I first discuss the measurement of VAT performance used and provide *a priori* justifications for the VAT capacity variables included in the models estimated. The regression results used to predict VAT capacity, a VAT capacity index and a VAT effort index then follow.

## 2.   VAT PERFORMANCE

### 2.1   VAT ratio

The terms VAT ratio, VAT capacity and VAT effort are used similarly to past tax effort studies. For tax effort studies, the tax ratio is almost exclusively calculated as:

$$\overline{\phantom{xx}} \tag{1}$$

where     is total tax revenue and    is GDP. In this equation, GDP is used as an overall indicator of tax capacity (Lotz & Morss, 1967). In this sense, the tax ratio can also be viewed as a tax effort indicator since tax effort can be defined as the extent to which a government raises tax revenues, taking into account its capacity to do so (Advisory

$$\overline{\phantom{xxxx}} \tag{3}$$

where $\phantom{x}$ is the standard rate of VAT for each country in the dataset. It would not be sensible to use C-efficiency as the measure of VAT performance in this article since the standard rate of the VAT is not a capacity constraint; it is a tool used to raise VAT effort.[6] Another potential measure of VAT performance found in the representative tax system literature (Bahl, 1972) would be to use representative VAT as:

$$\overline{\phantom{xx}}$$

**Table 2: Institutions Index Variables**

| Variable | Description |
|---|---|
| Political stability and absence of violence | Perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism. |
| Control for corruption | Perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as capture of the state by elites and private interests. |
| Regulatory quality | Perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. |
| Government effectiveness | Perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. |
| Rule of law | Perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. |
| Voice and accountability | Perceptions of the extent to which a country s citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. |

Source: Kaufmann, Kraay and Mastruzzi (2011)

**Table 3: Summary Statistics of Institutions**

| Variable | N | Mean | Std Dev. | Min | Max |
|---|---|---|---|---|---|
| Institutions | 1187 | 6.05 | 3.273 | 0.06 | 11.975 |

*2.2.2    Development*

becomes more developed. It can be expected that public expenditure on defence, law and order will increase and government will take on additional functions such as the provision of education and welfare services (Peacock & Scott, 2000). This means that as the level of development of a country rises, the demand for additional tax revenue would increase. It is not only in this sense that development could influence VAT performance. Development is associated with higher levels of education, literacy and technology, all of which can be expected to raise the capacity of a country to administer taxes.

deduction of input VAT would be available to businesses to whom financial services are supplied under these methods, resulting in tax cascading.

The cash-flow approach proposed by Poddar and English (1997) allows for the correct calculation of value added by intermediation services and the taxation of this value on a transaction-by-transaction basis. There appear to be two main reasons for the non

VAT performance also increased. The positive sign of financial credit to GDP supports de la Feria and                                                                    decline by removing the exemption applicable to financial services. The negative sign of unemployment is also consistent with the hypothesis that high unemployment limits the potential to increase VAT effort.[19]

It can also be seen, with reference to the magnitude of the coefficients, that the level of

VAT, which partially explains the increase in the VAT rates to 17%, 14% and 8% on 1 January 2015.

On the other hand, the VAT effort of Burundi is 0.95, the 12th highest in the sample. Burundi has a VAT rate of 18% with a reduced rate of 10%
is not a modern VAT, it also does not suffer from excessive exemptions, with a shorter list of exemptions than most European countries.[25] Although Burundi had a VAT ratio of about 5% and a C-efficiency of 0.28 in 2014, when considering its VAT effort, Burundi is not doing as poorly as these two figures suggest. The high VAT effort in Burundi also means that there is likely limited capacity to obtain further revenues from the VAT.

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## 5. CONCLUSION

The VAT is a major source of tax revenue in nearly all of the countries where it is applied.[26] Due to the relative ease of shifting production and incomes to low-tax jurisdictions, obtaining revenue from consumption taxes may become of even greater importance. Once established that additional revenue from a VAT is required, it should be considered whether a country has the necessary capacity to increase the VAT rate or broaden the base of its VAT. The VAT effort index provided in this article indicates the extent to which countries can look towards the VAT as a source of additional revenues.

## 6. REFERENCES

Advisory Commission on Intergovernmental Relations 1962, *Measures of State and Local Fiscal Capacity and Tax Effort: A Staff Report*, US Government Printing Office, Washington, DC.


http://www.new-ag.info/en/country/profile.php?a=2965.


*Journal of International Trade & Economic Development*, vol. 17, no. 3, pp. 391-410.

Alesina, A & *Journal of Public Economics*, vol. 69, no. 3, pp. 305-321.

Alm, W *Martinez-* -to-
*Contributions to Economic Analysis*, vol. 268, pp. 11-75.

*Staff Papers (International Monetary Fund)*, vol. 18, no. 3, pp. 570-612.


*Staff Papers (International Monetary Fund),* vol. 19, no. 1, pp. 87-124.

-Vazquez, J & Rider, M (eds), *The Challenges of Tax Reform in a Global Economy*, Springer, New York, pp. 413-439.

*The Journal of Development Studies*, vol. 46, no. 10, pp. 1647-1669.

*Institute of Development Studies Working Paper 280*, Brighton, UK.

*Public Choice*, vol. 102, no. 1, pp. 1-17.

*Revista de Economía Pública*, vol. 195, no. 4, pp. 65-87.

panel data analysis-          *IPEA Discussion Paper 103*, Rio de Janeiro, September.

ation of financial services under a value-added tax: applying the cash-          *National Tax Journal*, vol. 50, no. 1, pp. 89-111.

*Brookings Papers on Economic Activity*, 1995, no. 1, pp. 1-118.

Schenk, A, Thuronyi, V & Cui, W 2015, *Value Added Tax: A Comparative Approach*, 2nd ed., Cambridge University Press, New York.

ll over the world: new estimates *Universidad de Chile: Departamento de Economia SDT 322.*

-          *International Monetary Fund Working Paper 97/107.*

Tan
    Goldin, I & Winters, L A (eds), *Open Economies: Structural Adjustment and Agriculture,* Cambridge University Press, pp. 267-281.

Teera, J M & Hudson, J 2004,          *Journal of International Development*, vol. 16, no. 6, pp. 785-802.

https://www.usaid.gov/powerafrica/burundi.

http://www.doingbusiness.org/data/exploreeconomies/belarus/paying-taxes.

Wo
    https://data.worldbank.org.