



Ensuring a Balanced Tax System

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**NARROWING TAX GAP:**  
CROSS COUNTRIES EXPERIENCE

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# NARROWING TAX GAP: CROSS COUNTRIES EXPERIENCE

Adri Poesoro<sup>1</sup>

This paper reviews methodologies and empirical estimations of cross-countries' tax gap and tax effort. Tax gap is the different between the maximum amounts of tax revenue to the actual receipt. Meanwhile, tax effort is defined as an index of ratio between the share of the actual collection in gross domestic product (GDP) and taxable capacity.

Several variables, such as demographic, structure of the economy and institutional variables, are included as determinant to actual tax-to-GDP and as factors to measure tax capacity. This analysis also incorporates review and policy recommendation on how to contain shadow economy problems.

As part of to inform current level of tax capacity and effort across regions, this paper also provides recommendations and strategies to narrow the gap.

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## 1. Introduction

### *ANALYZING THE TAX GAP PROVIDES A USEFUL TOOL FOR UNDERSTANDING THE RELATIVE SIZE AND NATURE OF NON-COMPLIANCE*

This paper substantively measures “tax gap” or the difference between the amounts of tax collection that tax authority should have been collected against what is actually collected. Tax capacity refers to the maximum level of tax revenue that a country can achieve. In many cases, tax capacity measures the predicted tax to gross domestic product ratio that can be estimated with the regression, taking into account a country’s specific economic, demographic and institutional features.<sup>2</sup> Meanwhile, tax effort estimates the ratio between actual tax revenue and capacity. Previous studies on tax capacity and effort have utilized both cross-section and time series models into consideration. Similar to our earlier paper<sup>3</sup>, previous theoretical and empirical literature on tax revenue started the analysis by trying to find out the determinants of tax revenues where they include several variables such as level of the economy (i.e. Gross Domestic Products, per capita GDP, level of unemployment, etc.), the degree of openness of an economy, the ratio of public debt to GDP, the level of education of a country, and institutional factors as corruption and governance.

Tax collection is considered the most reliable way to finance public expenditures. Most countries still rely on tax revenue as their primary source of income. However, many developing countries still experience a chronic gap between the actual and desirable levels of tax intakes due to large informal economy and tax evasion problems (e.g. no reporting and under-reporting). Tax reforms covering institutional and administrative matters are needed to close this gap, but such reforms cannot be the same for all countries. The development of a tax effort index, relating the actual tax revenues of a country to its estimated taxable capacity, provides us with a tempting measure, which considers country specific fiscal, demographic, and institutional characteristics.<sup>4</sup>

Lotz and Morss<sup>5</sup> published one of the first articles to study the international tax ratio, using as explanatory variables per capita Gross National Product (GNP) and trade (represented by the ratio of exports plus imports to total GNP). Gupta<sup>6</sup> used dynamic panel regression analysis and identified that some structural factors, such as per capita GDP, the share of agriculture in GDP, trade openness, and foreign aid, significantly affect tax revenue. Gupta explored most of the data from the World Bank World Development Indicators. Davoodi and Grigorian<sup>7</sup> looked at extended the conventional determinants of tax revenue potential, specifically to the case of Armenian, to include measures of institutional quality and informal economic activity in a panel data framework and showed that institutional improvements as well as policy initiatives designed to reduce the size of informal economic activity are important in raising tax revenue performance. Alfirmán<sup>8</sup> analyzed tax capacity in only one country (Indonesia) to conclude that local governments were far from their tax capacity and could increase their tax revenue.

There are several considerations that most governments undertake imminent measurements and strategies to improve their tax collection leading to narrowing the tax gap. First is effort to lessen tax evasion, which could come from voluntary and involuntary tax non-compliance. According to Schneider<sup>9</sup>, the activity to evade from paying taxes in the developed countries reaches around 14-16 percent of GDP. Meanwhile, the figure shows up to a quarter to 44 percent of GDP in developing countries. Second argument is to attract more capital repatriation. Governments around the world try to repatriate capitals that have been stashed overseas by creating more tax incentive and also coordinating with other countries through bilateral tax treaty. The third is related to minimizing illegal profit shifting to other countries. The fourth is governments’ budget processes where tax amnesty program tends to be associated with the policy of budgeting politics especially to deal with the growing deficit of state budget.

5 Lotz, Jorgen R and Elliott R. Morss, 1967, “Measuring Tax Effort in Developing Countries” Staff paper- International Monetary Fund, 14:3, pp. 478-99.

6 Gupta, Abhijit Sen, 2007, “Determinants of Tax Revenue Efforts in Developing Countries” IMF Working Paper, No: WP/07/184 (July).

7 Davoodi, Hamid R and David A. Grigorian, 2007, “Tax Potential vs Tax Effort. A Cross Country Analysis of Armenia’s stubbornly low tax collection,” IMF Working Paper No WP/07/106.

8 Alfirmán, L., 2003, “Estimating Stochastic Frontier Tax Potential: Can Indonesian Local Governments Increase Tax Revenues under Decentralization?” Department of Economics, University of Colorado at Boulder, Colorado, Working Paper No. 03-19.

9 Scheneider, F, 2005, “Shadow Economies around the World: What Do We Really Know?” European Journal of Political Economy 21: 598-642.

2 Le, Tuan Minh, Blanca Moreno-Dodson, and Jeep Rojchaichaninthorn, 2008, “Expanding Taxable Capacity and Revenue Potential: Cross-Country Analysis” WB Policy Research Working Paper, PREM.

3 Poesoro, Adri and Bawono Kristiaji, 2013, “Myths and Realities of Tax Performance under Semi-Autonomous Revenue Authorities (SARA)”, DDTDC Working Paper No.0213.

4 Le, Tuan Minh, Blanca Moreno-Dodson, and Jeep Rojchaichaninthorn, 2012, “Tax Capacity and Tax Effort: Extended Cross-Country Analysis 1994-2009” WB Policy Research Working Paper, PREM.

Understanding the tax gap provides a useful tool for understanding the relative size and nature of non-compliance.<sup>10</sup> By understanding the tax gap helps tax authority to recognize how non-compliance occurs and what strategies they need to structure and design especially for long-term performance. Some countries even disaggregated their calculation based on the type of tax, taxpayers' behavior and by customer group in order to come up with detailed and focused strategies. England, for example, experienced higher gap that can be attributed to small and medium-sized enterprises (SMEs) compared to other group such as individuals, large business and criminals. The problems for developing countries to raise revenues are twofold.<sup>11</sup> First, they typically have limited taxable capacity and a large share of economic activity in the informal sector. Second, their tax regimes may be riddled with numerous tax relief initiatives and/or tax expenditures, which further deplete the tax base and tends to reduce the efficiency and effectiveness of tax collection efforts.

This paper is organized as follow. Section 2 presents a brief overview of the cause of tax gap. Section 3, then, compares and analyses cross-country figures on tax capacity and effort. Section 4 provides analysis of Indonesian case. And section 5 includes the main conclusion and policy recommendations in designing an effective tax reform program.

## 2. The Cause of Tax Gap

### 2.1. Shadow Economy

*MAJOR DRIVING FORCES BEHIND THE SIZE AND GROWTH OF THE SHADOW ECONOMY ARE AN INCREASING BURDEN OF TAX AND SOCIAL SECURITY PAYMENTS, COMBINED WITH RISING RESTRICTIONS IN THE OFFICIAL LABOR MARKET.*

What is a shadow economy activity? It is also called as an underground or informal economy. According to the terminology used by the International Monetary Fund, underground economy covers not only illegal activities but also unreported income from the production of goods and services.<sup>12</sup> There are some activities that are

classified as shadow/underground economy-activities, such as street vendors, unlicensed taxi driver; a plumber that gets paid in cash but does not declare his earnings to the tax administrator; and a drug dealer broker. These activities have also been considered harmful to the economy because:

- Inappropriate and misplaced government policies and discretion due to unreliable statistical data;
- Cash transactional basis, which is mainly the feature of the shadow economy, escapes taxation, thus keeping tax revenues much lower than they otherwise would be. If the tax base or tax compliance is eroded, governments may respond by raising tax rates – encouraging a further flight into the underground economy that further worsens the budget constraints in the public sectors;
- A growing shadow economy may provide strong incentives to attract domestic and foreign employees away from the official economy.<sup>13</sup>

**Table 1 - Types of Underground Economic Activities**

Type of Activities	Monetary Transactions
<b>Illegal (prohibited production and distribution of proscribed substances)</b>	Trade in stolen goods; transactions of drugs; prostitution; gambling; smuggling; fraud.
<b>Legal (legal market activities but kept hidden for tax-evasion reason)</b>	Unreported income from self-employment. Wages, salaries, and assets from unreported work related to legal services and goods

Source: The Frazer Institute, 1997

Thus, underground economy comprises all economic activities that would generally be taxable. The percentage of shadow economy was differs around the world. Shadow economy during the period of 1988 to 2000 was between 35 to 44 percent for developing countries, 21 to 30 percent for transition countries like former Soviet Union states, and 14 to 16 percent for OECD countries. Advanced countries such as the United States and Switzerland have around 9 to 10 percent of GDP. In all European OECD countries combined, about 35 million people are in informal sectors. This number is growing in almost all countries which in the case of European countries it increases almost twofold. Using World Bank WDI data, shadow economy

10 HM Revenue and Customs, 2014 "Tax Gap Estimates for 2012-13", Measuring tax gaps 2014 edition, An Official Statistics release.

11 Op.Cit., Le, Tuan Minh, Blanca Moreno-Dodson, and Jeep Rojchaichaninthorn, 2008.

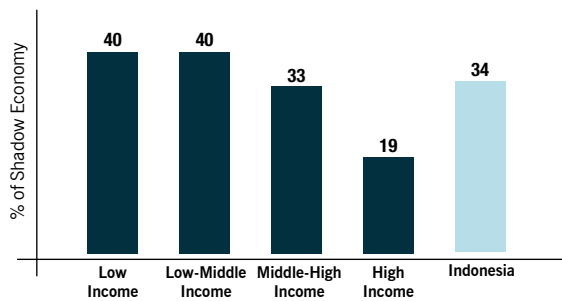
12 According to HMRC (2014), underground/hidden economy is all undeclared activity that involves what they call 'ghosts' – whose entire

income is unknown to the authority. There is a difference between the hidden economy and tax evasion: Hidden economy is where an entire source of income is not declared and tax evasion is where a declared source of income is deliberately understated. In measuring the tax gap, HMRC used the employer compliance random enquiry program (EC REP) and data on compliance yield and non-payment.

13 IMF, 2002, "Tax Policy in Developing Countries" IMF policy paper.

in Indonesia matches to middle-high income countries average.

**Figure 1 - Comparison of Shadow Economy**



Source: Kristiadji (2013) and WDI World Bank (2010)

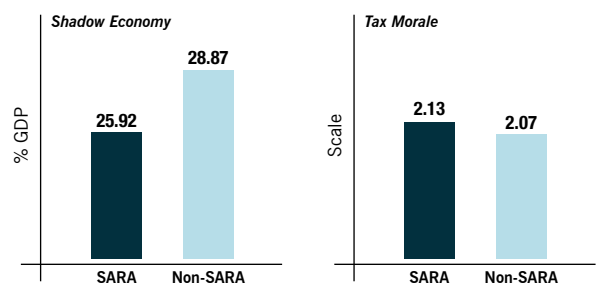
One half or more of developing world's non-agricultural workers are employed in the underground informal sector, according to the International Labor Organization. Employment in the informal sector is estimated to be more than 50 percent of non-agricultural employment and nearly 30 percent of non-agricultural Gross Domestic Product (GDP) in Asia. In Indonesia, 70 percent of the workforce was estimated be engaged in informal employment, mostly in the agriculture sector<sup>14</sup>. BPS Indonesia estimated informal employment to be about 64 percent in 2006 (and about 62.1 percent in 2009) and the share of small enterprises (that seem to be mostly informal) to the GDP output to be roughly 38 percent. Number of informal worker in Indonesia, in the absolute value, increased from 55.81 million people in 2001 to 64.84 million in 2009, or in other words there was an increase of around 16.2 percent during those periods.

Macroeconomic and microeconomic modeling studies based on data for several countries suggest that major driving forces behind the size and growth of the shadow economy are an increasing burden of tax and social security payments, combined with rising restrictions in the official labor market. Therefore, countries with relatively low tax rates, fewer laws and regulations, and a well-established rule of law tend to have smaller underground economies. Or in other words, factors related to socio-economic conditions and tax regimes in the neighboring countries heavily influence tax collection pattern in a specific country. One way to identify the size of the shadow economy is through the rising transaction using cash. Rising activity in the shadow economy is likely to push up the demand for currency. To reduce the attractiveness of using cash as means

of tax evasion, several developing countries such as Brazil, South Korea, and India, impose a tax on bank debits. South Korea has created a subsidy to use credit cards, presumably hoping to shift transactions to a form that can be monitored and taxed more easily. Another approach is to lower tax rates in sectors where it is easier to shift into the informal economy. By reducing the differential tax rates across sectors, economic efficiency can be elevated.

We also want to look deeper into the performance of different tax administration structure in collecting taxes. Surprisingly, there is a difference between the two types of administrations. From our analysis, it appears that countries that adopt Semi-Autonomous Revenue Authorities (SARA), the percentage of shadow economy is lower (25.92 percent). Although, the difference between these two groups is essentially not significant. In the context of tax morale (the data is taken from the World Values Survey), there is also no significant difference between the two groups. Taxpayers in the two groups of countries tend to have the same views over justification of doing tax fraud. On the other hand, the occurrence of tax bribery is more apparent in the countries that adopt the non-SARA system.

**Figure 2 - Shadow Economy and Tax Morale in SARA and Non-SARA Countries**



Source: Tax morale data is from World Values Survey, various years. While, shadow economy data are extracted from Schenieder, Buehn, dan Montenegro (2012).

## 2.2. Tax Evasion

*WHILE INDONESIA HAS GONE THROUGH A SERIES OF TAX REFORM SINCE 2001, TAX COMPLIANCE LEVELS ARE STILL LOW WITH RATES OF FILING ESTIMATED AT 50-60 PERCENT OF REGISTERED TAXPAYERS.*

Taxes add to the cost of labor in the official economy and hence are key factors driving the growth of the informal economy. The bigger the

<sup>14</sup> Firdausy, Carunia Mulya, 2000, "Size, Nature, Issues and Policies of International Migration from Indonesia to Asia", Ministry of Research and Technology.

difference between the total cost of labor in the official economy and the after-tax earnings from work, the greater the incentive for workers to move to the shadow economy. Several studies have found strong evidence that the tax regime and types of tax administration influence the decision of taxpayers to work in formal or informal sectors. With evasion being such a dominant issue, countries face additional pressure to lower tax rates, as the main tool, in order to draw individuals and firms into the formal economy and to dis-incentive those already in the compliance spectrum to underreport their income. South Korea, for example, reduced its effective corporate tax rate from 53 to 27 percent, while corporate tax receipt doubled as a fraction of GDP.

India has also reduced its personal and corporate income tax rates dramatically in recent years, yet its tax revenue has doubled as a fraction of GDP. In Indonesia, corporate tax rate has been reduced from 28 percent (January – December 2009) to 25 percent (from December 2009 onwards). While for Personal Income Tax, the tax rate decreased from 10 percent (up to IDR 50 million) to 5 percent (up to IDR 50 million) in order to attract more taxpayers into the system. However, the VAT rate has been kept constant since 1995 at 10 percent with five percent deviation and VAT for export sets at zero percent. While Indonesia has gone through a series of tax reform since 2001, tax compliance levels are still low with rates of filing estimated at 50-60 percent of registered taxpayers.

### 3. Tax Capacity and Tax Effort: Comparative Studies

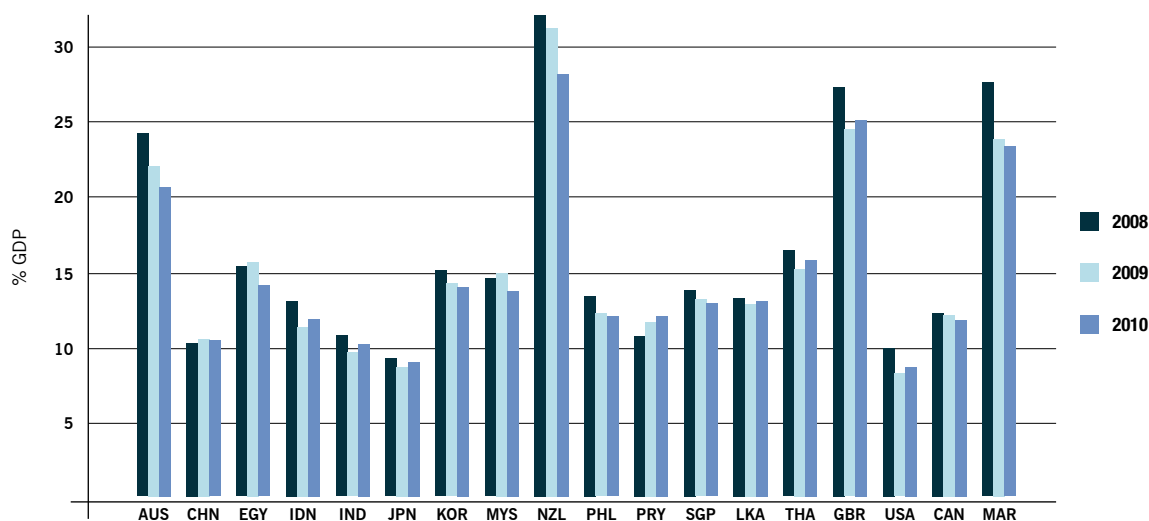
*TAX CAPACITY AND EFFORTS PRESENT SIGNIFICANT DEVIATIONS ACROSS COUNTRIES, INCOME GROUPS AND REGIONS, AS WELL AS OVERTIME.*

Figure 3 covers three period of time from 2008 to 2010 fiscal year. Indonesia collected lower tax revenues (over GDP) compared to neighboring countries like Malaysia, Singapore, and Thailand. Most of the observed countries experienced a modest decrease during those periods of time as a consequence of Global Financial Crisis started in 2008. The observed trend in tax collection implies that country like Indonesia is being trapped in a structural dilemma, which typically has low taxable capacity coupled with inefficient collection structure overwhelmed by consumption taxes while having enormous needs to finance development needs. Usually, peer countries in the same region are likely to share certain commonalities in their tax structure due to their similar economic and social factors; but somehow their tax receipts are varies considerably. Enforcement as well as ratio of tax agent to taxpayer influences larger tax revenue.

The regional pattern of tax collection shows that the Central European region tax ratio has outperformed other regions. The figure stands at 18.1 percent in 2010 or almost 5 percent higher than East Asia and Pacific (EAP) region<sup>15</sup>. The ratio in EAP had been declined from around 12 percent in 2008 to around 11.5 percent. OECD high-

<sup>15</sup> This region consists of all South East Asian countries.

Figure 3 - Tax Ratio by Countries (2008-2010)



Source: The World Bank Classification and WDI



income countries have the highest tax collection as percentage of GDP at around 30 percent in 2010. Moreover, the tax share in the Latin America and Caribbean region, the Sub-Saharan Africa region, and the Middle East and North Africa region present similar tax ratio at around 18 percent of GDP.

Measuring taxation performance of countries is useful but theoretically and practically challenging. As presented in the empirical analysis, several variables are important in determining the level of taxes in a country. It is worth noting that in recent years both the significance and the magnitude of the impact of institutional quality indexes on tax collection have increased strongly. This finding

indicates that countries with better institutional quality (e.g., bureaucracy quality or corruption) can potentially raise tax collection without undue extra burden on the economy.

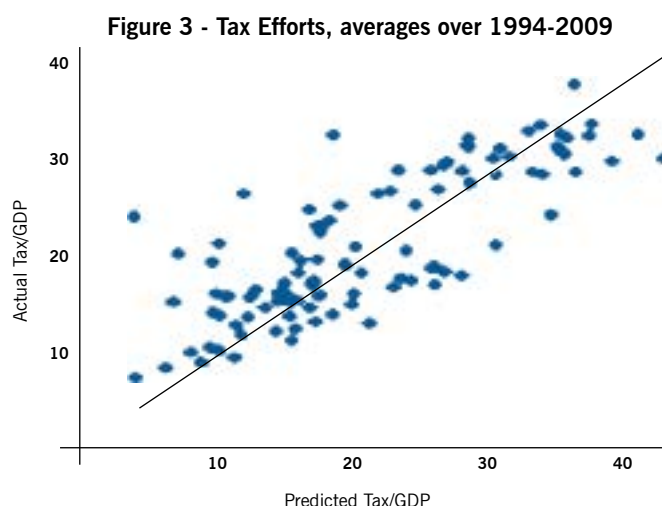
Tax capacity and efforts present significant deviations across countries, income groups and regions, as well as overtime. But overall, developing countries seem to have more limitations to expand the scope for taxation, which is determined by their taxable capacity. On the one hand, countries with a low level of actual tax collection and low tax effort may have more room to increase tax revenues in order to reach their taxable capacity without causing major economic distortions or costs. On the other hand, low-income countries with a low

Table 2 - Classification of Countries Based on Tax Efforts and Tax Collection (1994-2009)

**TAX EFFORT**

		LOW			HIGH			
TAX COLLECTION		Developing Countries			Developed Countries	Developing Countries		Developed Countries
		LOW	Albania	Dominican Rep.	Oman	Canada	Bolivia	
		Argentina	Egypt. Arab Rep.	Panama	Japan	Cote d'Ivoire		
		Armenia	El Salvador	Paraguay	Core, Rep	Ghana		
		Azerbaijan	Ethiopia	Peru	United States	Honduras		
		Bahamas, The	Guatemala	Philippines		Kenya		
		Bahrain	Guinea	Senegal		Mali		
		Bangladesh	India	Sierra Leone		Nicaragua		
		Burkina Faso	Indonesia	Sudan		Pakistan		
		Cameroon	Kazakhstan	Thailand		Sri Lanka		
		China	Lebanon	Uganda		Syrian Arab Rep.		
		Colombia	Madagascar	Yemen, Rep.		Togo		
		Cong, Dem. Rep.	Malaysia			Zambia		
		Congo, Rep	Mexico					
HIGH		Developing Countries			Developed Countries	Developing Countries		Developed Countries
		Bulgaria			Czech Rep.	Belarus	New Zealand	Australia
		Estonia			Denmark	Botswana	Papua New Guinea	Austria
		Jordan			Germany	Brazil	Poland	Belgium
		Latvia			Iceland	Chile	Slovenia	Cyprus
		Lithuania			Ireland	Costa Rica	South Africa	Finland
		Moldova			Luxembourg	Croatia	Trinidad & Tobago	France
		Romania			Spain	Hungary	Tunisia	Greece
		Russian Federation			Sweden	Jamaica	Uruguay	Italy
		Slovak Rep.			Switzerland	Mongolia	Vietnam	Malta
		Turkey				Morocco	Zimbabwe	Netherlands
		Ukraine				Namibia		Norway
								Portugal
								United Kingdom

Source: Le, T.M and Moreno-Dodson (2012), "Tax Capacity and Tax Effort: Extended Cross-Country Analysis from 1994-2009", Policy Research Working Paper, The World Bank.



Note: Predicted tax/GDP is taxable capacity. The line is the 45-degree line, which represents the points where the tax effort index is 1

level of tax collection but high tax effort have less opportunity to increase tax revenues without possibly creating distortions or high compliance costs<sup>16</sup>.

A high tax effort country is defined as the case when a tax effort is above 1 implying that the country well utilizes its tax base to increase tax revenues<sup>17</sup>. A “low tax effort”, on the other hand, is the case when a tax effort index is below 1, indicating that the country may have a relatively substantial scope or potential to raise tax revenues. In Table 2 above, Le, Moreno-Dodson, and Rojchaichanthorn (2012) used the same estimation technique as appear in their previous paper but incorporating larger dataset. The study includes 110 developing and developed countries covers longer time period (1994-2009). Model specification that they created consists of possible determinants<sup>18</sup> of tax revenue as a share of GDP. However, the methodology does not consider possible effects of shadow economy to tax ratio. As mentioned above, the data is mainly extracted from the World Bank’s World Development Indicators Database and the International Country Risk Guide (ICRG) database.<sup>19</sup>

From Table 2, it is clear that most of OECD countries are in the quadrant of ‘high tax effort’ and ‘high tax collection’. Surprisingly, the United State, Japan, Canada, and Republic of Korea are in the ‘low tax effort’ and ‘low tax collection’ quadrant. It should be noted that these countries have relatively higher share of sub-national tax

revenues.<sup>20</sup> In the United States, tax expenditures are high as well.<sup>21</sup> Other than these countries, most of the countries in this group are low to medium income countries. These countries have potential to improve its tax revenues by reforming their tax policy and administration.

It should be noted that the results in Le, T.M and Dodson (2008, 2012) paper needs to be interpreted with care due to potential caveats in the modeling of tax capacity and effort, as well as in the measurement of the actual tax-to-GDP ratio. This study can be complimentary to but not substitute detailed analysis of a country’s tax system, which can consider the country’s overall fiscal policy taking into account public expenditure needs and the overall level of development. It is recognized that making fundamental changes in a tax structure is a challenge due to possible public resistance and political weakness. The design of tax revenue reforms must be country specific and constructed after comprehensive analysis of the country’s taxable capacity, revenue performance, and its top leadership’s political commitment. Figure 3 extracted from Le, T.M and Dodson (2012) shows relationship between the average values of actual and predicted tax collection (tax capacity<sup>22</sup>) in percentage of GDP. The 45-degree line represents countries with equal tax effort between actual and predicted. Along this line, tax collection exactly

16 Op.Cit., Le, Tuan Minh, Blanca Moreno-Dodson (2012).

17 Stotsky, Janet G, and Asegedech Woldemariam, 1997, “Tax Effort in Sub-Saharan Africa” IMF Working Paper. The International Monetary Fund: Washington, DC.

18 Tax ratio = f(GDP percapita, Population Growth, Trade Openness, Agricultural value index, Corruption index, Bureaucracy quality).

19 USAID has compilation of tax data from different sources.

20 Thornton, John, 2007, “Fiscal decentralization and economic growth reconsidered” Journal of Urban Economics vol 61, pp. 64-70 and OECD, 2003, “Fiscal Relations across levels of government”, OECD Economic Outlook 74, pp. 143-160.

21 Eissa, nada and Hilary Williamson Hoynes, 2008, “Incentive and Distributional Consequences of Tax Expenditure: Redistribution and Tax Expenditures: The Earned Income Tax credit” NBER Book Chapter.

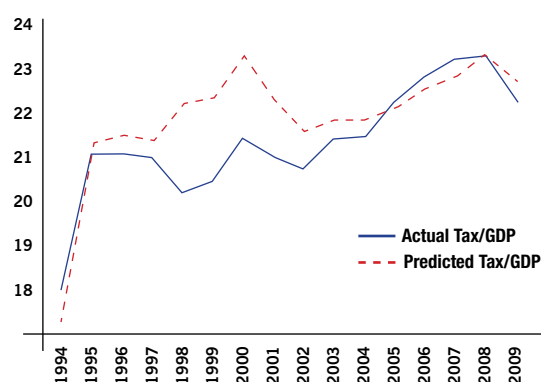
22 Tax capacity (predicted tax collection) is the estimated value of tax revenue calculated using the estimated coefficients from the regression results. The specification takes tax revenues as a function of GDP per capita, population growth, trade openness, agriculture value added (in percentage of GDP), corruption index, as well as regional and time dummies.



equals predicted tax capacity. Countries above the 45-degree line are the ones with a high tax effort (actual taxes are higher than predicted taxes). Conversely, the countries located below the line are the one collecting below their tax capacity. Most of developed countries are on and above the 45-degree line.

Figure 4 below presents the actual tax ratio and tax capacity on average across all countries from 1994 to 2009. Tax capacity was above actual tax ratio from 1996 to 2004; while, the pattern is reversed afterwards. Disaggregating into several regions, from the paper we recognize that OECD countries has almost flat at the value of 1 meaning that his group actual and predicted taxes are very similar. In East Asia (where Indonesia is one of them), the figure is below one after the Asian Financial Crisis as a result of economic downturn. As depicted from 2008, the gap is starting to widen again. The declining trend in tax collection and the tax effort is due to financial and economic crisis of 2008-2009; almost all countries experience turbulence in their economy. At the same time, many governments introduced stimulus package including tax incentives and lower tax rate, which put additional downward pressure to tax revenues. Comparing the two findings of Le, T.M. and Dodson papers, countries with better institutional quality (e.g. bureaucracy quality or corruption) can potentially raise tax collection without undue extra burden on the economy.

**Figure 4 - Average Actual Tax Collection and Taxable Capacity over 1994-2009**



Note: Actual Tax/GDP is tax ratio and Predicted Tax/GDP is tax capacity

In addition, we also present summary of tax effort index calculated by Le, T.M., and Dodson in several countries as appears on Table 3 below. East Asian countries covering to name of few Indonesia, China, Republic Korea, Malaysia, Philippines, and Japan have tax effort below par level of one. Indonesia, for example, has tax effort index of 0.9. This figures tells that Indonesia still has room to improve its tax collection through an enhancement

on its tax policies and administrations.<sup>23</sup>

**Table 3 - Summary of Several Countries by Tax Effort Index (Average 1994-2009)**

Country	Tax Effort
Indonesia	0.9
China	0.48
South Africa	1.43
R. Korea	0.89
Malaysia	0.82
Thailand	0.97
Philippines	0.91
Vietnam	1.31
Japan	0.47
Australia	1.14
Canada	0.76
New Zealand	1.42
United States	0.77
UK	1.10
India	0.88
Morocco	1.44
Paraguay	0.91
Sri Lanka	1.06
Bolivia	1.13
Egypt	0.95

Source: The Frazer Institute, 1997

Similar to previous paper that we reviewed, paper made by Ricardo Fenochietto and Carola Pession with a title of Understanding Countries' Tax efforts also present a stochastic frontier tax analysis model to determine the tax effort and capacity of 113 countries and the main determined variables. Their empirical analysis<sup>24</sup> shows that most OECD countries are near their tax capacity with a higher tax effort. High-income countries (e.g. United States (0.69), United Kingdom (0.83), Canada (0.78) and Australia (0.72)) are all above 70 percent in the tax efforts. This finding is similar to findings from other tax capacity papers. Given the high tax capacity, they also appear to be efficient in collecting taxes with low levels of evasion and very effective in public expenditures.

Several high level per capita GDP countries, such as Singapore (0.33), Korea (0.49), and Japan (0.53) are exceptions where these countries are operating far from their tax capacity. VAT rates in

<sup>23</sup> It is also important that detailed analysis of tax gap in Indonesia be conducted, which also takes into account tax performance at the sub-national level and possible future tax receipts as a results of minimizing the scope of informal economy.

<sup>24</sup> Detail analysis could be found in Fenochietto, Ricardo and Carola Pession, 2013, "Understanding Countries' Tax Effort", IMF Working Paper.

Table 4 - Tax Capacity and Tax Efforts: Cross Country Analyses

Country	Year	Total Revenue <sup>1</sup>	Percapita GDP, PPP 2005	Tax Effort <sup>2</sup>	Tax Capacity <sup>3</sup>
Indonesia	2011	11.9	4094.1	0.47	28
China	2011	18.9	7417.9	0.49	39.1
South Africa	2011	27.8	9678.2	0.75	38.2
R. Korea	2011	18.8	27541.3	0.49	38.8
Malaysia	2011	14.1	53591	0.32	44
Thailand	2011	17.7	7633	0.48	37.1
Philippines	2011	12.2	3630.9	0.52	23.2
Vietnam	2011	24.1	3012.7	0.68	36.7
Japan	2011	28.8	30660.4	0.71	43.4
Australia	2011	26.1	35052.5	0.72	37.6
Canada	2011	31.4	35716	0.78	40.1
New Zealand	2011	31.7	24429	0.79	43.9
United States	2011	24.5	42486	0.69	39.9
UK	2011	35.8	32862.8	0.83	44.2
India	2011	33.7	33515.6	0.55	64.4
Morocco	2012	24.3	4475.2	0.80	30.4
Paraguay	2011	15.2	4752.3	0.51	30.1
Sri Lanka	2011	12.5	4929	0.59	21.3
Bolivia	2012	26.5	4551.7	0.88	30
Egypt	2011	16.7	5546.5	0.48	35.9

Notes: <sup>1</sup>) Tax and social contribution as percentage of GDP; <sup>2</sup>) Truncated Normal Heterogeneous in Mean and Decay Inefficiency; <sup>3</sup>) Tax Capacity (percent of GDP)  
Source: Data is extracted from Fenochietto, and Pessino (2013)

these countries are among the lowest in the world: between 3 percent (1994) and 7 percent (2011) in Singapore; 5 percent in Japan in 2011, and 10 percent in Korea in 2011. These three countries and Indonesia (where tax effort is 0.47) contribute to the fact that the Asia and Pacific region has the lowest level of tax effort. Look at the tax effort index, Indonesia (0.47) has better figure than Singapore (0.32) but it is below Thailand (0.48), Philippines (0.52), and Vietnam (0.68). Additionally, Indonesia (28 percent) is only better than Philippines (23.2 percent) for tax capacity. Singapore has the highest tax capacity (44 percent) in Southeast Asia; although, its tax effort is considered low.

In terms of tax and social contribution as percentage of GDP, Indonesia is still below its neighboring countries such as Singapore (14.1 percent), Thailand (17.7 percent), Philippines (12.2 percent), and even Vietnam (24.4 percent). Especially with Philippines and Vietnam, Indonesia has a higher GDP per capita PPP 2005. Theoretically, Indonesia should have a higher tax ratio. There is still a wide gap when comparing Indonesia's tax ratio (11.9 percent) and capacity (28 percent) with a modest current tax effort at 0.47 (or less than 50 percent of its potential tax revenue<sup>25</sup>). Indonesia's tax system is prone

to several identified problems such as rigid civil service regulations that undermine an incentive structure and lead to poor performance; prevalent perception of corruption and collusion between taxpayers and officials; and rampant tax evasion. The IMF has estimated that Indonesia could increase taxes through broadening the tax base and improving tax compliance at current tax rates, up to 21.5 percent of GDP in the long-term, with realistic medium-term target of between 13.4 and 16.4 percent of GDP<sup>26</sup>. Tax experts (e.g. Silviani and Baer, 1997, and Jenkins, 1994) have called for radical changes in tax administration in countries where the tax gap is large (i.e. 40 percent or more of the potential tax).

Empirical analysis conducted by Fenochietto and Pession concludes that high-income countries with a high level of development are near their tax effort and almost 50 percent of their tax capacity. This is particularly the case for Canada and United Kingdom (with tax efforts higher than 70 percent). It is possibly here that the demand for public expenditure is a crucial determinant of the higher level of tax revenue. Given how near these countries are to their tax capacity, they also appear

revenue of around IDR 2000 trillion.

<sup>26</sup> IMF, 2011a, "Revenue Mobilization in Developing Countries", IMF Policy Paper. IMF, 2011b, "IMF Country Report: Indonesia", No. 11/30.

<sup>25</sup> With the current tax revenue realization, Indonesia has potential tax

Table 5 - Countries' Tax Effort by Level of Development

Country	Income			Average		
	Minimum	Maximum	Total Revenue	Per capita GDP, PPP 2005	Tax Effort	Tax Capacity
Low Income	642.1	4752.3	17	2169.4	0.65	26
Middle Income	4929	17885.4	24.1	10554.1	0.64	37.3
High Income	18987.4	68458.7	34.2	32763.3	0.76	45.1

Source: Data is extracted from Fenochetto, and Pessino (2013)

to be efficient in collecting taxes with low levels of evasion.

#### 4. Overview of Indonesia's Tax Performance

*BASED ON INTERNATIONAL EXPERIENCE, THERE IS A POSSIBILITY THAT THE GOVERNMENT COULD REACH TAX-TO-GDP RATIO IN 2019 AT 15.3 PERCENT OR BIT LESS THAN THE TARGET OF THE PRESIDENT SETS.*

Aforementioned, Indonesia currently has a very large gap between actual and potential revenue. Relative to its regional and emerging countries, Indonesia has one of the lowest ratios of revenue-to-GDP (15.8 percent in 2013) and tax-to-GDP (11.9 percent in 2013). Indonesia's tax ratio has also been unable to recover to pre-crisis levels. After the Asian Financial Crisis, Indonesia's tax revenues moved in parallel with strong nominal GDP growth, peaking in 2008 as key commodity export prices,

especially for oil, surged. As the global financial crisis happened, Indonesia's tax ratio dropped and hardly recovers to the pre-Global crisis levels.

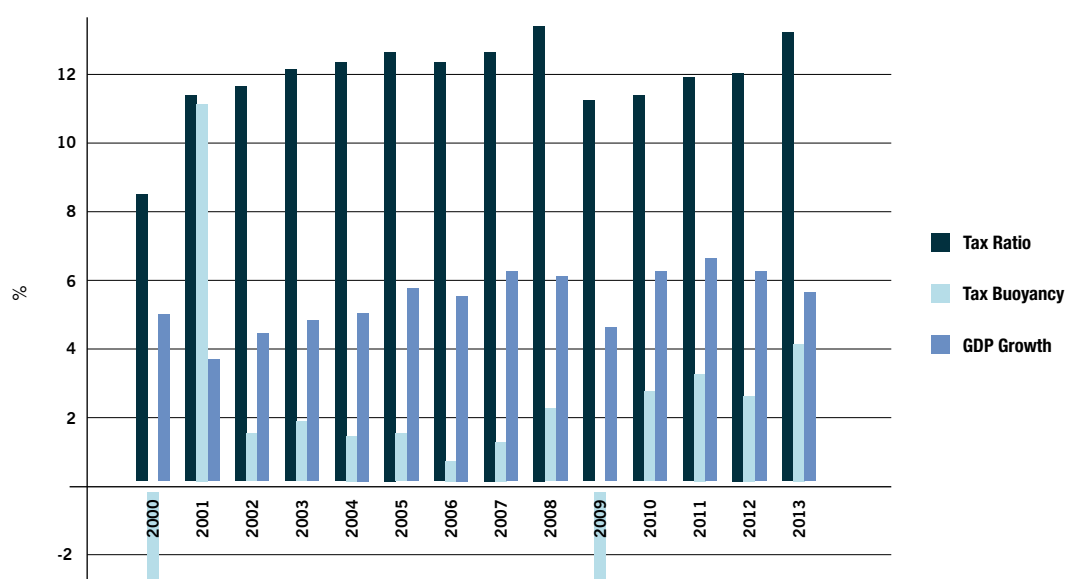
In terms of the structure of Indonesia's main revenues, income taxes, both oil & gas and non-oil & gas, accounted for about 5.6 percent of total tax revenue in 2013. Value added tax (VAT) accounted for 4.2 percent.

Alongside oil and gas sector challenges and macroeconomic factors, recent policy and administration changes are likely to have influenced revenue performance. There have been policy changes in corporate income tax (CIT) (a progressive tax schedule was replaced with a flat tax rate of 30 percent in 2009, which was reduced to 25 percent in 2010), personal income tax (PIT) (the top marginal tax rate was reduced and non-taxable income threshold increased in 2009 and 2013). Several tax administration changes have also been made, including VAT e filling and the start of the National Tax Census in 2011.<sup>27</sup>

The new government under President Joko

<sup>27</sup> World Bank, 2014, "Indonesia Quarterly Review" WB Jakarta Office.

Figure 5 - Indonesia: Tax Ratio and Buoyancy in Indonesia (2008-2012)



Source: : Government Financial Statistics, IMF

Table 6 - Tax Structure in Indonesia (2008-2013)

Revenue items	Actual					
	2008	2009	2010	2011	2012	2013
Total Revenue	19.8	15.1	15.4	16.3	16.3	15.8
Tax Revenue	13.3	11.1	11.2	11.8	11.9	11.9
Income non-O&G	5.1	4.8	4.6	4.8	4.6	4.6
Income O&G	1.6	0.9	0.9	1	1	1
VAT	4.2	3.4	3.6	3.7	4.1	4.2
Excises	1	1	1	1	1.2	1.2
Int' Trade Tax	0.7	0.3	0.4	0.7	0.6	0.5
Non-tax Revenue	6.5	4	4.2	4.5	4.3	3.9

Source: APBN 2008 - 2013, Ministry of Finance

Widodo (Jokowi) and Jusuf Kalla (JK) have stated their priority to lift the tax-to-GDP ratio to 16 percent by 2019. To increase revenue mobilization, Jokowi and his team need to enhance current revenue policies, improve tax administration performance through better enforcement and reduced compliance costs. Further tax policy reforms with renewed work programs could mobilize additional revenues across several taxes as well as reduce economic distortions and lower administration costs. Table 7 clearly depicts the different of total revenue with its breakdown components should the new government chooses more autonomous administration. Based on our previous paper measuring the effect of SARA to tax-to-GDP, there is a possibility that the government

could reach tax-to-GDP ratio in 2019 to 15.3 percent or bit less than the target of the President sets.

Changes to the current tax policy design could increase revenues in the following ways<sup>28</sup>: 1) tax extensification by broadening tax bases and reducing exemptions; 2) simplifying complicated tax structures and rationalizing the number of tax types, brackets and tax rates; and 3) selectively increasing tax rates that are particularly low by international standards. For example, as in other countries, instead of multiple CIT rates for larger (non-SME) firms, a single corporate income tax rate could be applied. In another example, changing from an ad valorem (i.e. percentage on value) to a specific (i.e. fixed Rupiah amount) tax on motor vehicles would simplify administration and likely increase compliance. These types of reforms are not only raise more revenues, but potentially reduce economic distortions from exempting certain taxpayers and sectors, reduce strategic behavior by taxpayers to avoid higher tax rates, and lower administration costs.

<sup>28</sup> Ibid.

Table 7 - Tax Capacity and Tax Effort

Revenue items	No Major Reform						With Major Reform in 2017					
	2014	2015	2016	2017	2018	2019	2014	2015	2016	2017	2018	2019
Total Revenue	15	14.5	14.2	14	13.8	13.7	16.06	15.60	15.26	16.79	17.28	17.91
Tax Revenue	11.3	11.1	11.1	11.1	11.1	11.1	12.36	12.20	12.16	13.89	14.58	15.31
Income non-O&G	4.4	4.5	4.5	4.6	4.6	4.7	5.46	5.60	5.56	7.39	8.08	8.91
Income O&G	1	0.8	0.7	0.6	0.5	0.5	2.06	1.90	1.76	3.39	3.98	4.71
VAT	4	4.1	4.1	4.1	4.2	4.2	5.06	5.20	5.16	6.89	7.68	8.41
Excises	1.1	1.1	1.2	1.2	1.2	1.2	2.16	2.20	2.26	3.99	4.68	5.41
Int' Trade Tax	0.5	0.4	0.4	0.4	0.3	0.3	1.56	1.50	1.46	3.19	3.78	4.51
Non-tax Revenue	3.7	3.3	3.1	2.9	2.7	2.6	3.70	3.40	3.10	2.90	2.70	2.60

Source: Ministry of Finance, WB staff Calculation (2014), DDTC calculation (2015)

## 5. Conclusion and Policy Recommendations

### 5.1. Conclusion

This paper intends to analyze the different between actual tax revenue and maximum predicted tax collection by reviewing previous papers related to the topics. Most of developed countries, especially those of OECD member countries, have a high level of tax capacity followed by highest degree of tax effort. Meanwhile, countries in East Asia and Pacific stand at different level of tax capacity and effort. Indonesia, for example, is still at low level of tax ratio (11.9 percent) and tax capacity (28 percent) as well as tax effort (47 percent). Commitment from government to enhance tax policies and improve tax administrations added with comprehensive and collective enforcement measurement could be used as panacea to the lingering problems in tax collection.

Based on previous studies, we also review papers related to shadow economy. Shadow economy tends to be larger in the countries that exercise:

- Ineffective tax system combined with unnecessary regulations by the governments;
- A heavily regulated economy with weak administration;
- Rampant collusion and corruption due to pervasive administrative problems;
- High unemployment and large earlier retirement;
- Decline of trust towards public institutions.
- It is also reflected in the fall of the number of labor market participation.

In the case of Indonesia, the size of underground economy measured by the currency demand approach from the period of 2000 to 2009 was about 5.04 percent of GDP with the potential tax revenue of about IDR 18.86 trillion each year.<sup>29</sup>

### 5.2. Policy Recommendations

The findings from previous studies on how to alleviate shadow economy problems contain some useful policy recommendations:

- Reductions in tax rates will not substantially shrink the shadow economy, but they may be able to reduce it;
- Marginal tax rates are more relevant to people's shadow-economy work decisions than are

average tax rates;

- More frequent tax audits and heavier penalties for tax evasion may reduce the size of the shadow economy;
- Governments should put more emphasis on legalizing certain shadow economy activities, for example by liberalizing the labor market;
- Reforms that liberalize regulations and make the economy more competitive reduce the incentives for corruption, and encourage firms to move from the shadow economy into the official one;
- Governments should put emphasis on the rule of law and on the strict enforcement of a minimum necessary set of regulations, rather than on increasing the number of regulations.

There should be a comprehensive measurement to tackle revenue collection issues. A necessary condition is a clear government commitment. Specific to strategies, there are some ways for tax administration to increase revenues, as follow:

- More strategic and risk-based compliance management approach. A risk-based approach means focusing on increasing registration, filing and auditing in high-risk (high tax potential but low compliance) sectors and segments. For example, revenue performance can be lifted significantly by focusing resources on improving voluntary filing and payment compliance levels among large taxpayers, where performance significantly lags international standards (currently 50-60 percent versus more than 98 percent in other countries).
- Continue improving capacity to analyze third-party information (e.g., more access to third-party data, improve the design of National Tax Census, and enhance data and IT management), and coordination with other stakeholders especially financial service authorities (most immediate challenge).
- Simplifying tax structures and greater dissemination of tax information. International experience shows that increasing the level of voluntary compliance is a more cost-effective approach to compliance management in the long-term. This requires providing services such as call centers, mobile filing and payment options to assist taxpayers who are willing to comply but lack capacity or information to properly fulfill their tax obligations, and rewarding those taxpayers with high levels of voluntary compliance with lower costs of doing business.<sup>30</sup>

<sup>29</sup> 0.62 percent of GDP. Purnomo, Kuntarto, 2010, "Estimasi Underground Economy di Indonesia" Tesis.

<sup>30</sup> Ibid.

In the end, the new government program to improve tax ratio by 16 percent in 2019 is considerably reasonable as long as necessary condition such as the government commitment itself and sufficient conditions as aforementioned above are fulfilled. Based on our calculation, the

new government could mobilize yearly tax revenue of around 12.2 percent in 2015-2016 FY. The figure will increase to around 14 percent if the government starts structuring a more independent tax administration as early as in 2015 and becomes effective in 2017.



Ensuring a Balanced Tax System

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