Volume LII No. 1

ISSN 1655-1516
June 2015

The Philippine Review of Economics

ARTICLES IN THIS ISSUE

BOOK REVIEW

A joint publication of the
University of the Philippines School of Economics
and the
Philippine Economic Society

The Philippine Review of Economics
Vol. LII No. 1, June 2015 pp. 1-22

Rethinking the taxation of compensation income in the Philippines

Stella Quimbo* and Xylee Javier*

The current individual income taxation structure of the Philippines significantly violates several norms of equity, with wage and salary workers (WSWs) being disproportionately burdened by income taxes. An important source of inequity is the phenomenon of "bracket creep" resulting from the failure to adjust tax brackets by inflation. Another is the failure of a large number of the self-employed to pay the right taxes.

We show that while inflation-adjustment of tax brackets results in revenue losses, an expansion of the tax base, a simplification of the income tax structure, and a reduction of tax rates can plug this leak. Using data from the merged 2013 Labor Force Survey and 2012 Family Income and Expenditures Survey, we estimate a set of tax rates that largely offsets the revenue losses from inflation-adjusted tax brackets. A key behavioral premise, supported by a multivariate logit analysis, is that the likelihood of paying income taxes increases with lower effective tax rates. Under the personal income tax structure proposed here, 36 percent of the income tax burden would be borne by the 2 top tax brackets—a seven percentage-point increase over the current share. Implementing these tax reforms, however, requires improvements in tax administration to accommodate the potential expansion in the tax base.

JEL classification: H24, H26, D63
Keywords: income tax, tax compliance, equity

1. Background

In 2013, the income taxes in the Philippines paid by compensation earners, professionals, and owners of business amounted to some ₱236 billion, equivalent to 2.04 percent of gross domestic product [Bureau of Internal Revenue 2014].

Individual income taxes accounted for about 19.39 percent of total taxes collected by the Bureau of Internal Revenue (BIR) in the same year. Value-added taxes had about the same share, 20.56 percent, while excise taxes accounted for 9.77 percent of total taxes. The largest share, 34.89 percent, of total taxes collected came from corporate income taxes.

TABLE 1. Collections of the Bureau of Internal Revenue (2010-2013; in ₱ billions)

Tax classification	2010	2011	2012	2013
Total	822,624	924,146	1,057,916	1,216,661
I. Taxes on net income and profit	489,300	571,897	642,501	718,361
A. Company, corporate, enterprise	280,044	337,443	370,125	424,497
B. Individual	167,110	193,525	222,724	246,580
1. Compensation and business	159,714	184,882	213,271	235,878
a. Individual	7,392	10,188	12,948	14,309
b. Withholding on wages	135,153	158,856	181,625	200,776
c. Withholding at source	17,169	15,837	18,698	20,793
2. Capital gains	7,397	8,643	9,453	10,702
C. Others	42,145	40,930	49,652	47,284
II. Excise taxes	67,203	67,993	72,346	118,856
III. Value-added taxes	173,284	183,082	229,594	250,149
IV. Other percentage taxes	44,510	47,012	52,571	60,807
V. Other taxes	48,327	54,162	60,904	68,488

Source: Bureau of Internal Revenue (2014)

Income taxes determine the incentives faced by the workers, consumers, investors, and firms as they make decisions such as whether and how much to work, how much to spend on consumption, how much to invest, how much to produce, and how much to pay workers. Since taxes form an important part of an economy's incentive structure, they ultimately influence the economy's size and level of development.

The inception of the ASEAN Economic Community by the end of 2015 is a further impetus to review Philippine income tax policy. With ASEAN being prospectively transformed into a region with free movement of goods and services, uncompetitive income tax rates could induce disadvantageous outflows of both capital and labor from the Philippines, where income tax rates are said to be among the highest in Asia. The Tax Management Association of the Philippines [TMAP 2014] shows that for an annual income equivalent to ₱500,000, the country's income tax rate of 32 percent is the highest in ASEAN.

The current taxes on compensation income were established by the 1997 National Internal Revenue Code of the Philippines (Republic Act 8424). The law provides for seven taxable income brackets, each with an applicable tax

rate ranging from 5 to 32 percent. Taxpayers may avail themselves of several deductions. Household heads may claim a ₱50,000 deduction, as well as a ₱25,000 deduction per dependent (up to a maximum of four dependents). Professionals can avail themselves of a 40 percent optional standard deduction; alternatively, they may itemize their expenses. Contributions to the Social Security System/ Government Service Insurance System, the Home Development Mutual Fund, and the Philippine Health Insurance Corporation are additional allowable deductions in the computation of taxable income. Such deductions are part of the reason the effective income tax rate is lower than the nominal tax rates stipulated for each tax bracket. Both compensation and business income tax payments consist of two parts: a flat peso amount and a fixed percentage in excess of the lower limit of the taxable income bracket (Table 2).

TABLE 2. Current income tax scheme

Bracket	Taxable income	Tax due
1	Not over ₱10,000	5%
2	Over ₱10,000 but not over ₱30,000	₱500 + 10% of the excess over ₱10,000
3	Over ₱30,000 but not over ₱70,000	₱2,250 + 15% of the excess over ₱30,000
4	Over ₱70,000 but not over ₱140,000	₱8,500 + 20% of the excess over ₱70,000
5	Over ₱140,000 but not over ₱250,000	₱22,500 + 25% of the excess over ₱140,000
6	Over ₱250,000 but not over ₱500,000	₱50,000 + 30% of the excess over ₱250,000
7	Over ₱500,000	₱125,000 + 32% of the excess over ₱500,000

Republic Act 9504, a law separate from the National Internal Revenue Code, also stipulates that minimum wage earners are exempt from paying any income tax. In addition, the 13th-month pay and bonuses received by officials and employees of public and private entities are also tax-exempt, provided that these do not exceed ₱30,000 (Republic Act 8424), recently adjusted for inflation to ₱82,000 (Republic Act 10653). Finally, although not treated further in this article, a further characteristic of the current system is its separate and distinct treatment of incomes earned from financial assets. Depending on type, earnings on financial assets are assessed a final withholding tax at a flat rate: dividends are assessed a flat 10 percent regardless of amount; savings and time deposits, deposit substitutes, and government securities are subject to a final withholding tax of 20 percent; and interest on foreign-currency deposits are assessed at a flat 7.5 percent.[1]

To examine the equity aspects of the current system as described, we focus on four dimensions of equity: horizontal equity; vertical equity; compliance;

[1] There is at present no requirement for recipients of "passive incomes" to reflect such final taxes withheld on their individual income tax returns. For this reason, the incidence of such taxes is not captured in this study.

and equity through time. The American Institute of Certified Public Accountants [AICPA 2007] defines these dimensions of equity as follows[2].

Horizontal equity and fairness: Similarly situated taxpayers are taxed similarly.
Vertical equity and fairness: Taxes are based on the ability to pay.
Time-related equity and fairness: Taxes are not unduly distorted when income or wealth levels fluctuate over time.
Compliance equity and fairness: All taxpayers pay what they owe on a timely basis.

We examine these dimensions using population-based surveys of households and workers, beginning with compliance, followed by horizontal and vertical equity, and finally, time-related equity. This assessment is followed by a normative analysis, where we propose a package of income tax reforms and simulate their effects on income tax revenues and the share of tax payments by different income groups.

The rest of the paper is organized as follows. Section 2 discusses the equity aspects of income tax payments. Section 3 discusses the various elements of the proposed package of reforms, and Section 4 presents the simulation results. Section 5 concludes the paper.

2. Equity aspects of income tax payments in the Philippines

While the equity aspects of the current tax system may be critiqued even based on first principles, this paper goes further by conducting simulations that approximate the patterns of actual income tax payments in order to make quantitative assessments. For this purpose, we use the merged 2013 Labor Force Survey (LFS) and 2012 Family Income and Expenditure Survey (FIES), with a sample size of 40,171 households and 76,045 workers[3]. Because tax records from the BIR are not readily available for purposes of research by external parties, we resorted to using nationally representative survey data, particularly, the LFS and FIES.

The first step is to generate a baseline income tax distribution whose total approximates that reported by the BIR as tax collections for 2013.

To do this, we compute mean income based on what survey respondents indicated as basic pay per day from their primary occupation, with some correction for underreporting. Studies have shown that the self-employed underreport income by an average of 30 percent when they participate in household surveys. (See,

[2] Other dimensions of equity are mentioned in the reference, but this analysis focuses only on these four dimensions.

[3] Only matched samples were used, i.e., those with records for both the LFS and FIES. Of all LFS respondents, 95 percent have matching FIES records.

for example, Hurst et al. [2011].) We found similar patterns of underreporting by comparing, for example, the mean income of teachers as indicated by the surveys and the standard salaries paid by the Department of Education. The mean annual incomes reported by self-employed professionals and non-professionals are ₱194,271 and ₱105,209, respectively. These are considerably lower than those of salaried government employees, such as teachers and soldiers, whose mean annual incomes according to the 2013 LFS are ₱218,146 and ₱273,551, respectively.

We apply the following correction factors on declared incomes: 24 percent for WSWs (non-minimum wage earners); 30 percent for self-employed non-professionals; and 40 percent for self-employed professionals. This range of correction factors is partly derived from Hurst et al. [2010] who estimate that the self-employed in the United States underreport their incomes to tax authorities by about 30 percent.

We compute tax due per worker based on the tax rules found in Table 2. Deductions are estimated on the basis of reported household characteristics (whether household head, number of dependents, monthly salary less than ₱30,000). In addition, contributions to the Government Service Insurance System, Social Security System, the Home Development Mutual Fund, and the Philippine Health Insurance Corporation are deducted from the estimated taxable income of the WSWs. For the self-employed, we apply the 40 percent optional standard deduction to the estimated total gross income.

The FIES reports actual tax payments per household. An approximation of actual tax payments per worker can be obtained from the FIES by considering households with household heads who are the sole workers in their respective households. Thus, for analyses that require combining information at the worker level (e.g., tax due) and household level (e.g., actual tax payments), we resort to the use of this sub-sample. One should note, however, that such households tend to have a lower total income ($p < 0.001$).

The highest individual annual income estimated in the merged 2013 LFS-2012 FIES is ₱5.2 million, implying that the sample is truncated on the right tail of the income distribution. To estimate the tax payments of individuals earning over ₱5 million, we use data provided by the Department of Finance during the 22 September 2014 hearing of the Philippine Senate's Ways and Means Committee. Based on the 2011 Compensation Tax Filer Database, there were 2,089 tax filers who earned at least ₱5 million. These tax filers had a total tax due of ₱5.2 billion in 2011. We supplement this with the BIR's report on the Top 2000 Individual Taxpayers in 2013. Of the 2000 top individual taxpayers, 1,610 earned at least ₱10 million. It should be noted that there may be overlaps between Department of Finance data and the BIR's Top 2000 taxpayers based on the recorded gross income, i.e., the former includes those with incomes of at least ₱5 million, while the latter includes those with incomes of at least ₱10 million.

We compute total taxes due per tax bracket, by type of worker (i.e., WSWs, self-employed professionals, and self-employed non-professionals). For each tax bracket, we multiply the mean taxes due by the estimated number of workers, which we obtained primarily from the 2013 LFS. The number of workers is supplemented by information on the number of professionals reported in a Senate report [Senate Economic Planning Office 2014], as well as data provided by the Department of Finance to the Senate's Ways and Means Committee during a 22 September 2014 hearing and data from the BIR's Top 2000 Individual Taxpayers in 2013.

For the various analyses, we further assume the following:

- Regional daily minimum wage thresholds can be used as a basis for identifying tax-exempt individuals. These range from ₱251 to ₱467 per day.
- WSWs pay mandatory contributions to the Government Service Insurance System/Social Security System, the Home Development Mutual Fund, and the Philippine Health Insurance Corporation. These payments are deducted from their basic pay after correcting for income underreporting.
- Households spend on consumption goods all that they "save" from reduced income taxes. Thus, an additional source of tax revenues is the value-added tax (VAT). Based on the 2012 FIES, some 77 percent of all household spending is subject to a 12 percent VAT. This rate is applied to what is "saved" on income taxes to compute VAT revenues.

Effective tax rates are computed by dividing the income tax payment due by gross income of a worker. Effective tax rates are generally lower than those stipulated in the code owing to allowable deductions.

Using FIES data, we generate a measure of "income tax participation" for every household with at least one working member earning more than the minimum wage. Based on their reported annual income tax expenditures, we create a dummy dependent variable that takes a value of 1 if one of these conditions is met: the household had at least one member employed as government or private sector worker, or the household was paying any positive amount of income tax. Otherwise, the dummy variable is 0.

Correlates of income-tax participation are identified using a logit model whose control variables include income, education level, type of employment (dummies for self-employed professional and non-professional), effective tax rate, the interaction of effective tax rates and type of employment, and region dummies. The estimated coefficients of the effective tax rate variables are used to project the increase in income tax participation rate given assumed reductions in effective tax rates. The regression sample includes household heads who are currently employed as wage and salary worker, self-employed professionals, and self-employed non-professions, as well as both minimum wage earners and those earning more than the minimum wage. (See Appendix for the regression results.)

2.1. Compliance equity: who pays income taxes?

Not all Filipino households pay income taxes. The merged 2013 LFS-2012 FIES shows that only 66 percent of all Filipino households paid any form of direct income tax. However, only 41 percent of all households that are headed by self-employed professionals declared payment of any direct tax. Furthermore, only 30 percent of households headed by self-employed non-professionals (such as an owner of a small business) said that they paid income taxes. The data also show that 99 percent of all WSWs had income tax payments. This is because taxes of WSWs are withheld and transmitted to the BIR by their employers. We can then ask: do people generally pay the right amount of income taxes? To answer this question, we compute what we call the "tax gap", defined as 1 minus the proportion of declared income taxes paid to income taxes due (based on the current tax code). For example, a 20 percent tax gap is interpreted as the proportion of the tax due that was left unpaid. Our estimated tax gaps indicate that, apart from outright non-payment, incorrect amounts of tax being paid should also be a concern.

For WSWs whose income taxes are withheld at the source, the tax gap should in principle tend to zero. The tax gap we obtain for this group, however, is about 43 percent. Self-employed professionals have the highest tax gap, which we estimate at 67 percent. For self-employed non-professionals, the estimated tax gap is 30 percent.

Some sense can be made of these patterns by drawing on the following observation by Gerson [1998] on the Philippine tax system: "... it is easier for the wealthy than for the less well-off to reduce or avoid taxes (as is the case in many countries). Although the Philippines has withholding taxes on the incomes of wage earners, the earnings of businessmen are harder to measure, and the wealthy have more opportunity to engage in perfectly legal tax-reduction strategies, such as tax-free investments and deposits." This discussion does not even delve explicitly into the question of the favorable tax treatment of income from financial assets, already noted earlier, which are more accessible to the well-off.

2.2. Horizontal and vertical equity: who bears the tax?

One feature of the Philippine income tax system is that the mechanism for collection and the amount of deductions vary considerably by type of worker. For the WSWs, income taxes are withheld on wages. For the self-employed, income taxes are voluntarily and directly remitted to the BIR. In addition to the standard deductions (personal and for dependents), the self-employed can use itemized deduction for costs of doing business or use the optional standard deduction of 40 percent on gross income. Those who own businesses organized as corporations also enjoy some deductions available to corporations. Thus, to assess horizontal equity, it is important to compare tax payments of various worker types.

According to the 2013 LFS, WSWs constitute 58 percent of all Filipino workers. These include workers in private establishments, government, and private households. About 28 percent of all workers are self-employed. About 72 percent of WSWs are minimum wage earners[4] and are, thus, tax-exempt. This means the base of automatically compliant individual income tax payers is small. Only 16 percent (28 percent of 58 percent) of all Filipino workers automatically pay an income tax (i.e., taxes withheld at source). Yet, these workers account for over 85 percent of all individual income tax payments (refer to those "withheld as wages" as reported in BIR 2014).

Table 3 compares effective income tax rates by type of worker. We note that WSWs have higher effective tax rates compared to the self-employed, primarily due to the latter's 40 percent optional standard deductions, which are higher than the former's average deductions based on number of dependents only.

TABLE 3. Average effective income tax rates, by type of worker

Bracket	Current taxable Income	Wage and salary workers	Self-employed non-professionals	Self-employed professionals
1	Not over ₱10,000	0.2%	0.2%	0.2%
2	Over ₱10,000 but not over ₱30,000	1.1%	0.9%	0.9%
3	Over ₱30,000 but not over ₱70,000	4.3%	2.5%	2.4%
4	Over ₱70,000 but not over ₱140,000	8.1%	4.7%	4.9%
5	Over ₱140,000 but not over ₱250,000	12.6%	7.4%	7.6%
6	Over ₱250,000 but not over ₱500,000	17.1%	11.3%	10.9%
7	Over ₱500,000	24.6%	14.3%	14.1%

Source: Authors' computations. Source of Basic data" Merged 2013 LFS-2012 FIES

These results underscore the point that average effective tax payments are considerably larger for WSWs compared to the self-employed professionals and non-professionals, for the same level of pre-tax per capita income deciles (Table 4).

[4] A minimum wage earner is defined as a worker in the private sector paid the statutory minimum wage or to an employee in the public sector with compensation income of not more than the statutory minimum wage in the non-agricultural sector where he/she is assigned (Section HH, Republic Act 9504).

TABLE 4. Average tax payments, by type of worker and pre-tax income deciles, 2013 (in ₱)

	Wage and salary workers	Self-employed non-professionals	Self-employed professionals
First decile	9	1	1
Second decile	1	4	0
Third decile	36	25	0.31
Fourth decile	128	1	9
Fifth decile	170	71	57
Sixth decile	450	156	231
Seventh decile	1,250	83	206
Eighth decile	3,416	172	458
Ninth decile	6,954	136	504
Tenth decile	23,885	561	1,543

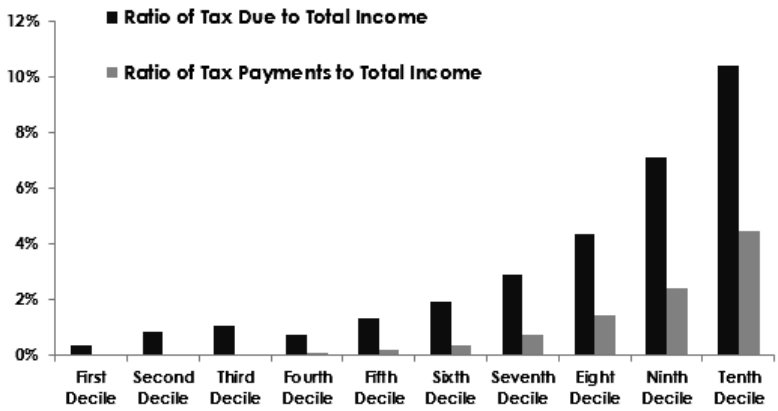
* Computed for households with head who is the only working member of the household

Authors' computations. Source of Basic Data: Merged 2013 LFS-2012 FIES

To assess vertical equity, we ask whether richer individuals pay more taxes in relative terms. On average, households' reported income tax payments amount to about 2.2 percent of total income. Figure 1 shows that income tax payments—whether reported or estimated amounts due—do exhibit a progressive pattern. Richer households have a higher share of income tax payments to total income. Again, however, it should be noted that this progressiveness is limited to the distribution of compensation incomes and fails to factor in either incomes from or taxes paid on financial assets (dividends, interest on deposits, etc.), both of which are more likely to be relevant in the upper deciles.[5]

[5] For the same reason, a cross-referencing of the BIR's list of top 2000 Taxpayers and the *Forbes* list of wealthiest Filipinos shows a significant lack of correspondence, since the former includes only compensation incomes.

FIGURE 1. Ratios of reported tax payments to total income of households, by deciles of pre-tax per capita income



2.3. Intertemporal equity and "frozen" tax brackets

Tax brackets have been frozen since 1997 and have not been adjusted for inflation. However, because salaries have moved with inflation while tax brackets have not, many workers have been pushed into higher tax brackets and, therefore, now face higher tax rates. The 2001, 2010, and 2013 Labor Force Surveys show that while in 2001 only 2.5 percent of WSWs were classified in the top three income brackets, by 2013, the same brackets had a share of 8.1 percent of the same worker type (Table 5). The phenomenon of "bracket creep" is more apparent for selected professions such as teachers. In 2001, about 65 percent of teachers were classified in Bracket 4. By 2013, however, only 21 percent remained in that bracket. Most had been pushed into Brackets 5 and 6.

TABLE 5. Distribution of wage and salary workers, by tax bracket and year

	2001	2010	2013
Tax exempt	58%	73%	72%
Bracket 1	3%	1%	1%
Bracket 2	8%	5%	1%
Bracket 3	19%	8%	6%
Bracket 4	10%	8%	9%
Bracket 5	2.0%	4%	7.2%
Bracket 6	0.4%	1%	3.6%
Bracket 7	0.1%	0%	0.9%

Source of basic data: Labor Force Survey (2001, 2010, 2013)

3. A proposal

The previous discussion demonstrates significant elements of inequity in the current Philippine system of taxing compensation income. The system is inequitable in terms of compliance because WSWs have considerably better income tax participation rates compared to the self-employed. The income tax system is horizontally inequitable because within the same income group, WSWs as well are excessively burdened, paying substantially more taxes compared to the self-employed. The system appears to have some amount of vertical equity, at least based on average income tax payments by income group. However, these averages could be masking vertical inequities that become more apparent when comparing specific individuals. Finally, the system is inequitable in an intertemporal sense because tax brackets are not indexed to inflation.

3.1. Unfreezing the tax brackets

Apart from stipulating progressive tax rates, the current tax code provides for tax brackets that encourage the proper classification of taxpayers. For any given tax bracket, the amount of tax due for the lower range income is the same as if the rule applicable to the next lower bracket is used. A taxable income of exactly ₱500,000, for example, will yield a tax due of ₱125,000 if either the Bracket 7 or Bracket 6 rule is applied. This reduces the incentive of having oneself strategically reclassified to a lower bracket (say, in exchange for an illegal payment), at least in the case of having taxable incomes around the lower limit of a particular bracket. This also reduces strategic behavior among workers when faced with wage offers. To illustrate, a worker with a taxable income of ₱10,001 would be indifferent between classifying himself as being in Bracket 1 or Bracket 2. Applying the tax rule in Bracket 2 would result in a tax due of ₱500. There is no incentive for this worker to accept a salary that would result in a lower taxable income of ₱10,000 since his applicable tax due would still be ₱500.

On the other hand, the current set of tax brackets does have its disadvantages. Arguably, the most important one is that the tax brackets do not reflect changes in macroeconomic conditions, so that overall increases in commodity prices (and salaries) implicitly and unintentionally impose additional taxes, as already shown above.

As an experiment, we generate inflation-adjusted tax brackets by applying inflation rates implied by the consumer price indices from 1997 to 2012 [Bangko Sentral ng Pilipinas 2014]. The adjusted tax brackets are shown in Table 6, where two cases are considered, i.e., either (a) that tax brackets are fully adjusted to inflation, or (b) that brackets are adjusted by 40 percent of current inflation rate and 60 percent of the previous year's inflation rate. We refer to the latter as a "moving average inflation rate". The results of applying these brackets are shown

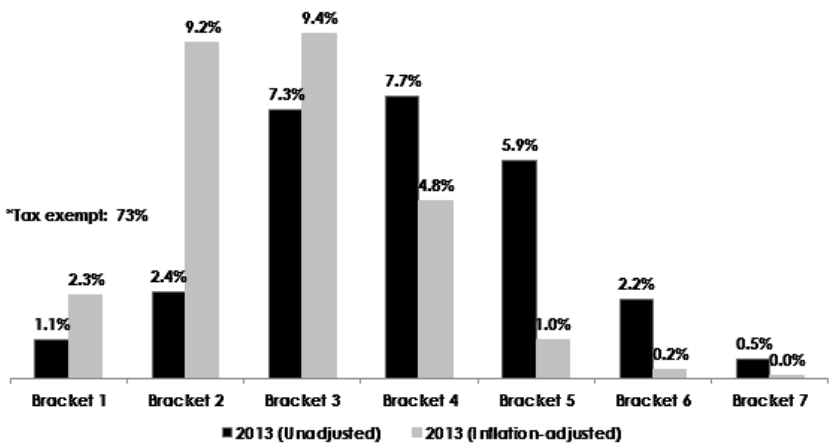
in Figure 2, where we note that a considerable number of workers would be reclassified into lower tax brackets.

TABLE 6. Inflation-adjusted tax brackets

Bracket	Taxable income (full adjustment)	Taxable income (adjustment by moving average inflation rates of 40-60%)
1	Not over ₱21,613	Not over ₱16,149
2	Over ₱21,613 but not over ₱64,839	Over ₱16,149 but not over ₱48,448
3	Over ₱64,839 but not over ₱151,290	Over ₱48,448 but not over ₱113,045
4	Over ₱151,290 but not over ₱302,581	Over ₱113,045 but not over ₱226,091
5	Over ₱302,581 but not over ₱540,323	Over ₱226,091 but not over ₱403,734
6	Over ₱540,323 but not over ₱1,080,645	Over ₱403,734 but not over ₱807,468
7	Over ₱1,080,645	Over ₱807,468

Note: The applicable tax rates for each bracket are the same as the current income tax scheme.

FIGURE 2. Distribution of wage and salary workers by inflation adjusted brackets (full adjustment), 2013



Authors' computations. Source of basic data: Merged 2013 LFS-2012 FIES

3.2. Simplifying and reducing tax rates to expand the tax base

Tax compliance, from an economic point of view, results from an individual taxpayer's weighing of benefits and costs. (See, for example, Allingham and Sandmo [1972].) The benefits of tax compliance would include avoidance of penalties if caught evading (say, through audits) weighted by the likelihood of

getting caught. On the other hand, the main cost of tax compliance (i.e., tax payments) would be higher with tax rates and inflation.

Indeed, studies have shown that the likelihood of tax evasion increases with higher tax rates (Wu and Teng [2005]; Crane and Nourzad [1990]; Clotfelter [1983]). Crane and Nourzad [1986] also found that underreporting of income tends to be more likely with inflation. That is, taxpayers attempt to regain some lost purchasing power by underreporting income, which results in lower taxes due.

Excessive complexity of rules also increases the cost of compliance and reduces the chances of severe punishment due to noncompliance, write Roth et al. [1989:128]. Under a simple tax scheme, non-compliance becomes easier to detect. If there is only one form to submit or one tax rate to apply, checking for compliance is not cumbersome. Therefore, the benefit from compliance increases. On the other hand, complicated tax rules allows for increased opportunities to evade taxes. From the viewpoint of a tax evader (resp. administrator), every rule or requirement is an opportunity to offer (resp. accept) a bribe. A co-opted tax administrator implies reduced detection of tax evasion.

Roth et al. [1989] note the lack of empirical evidence on the cost of compliance as a barrier to compliance, but mention a 1973 US survey with 70 percent of its respondents finding the tax forms too complicated for the average taxpayer. Their literature review seems to have overlooked Klepper and Nagin [1989] which showed that tax noncompliance rates are related to measures of complexity, which in turn are related to the probability that evasion will be detected and punished [Slemrod 2007].

The perception of fairness is arguably an important driver of tax compliance. Benefits and costs matter, but the context in which the tax collections are made is also important. Taxpayers could be confronted with such questions as: why should I pay the right tax, if at all, if others do not? Why should I pay taxes to a government that uses a flawed (e.g., inequitable) tax scheme? Roth et al. [1989] report that in the United States, the most common response to the question of why people cheat is that "the tax system is unfair", although other studies have not found any significant relationships between equity measures and tax compliance.

Following the literature on tax evasion, which suggests that tax compliance can improve with lower tax rates, as well as simple and fair tax rules, we propose the following: (i) lowering of effective income tax rates by adjusting income tax brackets for inflation; increasing the income cut-off for tax exemption and for the highest tax bracket; and directly reducing the stipulated tax rates per bracket; and (ii) simplifying the tax structure by consolidating the number of tax brackets and removing personal deductions. In the long run, the extreme form of consolidated tax brackets is a flat tax rate, similar to that proposed by Diokno [2005]. He pointed out that the simplicity of the flat tax should open opportunities for improved tax administration as well as increased investments (when flat and

lower income tax is implemented together with the removal of tax on interest and dividends earned by individuals). However, it must be noted that the adoption of the flat tax "should come only after significant progress has been made in raising corrective taxes, expanding the VAT base and increasing its rate, and rationalizing tax incentives…", writes Diokno [2005:20].

4. Simulation results: baseline and projected income tax distribution under proposed reforms

Table 7 shows our attempt to decompose revenues from individual compensation and business income (excluding capital gains) taxes by tax brackets, using the merged 2013 LFS and 2012 FIES and the method described above. We note that the total estimated income tax collections is ₱236.2 billion, with a discrepancy of less than 1 percent from total actual income tax collections.

TABLE 7. Estimated 2013 income tax revenues by tax bracket, base scenario (in ₱)

Tax bracket	Mean income	Taxable income	Tax due	Number of workers	Tax revenues
Tax-exempt	78,107	-	-	17,791,534	-
Not over ₱10,000	138,032	5,459	273	336,916	91,955,928
Over ₱10,000 but not over ₱30,000	150,523	20,200	1,520	586,872	892,069,529
Over ₱30,000 but not over ₱70,000	149,336	51,610	5,742	1,567,462	8,999,619,295
Over ₱70,000 but not over ₱140,000	194,066	101,283	14,757	2,125,813	31,369,677,391
Over ₱140,000 but not over ₱250,000	296,711	191,268	35,317	1,743,874	61,588,322,051
Over ₱250,000 but not over ₱500,000	461,465	333,838	75,152	872,670	65,582,489,133
Over ₱500,000 but not over ₱5 million	1,003,223	838,268	233,246	220,135	51,345,623,559
₱5 million to ₱6 million	4,955,062	4,801,587	1,536,454	657	1,009,450,602
₱6 million to ₱8 million	6,958,309	6,804,834	2,177,483	549	1,195,438,186
₱8 million to ₱10 million	8,963,889	8,810,414	2,819,212	291	820,390,718
Over ₱10 million	18,739,622	29,329,623	6,020,044	2,202	13,256,137,188
TOTAL					236,151,173,581

Tables 8 and 9 show that fully adjusted tax brackets can reduce tax revenues by an estimated 40.3 percent (about ₱95.1 billion), the reduction is 29.1 percent (about ₱68.7 billion) if moving average inflation rate-adjusted tax brackets are used.

TABLE 8. Estimated income tax revenues: inflation-adjusted tax brackets (full inflation adjustment; in ₱)

Tax bracket	Mean income	Taxable income	Tax due	Number of workers	Tax revenues
Tax-exempt	68,199	-	-	17,791,534	-
Not over ₱21,613	139,847	10,618	528	670,891	354,500,408
Over ₱21,613 but not over ₱64,839	150,203	45,697	2,908	1,627,737	4,734,179,034
Over ₱64,839 but not over ₱151,290	197,193	102,583	8,162	2,539,444	20,726,129,102
Over ₱151,290 but not over ₱302,581	317,868	212,325	20,707	1,892,072	39,179,135,574
Over ₱302,581 but not over ₱540,323	528,776	388,149	43,892	537,669	23,599,372,456
Over ₱540,323 but not over ₱1,080,645	869,962	702,488	98,649	157,790	15,565,865,836
Over ₱1,080,645 but not over ₱5 million	2,145,041	1,990,747	416,232	28,142	11,713,795,262
₱5 millionto ₱6 million	4,955,062	4,825,062	1,323,214	657	869,351,307
₱6 million to ₱8 million	6,958,309	6,828,309	1,964,253	549	1,078,374,666
₱8 million to ₱10 million	8,963,889	8,833,889	2,606,038	291	758,357,103
Over ₱10 million	18,745,933	29,329,623	5,777,892	2,202	12,722,918,712
Additional revenues from VAT					9,725,622,518
TOTAL					141,027,601,979

TABLE 9. Estimated income tax revenues: inflation-adjusted tax brackets (moving average inflation rate adjustment of 40%-60%, in ₱)

Tax bracket	Mean income	Taxable income	Tax due	Number of workers	Tax revenues
Tax-exempt	68,199	-	-	17,791,534	-
Not over ₱16,149	138,761	7,968	399	500,917	199,871,829
Over ₱16,149 but not over ₱48,448	148,265	34,392	2,324	1,142,168	2,654,715,992
Over ₱48,448 but not over ₱113,045	171,065	78,077	6,944	2,234,668	15,518,335,586
Over ₱113,045 but not over ₱226,091	263,634	161,596	18,210	2,171,887	39,550,541,968
Over ₱226,091 but not over ₱403,734	402,922	288,255	38,041	1,030,752	39,210,741,655
Over ₱403,734 but not over ₱807,468	691,242	535,574	89,552	313,126	28,041,087,999
Over ₱807,468 but not over ₱5 million	1,610,258	1,424,133	323,089	60,227	19,458,647,426
₱5 million to ₱6 million	4,955,062	4,825,062	1,410,630	657	926,784,039
₱6 million to ₱8 million	6,958,309	6,828,309	2,051,669	549	1,126,366,401
₱8 million to ₱10 million	8,963,889	8,833,889	2,693,455	291	783,795,346
Over ₱10 million	18,745,933	29,329,623	5,865,309	2,202	12,915,410,154
Additional revenues from VAT					7,027,813,445
TOTAL					167,414,111,841

What happens to tax revenues when we combine all elements of these proposed tax reforms, namely, lowering the average effective tax rate by 32 percent, through inflation-adjustment (not immediate but rather delaying 60 percent of the full adjustment by one year), increasing the income cut-off for tax exemption to ₱120,000 per year (an allotment of US$1.50 per head per day for a family of five), and adding a top tax bracket for the superrich (those earning at least ₱10 million, see Table 10)? We also assess the effect of reducing the number of tax brackets and removing personal deductions for WSWs. At the proposed effective tax rates, our logit estimates suggest that the income tax participation rate for professionals and self-employed could reach 90 percent. The policy-experiment described here continues to be cast in the form of a two-part tax, i.e., a fixed amount plus a tax rate applied to income in excess of a threshold. This is to preserve the desirable feature of the current income tax structure (previously described) that provides a built-in safeguard against "gaming" the current scheme by accepting lower wages.

Table 11 compares the effective tax rates under the current and proposed schemes. The average reduction in effective tax rates is largest for the lowest income decile and smallest for the highest decile. Our simulations show that under the proposed package of tax reforms, 36 percent of the tax burden would be borne by the highest tax brackets. Tax revenues would initially drop, but fairness could be bought at a relatively small price— about 11.4 percent of current tax collections. (See Table 12.) This estimated loss already accounts for a portion of workers' tax savings being spent on consumer items (about 77 percent), which are subject to a 12 percent value-added tax. Arguably, this projected loss in tax revenues, if left unspent by the consumer, would be saved and invested in the future. In the long run, with more jobs created, the tax base can be broadened from which more taxes can be collected.

TABLE 10. Proposed income tax scheme

Bracket	Taxable income	Applicable tax rate	Average reduction in effective tax rates (in percent)
1	Not over ₱120,000	Tax-exempt	100%
2	Over ₱120,000 but not over ₱200,000	₱1,338 + 14.2% in excess of ₱120,000	20%
3	Over ₱200,000 but not over ₱500,000	₱12,558 + 17.4% in excess of ₱200,000	26%
4	Over ₱500,000 but not over ₱900,000	₱64,750 + 23.4% in excess of ₱500,000	29%
5	Over ₱900,000 but not over ₱10 million	₱158,483 + 29.0% in excess of ₱900,000	21%
6	Over ₱10 million	₱2,800,000 + 30.2% in excess of ₱10 million	11%

Notes: Taxable income for WSWs is defined as gross income less contribution payments for the Government Service Insurance System/Social Security System, the Home Development Mutual Fund, and the Philippine Health Insurance Corporation.Taxable income for self-employed is defined as gross income less optional standard deduction rate of 40 percent for cost of business expenses.

TABLE 11. Effective tax rates, current and proposed tax scheme

	Effective tax rates under current income tax scheme	Effective tax rates under proposed income tax scheme	Average reduction in effective tax rates (in percent)
First decile	0.1%	0.1%	52.4%
Second decile	0.3%	0.1%	51.5%
Third decile	0.3%	0.2%	43.2%
Fourth decile	0.4%	0.3%	40.0%
Fifth decile	0.8%	0.5%	32.9%
Sixth decile	1.3%	0.8%	37.0%
Seventh decile	2.1%	1.4%	35.5%
Eighth decile	3.4%	2.3%	33.0%
Ninth decile	5.8%	3.9%	32.5%
Tenth decile	9.2%	6.3%	31.6%

TABLE 12. Estimated income tax revenues from proposed income tax scheme

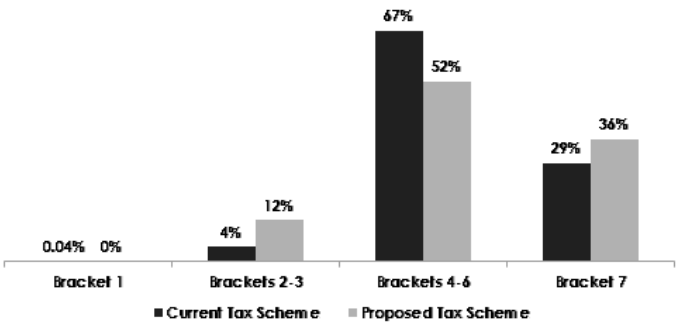
Tax bracket	Mean income	Taxable income	Tax due	Number of workers	Tax revenues
Tax-exempt	85,333	24,287	-	23,701,539	-
Over ₱120,000 but not over ₱200,000	190,373	153,244	5,901	4,101,954	24,204,438,132
Over ₱200,000 but not over ₱500,000	349,119	293,215	28,777	3,657,944	105,266,361,067
Over ₱500,000 but not over ₱900,000	745,505	619,738	92,769	411,366	38,161,883,795
Over ₱900,000 but not over ₱10 million	1,709,082	1,517,905	337,676	79,597	26,877,965,995
Over ₱10 million	29,329,623	18,847,687	5,472,002	2,202	12,049,347,453
Additional revenues from VAT					2,744,824,327
TOTAL					209,304,820,770

What might these reforms mean to the individual taxpayer? Consider a public school teacher (Teacher I) whose salary was ₱9,939 per month in 2001. As a married household head with one child, he would have paid annual taxes amounting to ₱7,681 (5.9 percent of income). In 2014, assuming that his employment position and household situation did not change, his salary would now have been adjusted to ₱17,255 per month. Under current tax rules, his total tax due increases to ₱14,731 per year (6.6 percent of income). Under the proposed simplified scheme, his tax due would fall to ₱12,763 per year (5.7 percent of income).

Finally, we note that the proposed scheme results in equity gains. Figure 3 shows that the proposed scheme increases the share of total tax payments of the top tax bracket by seven percentage points despite covering fewer WSWs (Figure 3).

The share of the second and third brackets increases by eight percentage points, largely because these now cover more WSWs.[6]

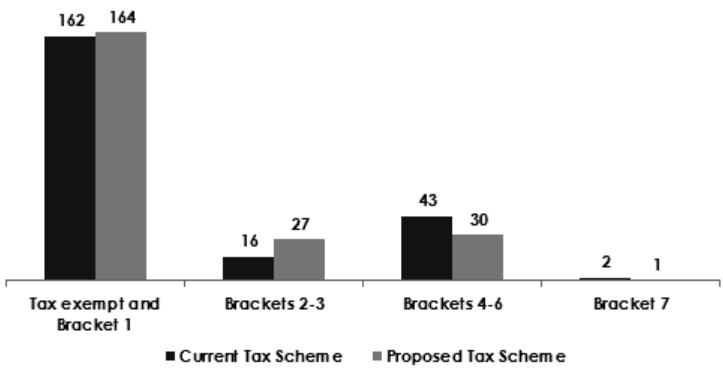
FIGURE 3. Share of income tax payments, by taxable income bracket



Note: Tax brackets refer to current income tax scheme for comparison purposes.

Authors' computations. Source of basic data: Merged 2013 LFS-2012 FIES

FIGURE 4. Number of wage and salary workers in 2013, by taxable income bracket



Note: Tax brackets refer to current income tax scheme for comparison purposes. Figures are in hundred thousands ('000).

Authors' computations. Source of basic data: Merged 2013 LFS-2012FIES

[6] We attempt to estimate the Gini coefficients of post-tax incomes before and after the proposed tax reforms. These are computed at 0.308 and 0.305, respectively, pointing to slight improvement in equity. The pre-reform Gini coefficient is computed on the basis of tax due amounts of households based on the current income tax scheme and current income tax participation rates of their household. For post-reform computations, we use tax due amounts and assume an increase in tax compliance resulting from lower tax rates. One important limitation of these computations is that the FIES survey as mentioned above is truncated on the right side of the income distribution. Thus, our estimated improvement in equity on the bases of these Gini coefficients could be underestimated.

5. Conclusion

The current income tax system in the Philippines contains elements of inequity in the sense that a minority (16 percent) of workers bears the majority (85 percent) of tax payments. WSWs are more burdened relative to the self-employed. One source is the failure of a large portion of the self-employed to pay the right income taxes, if at all. Another source of inequity is "bracket creep" resulting from the failure to adjust tax brackets by inflation.

Addressing "bracket creep" via inflation-adjusted tax brackets could come at huge cost—a 29-40 percent drop in income tax revenues—depending on the extent of adjustment. We have, however, shown that it is possible to design a set of reforms that largely offsets the cost of inflation-adjusted tax brackets: lower tax rates and simplified tax rules with fewer tax brackets and personal deductions. Under this proposed tax structure, 36 percent of the income tax burden would be borne by the highest tax bracket—a seven percentage point increase over the current share.

A key behavioral assumption, which we have supported with some empirical estimates, is that a simplified tax scheme with lower tax rates increases income tax participation, particularly, among those who have successfully avoided and evaded tax payments. Revenue gains can be realized by increasing the base of taxpayers, rather than by increasing the burden of those who already form part of that base.

Nonetheless, much of the analysis undertaken in this study is still admittedly static. For simplicity, we have assumed away the effects of reduced income tax rates on labor supply, saving, and fertility. Future researchers can attempt to further examine the behavior of the Filipino taxpayer, about whom little is known.

A final key element of the proposed changes considered in this analysis is tax administration. A simplified and fair income tax system with lower tax rates can translate to higher compliance if facilitated by streamlined tax procedures, such as fewer forms that can be submitted electronically as well as online payments. Further research on this area—policy drivers to increase tax compliance—is needed. Also, while our analysis focuses only on income taxation and illustrates that inequities can be addressed largely via reforms on income taxation, we recognize that reforms on other types of taxes, such as corporate and excise taxes, should be considered by future research for a more holistic approach on fiscal reforms.

*University of the Philippines School of Economics

The authors gratefully acknowledge the support fom the Philippine Center for Economic Development and the Ayala-upse Lecture Series for this research.

References

American Institute of Certified Public Accountants, Inc. (AICPA) Tax Division [2007] "Guiding principles for tax equity and fairness", Tax Policy Concept Statement 4.

Allingham, M. and A. Sandmo [1972] "Tax evasion: a theoretical analysis", *Journal of Public Economics* **3-4**(1)(1972): 323-338.

Bangko Sentral ng Pilipinas (BSP) [2014] "Consumer price index, inflation rate, and purchasing power of the peso", http://www.bsp.gov.ph/statistics/excel/prices2006.xls.

Birdsall, N. [2010] "The (indispensable) middle class in developing countries", in R. Kanbur and M. Spence, eds., *Equity and growth in a globalizing world*. Washington, D.C.: The World Bank.

Bureau of Internal Revenue (BIR) [2012] Top 500 Taxpayers.

Bureau of Internal Revenue (BIR), National Tax Research Center Tax Statistics Branch [2014] Basic tax statistics 2000-2013 as of May 2014.

Clotfelter, C. [1983] "Tax evasion and tax rate: an analysis of individual returns", *Review of Economics and Statistics* **65**: 363-373.

Cowell, F. [1990] *Cheating the government: the economics of evasion.* Cambridge, Mass.: MIT Press.

Crane, S. and F. Nourzad [1986] "Inflation and tax evasion: an empirical analysis", *The Review of Economics and Statistics* **68**(2): 217-223.

Crane, S. and F. Nourzad [1990] "Tax rates and tax evasion: evidence from California amnesty data", *National Tax Journal* **43**(2): 189-199.

Department of Labor and Employment (DOLE) [2008] "Basic monthly pay of common occupations in government, Philippines: 1987-1989, 1995-2001, 2007 and 2008", http://www.bles.dole.gov.ph/ARCHIVES/YLS/2009%20YLS/.../TAB9.6.PDF.

Diokno, B. E. [2005] "Reforming the Philippine tax system: lessons from two tax reform programs", UPSE Discussion Paper No. 0502.

Gerson, P. [1998] "Poverty and economic policy in the Philippines", http://www.imf.org/external/pubs/ft/fandd/1998/09/gerson.htm. Accessed 30 August 2014.

Hurst, E., G. Li, and B. Pugsley [2011] "Are household surveys like tax forms: evidence from income underreporting of the self-employed", Finance and Economics Discussion Series, Divisions of Research & Statistics and Monetary Affairs, Federal Reserve Board, Washington, D.C.

Kleppe, S. and D. Nagin [1989] "The anatomy of tax evasion", *Journal of Law, Economics, and Organization* **5**(1), Spring: 1-24.

Philippine Statistics Authority (PSA) and ICF International [2014] *Philippines national demographic and health survey 2013*. Manila, Philippines and Rockville, Maryland: PSA and ICF International.

National Statistics Office (NSO) [2011a] Family Health Survey.

National Statistics Office (NSO) [2013b] Family and Income Expenditure Survey.

National Statistics Office (NSO) [2013] Labor Force Survey.

National Statistical Coordination Board (NSCB) [2010] "2010 annual survey on Philippine business and industry - economy-wide for all establishments: final results," http://web0.psa.gov.ph/content/2010-annual-survey-philippine-business-and-industry-economy-wide-all-establishments-final.

Republic Act 9504. 2008. An act amending section 22, 24, 34, 35, 51, and 79 of Republic Act no. 8424, as amended, otherwise known as the national internal revenue code of 1997.

Republic Act no. 8424. Tax reform act of 1997. An act amending the national Iinternal revenue code, as amended, and for other purposes.

Roth, J., J. Scholtz, and A. Witte [1989] *Taxpayer compliance: an agenda for research*. Philadelphia: University of Pennsylvania Press.

Slemrod, J. [2007] "Cheating ourselves: the economics of tax evasion", *Journal of Economic Perspectives* **21**(1): 25-48.

Senate Economic Planning Office [2014] *Taxing the SEPs: at a glance*. AG-14-01.

Tax Management Association of the Philippines (TMAP) [2014] *TMAP pushes for adjusted tax brackets, reduced tax rates*. Unpublished manuscript.

Wu, S. and M. Teng [2005] "Determinants of tax compliance: a cross-country analysis", *Public Finance Analysis* **61**(3): 393-417.

APPENDIX. Marginal effects of effective tax rates reduction on tax participation

A logit analysis of income tax participation rates shows that a one-percentage point reduction in effective income tax rates significantly predicts an increase in participation rates by 69-72 percentage points.

Regressor	dy/dx	p-value
Annual income	1.71E-07	0.000
No grade completed (default category: college graduate and up)	-0.041	0.002
Elementary undergraduate	-0.040	0.000
Elementary graduate	-0.037	0.000
High school undergraduate	-0.036	0.000
High school graduate	-0.029	0.000
Collge undergraduate	-0.018	0.037
Self-employed non-professional	-0.286	0.000
Self-employed professional	-0.273	0.000
Effective tax rate	0.194	0.068
Self-employed non-professional* effective tax rate	-0.625	0.010
Self-employed professional* effective tax rate	-0.613	0.002

* Regional dummies are not shown.