Does 'Information Reporting' Really matter for Tax Compliance? The Case of Indonesia

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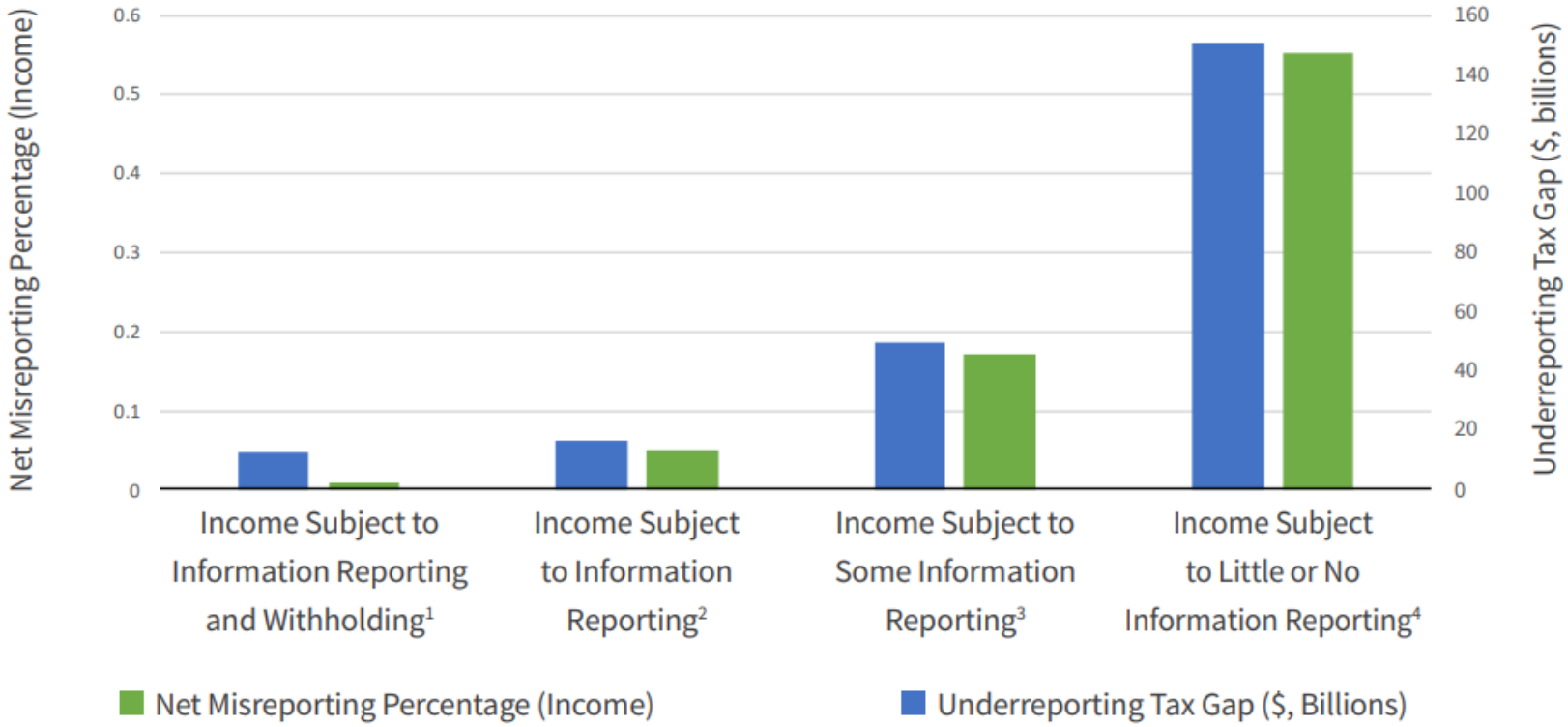
Motivation

- Several studies have suggested that information reporting has a significant role in promoting tax compliance (IRS, 2007; OECD, 2009; Lederman, 2010; Carillo et al., 2014; Kleeven et al., 2011; Slemrod et al., 2017; Slemrod, 2019; Adhikari et al., 2020);
- One of specified feature of information reporting studies is on how information reporting interact with taxpaying behaviour (US Department of the Treasury, 2020);
- Information reporting gives messages to taxpayers that their transactions are visible to tax authority, and this visibility leads taxpayers to behave somewhat differently in reporting their tax liability according to the presence of information reporting;
- However, little is known about the compliance response of corporate taxpayers relating to the impact of information reporting by third-party, particularly from an emerging economy perspective.

Motivation

Figure 2: Misreporting by Income Category



[1] Includes wages and salaries
[2] Includes pensions and annuities, unemployment compensation, dividend income, interest income, and taxable Social Security benefits
[3] Includes partnership/S corp income, capital gains, and alimony income
[4] Includes nonfarm proprietor income, other income, rents and royalties, farm income, and Form 4797 income

Our study in a nutshell

❑ **Research questions:**

- Is there a main effect of the information reporting mechanism on the income and expenses line items reported in the tax return?

  That is, do firms that differ in information reporting categories also differ significantly in terms of gross profit margin, operating profit margin, other income ratios, other expense ratios, positive and negative fiscal adjustment ratios, taxable income ratio, and ultimately their corporate tax to turnover ratio

- In what ways does the presence of information reporting affect the taxpaying behaviour of the two groups?

❑ **Our data:**

- Unbalanced panel of corporate tax return data from fiscal years 2014 to 2019, from all regions across Indonesia, business scales with turnover of beyond IDR 5 billion, and various business sectors;
- The rationale for focusing on fiscal years 2014 to 2019 data is that this period provides a unique and typical economic of setting pre-Covid 19 pandemic;
- Consists of 538,254 usable anonymous corporate tax records.

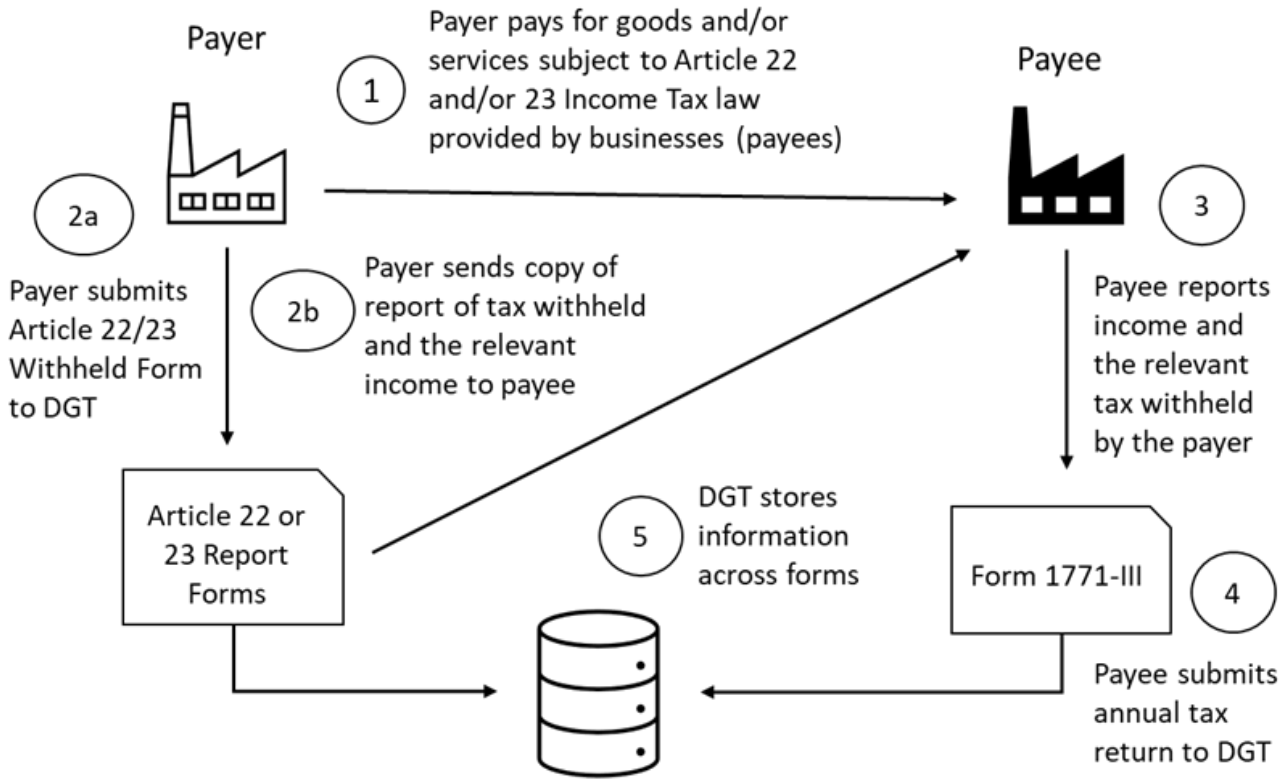
❑ **Our approach:**

- Analysis of Variance (ANOVA); and
- Path Analysis

Our study in a nutshell (2)

Information reporting mechanism: Indonesian context

- 'Information reporting obligation' consists of (OECD, 2009):
  - i. withholding of tax at source obligations of payers;
  - ii. systematic reporting to revenue bodies by payers of income paid to payees.
- One of the current standard features of corporate income tax system is that a third party withhold and reports taxes on certain income (Adhikari et al., 2020).



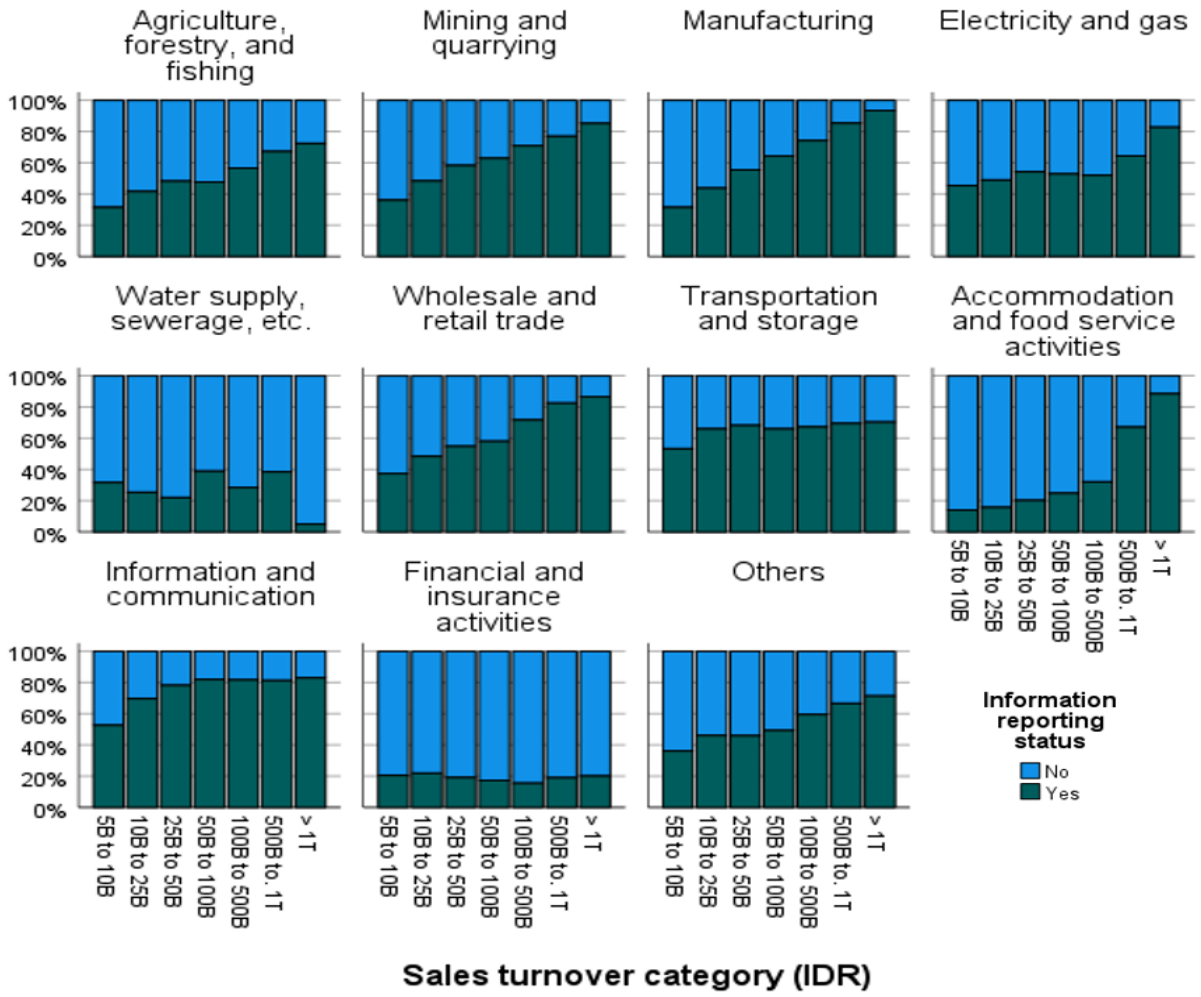
Our study in a nutshell (1)

Empirical data used

- The primary source of our data is Corporate Annual Income Tax Return Form 1771, 1771—I, and 1771—III.
- These data include detailed information on corporate income reporting, particularly from the perspective of the income statement—i.e., annual turnover (part 1a Form 1771-I), cost of goods sold (part 1b Form 1771-I), operating expenses (part 1c Form 1771-I), other business income (part 1e Form 1771-I), other business expense (part 1f Form 1771-I), total positive fiscal adjustment (part 5m Form 1771-I), total negative fiscal adjustment (part 6e Form 1771-I), taxable income (part 8 Form 1771-I), and income tax payable (part 4 Form 1771).
- We reduced the original sample by excluding observations falling into the following categories: (i) firms with CTTOR below zero or exceeds one; (ii) firms whose annual turnover is below IDR 5 billion; (iii) firms that are subject to schedular-final income taxes, i.e., firms within construction service sectors, real estate firms, representative offices, shipping and air transportation firms, and financial brokerage firms.
- Our sample do not account for the effect of either tax audit or tax oversight, as well as the type of tax offices where the taxpayers administered. We also do not consider the consequence of loss carry forward (LCF) upon the amount of taxable income

Our study in a nutshell (2)

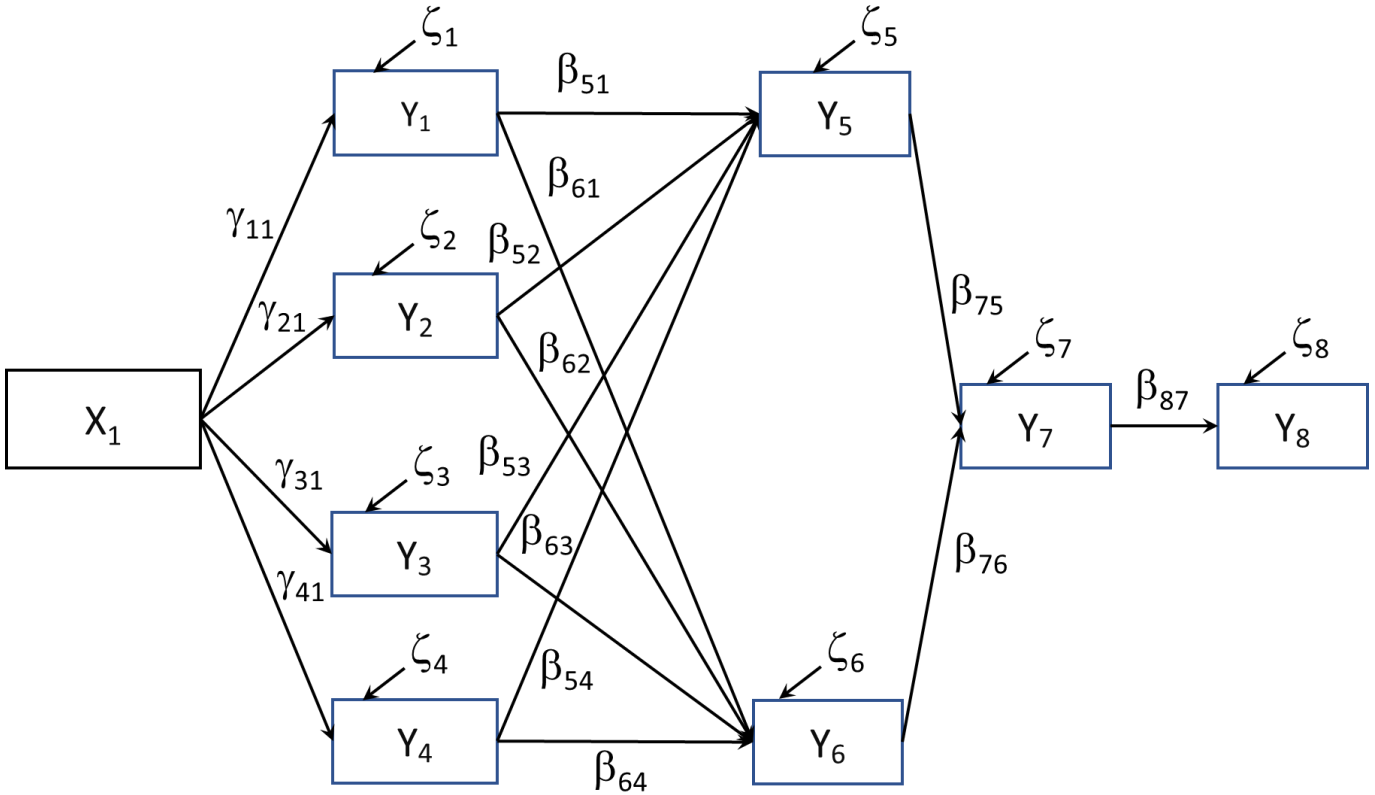
Information reporting status by business sector and annual turnover



- This graph is a depiction of information reporting status specified by the presence of tax credit reported based on article 22 and 23 income tax;
- A quick glance of the graph shows an increasing proportion of information reporting status as the growing of annual turnover.

Our study in a nutshell (3)

Main empirical strategy



$$GPM = \gamma_{11}Annual\ turnover + \zeta_1 \quad (1)$$

$$OPM = \gamma_{21}Annual\ turnover + \zeta_2 \quad (2)$$

$$Other\ income\ ratio = \gamma_{31}Annual\ turnover + \zeta_3 \quad (3)$$

$$Other\ expense\ ratio = \gamma_{41}Annual\ turnover + \zeta_4 \quad (4)$$

$$Positive\ fiscal\ adjustment\ ratio = \beta_{51}GPM + \beta_{52}OPM + \beta_{53}Other\ income\ ratio + \beta_{54}Other\ expense\ ratio + \zeta_5 \quad (5)$$

$$Negative\ fiscal\ adjustment\ ratio = \beta_{61}GPM + \beta_{62}OPM + \beta_{63}\ Other\ income\ ratio + \beta_{64}\ Other\ expense\ ratio + \zeta_6 \quad (6)$$

$$Taxable\ income\ ratio = \beta_{75}Positive\ fiscal\ adjustment\ ratio + \beta_{76}\ Negative\ fiscal\ adjustment\ ratio + \zeta_7 \quad (7)$$

$$CTTOR = \beta_{87}Taxable\ income\ ratio + \zeta_8 \quad (8)$$

Note: X = Annual turnover = natural logarithm of annual turnover; Y_1 = GPM = ((annual turnover – cost of good sold) / annual turnover); Y_2 = OPM = ((GPM – operating expenses) / annual turnover); Y_3 = other income ratio = (other income / annual turnover); Y_4 = other expense ratio = (other expense / annual turnover); Y_5 = positive fiscal adjustment ratio = (positive fiscal adjustment / annual turnover); Y_6 = negative fiscal adjustment ratio = (negative fiscal adjustment / annual turnover); Y_7 = taxable income ratio = (taxable income / annual turnover); Y_8 = CTTOR = (income tax payable / annual turnover).

Our study in a nutshell (4)

Key descriptive findings:

Variable under study	Mean value*
GPM	20.8 %
OPM	4.1 %
Other income ratio	1.2 %
Other expense ratio	1.6 %
Positive fiscal adj. ratio	1.8 %
Negative fiscal adj. ratio	0.2 %
Taxable income ratio	4.1 %
CTTOR	0.9 %

* scaled by annual turnover

Our study in a nutshell (5)

Key inferential findings:

- ***Firms with information reporting*** were ***paying a larger portion of tax***—i.e., CTTOR—than firms without information reporting, despite the interesting fact that the two groups report similar gross profit margins.
- The ***average gross profit margin of firms with information*** reporting is ***only 3% larger*** than firms without information reporting (i.e., 21.1% compared to 20.5%), but **the CTTOR** for the former group is **204% larger** than that of the latter group (i.e., 1.31% compared to 0.43%).
- Firms ***with information reporting*** are more likely to ***positively correct their gross profit margin*** and ***other expense ratio*** compared to the group without information reporting, suggesting a plausible explanation on why the former group reports a larger taxable income ratio.
- The relationship between ***other income ratio*** from side business and ***CTTOR*** is ***positive for firms with information*** reporting but **negative for firms without information reporting**, indicating tax compliance is higher when the corresponding income is more detectable.

Descriptive statistics (1)

	Minimum	Maximum	Mean	Median	SD	Variance
Panel A: all samples (n = 538,254)						
Annual turnover (log)	22.33	34.27	24.0207	23.7076	1.3587	1.846
GPM	-0.99	1.00	0.2083	0.1517	0.2004	0.040
OPM	-1.00	1.00	0.0409	0.0302	0.1215	0.015
Other income ratio	-0.93	43.08	0.0120	0.0004	0.0862	0.007
Other expense ratio	-0.70	43.32	0.0159	0.0001	0.0953	0.009
Positive fiscal adj. ratio	-0.54	0.73	0.0175	0.0022	0.0623	0.004
Negative fiscal adj. ratio	-0.11	0.14	0.0023	0.0000	0.0108	0.000
Taxable income ratio	-1.42	9.68	0.0412	0.0198	0.0805	0.006
CTTOR	0.00	0.23	0.0089	0.0041	0.0135	0.000
Panel B: sample without information reporting (n = 255,706)						
Annual turnover (log)	22.33	33.46	23.6774	23.3903	1.1315	1.280
GPM	-0.99	1.00	0.2054	0.1395	0.2177	0.047
OPM	-1.00	1.00	0.0263	0.0202	0.1363	0.019
Other income ratio	-0.93	8.90	0.0097	0.0001	0.0583	0.003
Other expense ratio	-0.70	18.94	0.0163	0.0000	0.0871	0.008
Positive fiscal adj. ratio	-0.54	0.73	0.0137	0.0008	0.0605	0.004
Negative fiscal adj. ratio	-0.06	0.14	0.0021	0.0000	0.0106	0.000
Taxable income ratio	-0.99	1.39	0.0196	0.0043	0.0836	0.007
CTTOR	0.00	0.23	0.0043	0.0009	0.0094	0.000
Panel C: sample with information reporting (n = 282,548)						
Annual turnover (log)	22.33	34.27	24.3315	24.0442	1.4680	2.155
GPM	-0.96	1.00	0.2108	0.1604	0.1832	0.034
OPM	-1.00	1.00	0.0542	0.0425	0.1045	0.011
Other income ratio	-0.56	43.08	0.0141	0.0009	0.1053	0.011
Other expense ratio	-0.59	43.32	0.0156	0.0005	0.1022	0.010
Positive fiscal adj. ratio	-0.31	0.73	0.0206	0.0036	0.0636	0.004
Negative fiscal adj. ratio	-0.11	0.14	0.0025	0.0000	0.0110	0.000
Taxable income ratio	-1.42	9.68	0.0608	0.0418	0.0722	0.005
CTTOR	0.00	0.23	0.0130	0.0089	0.0151	0.000

- Firms *with* and *without* information reporting have remarkably shown a nearly balance number of observations of the two subsets—i.e., 52% and 48% respectively.
- The difference in average GPM reported for the two group is trivial (3%).
- The absolute difference of the average CTTOR is 0,046. Firms with information reporting declared 204% larger CTTOR than firms without information reporting.

Descriptive statistics (2)

Correlations among variables under study in group with and without information reporting mechanism (n = 538,254)

	Annual turnover (log)	GPM	OPM	Other income ratio	Other expense ratio	Positive fiscal adj. ratio	Negative fiscal adj. ratio	Taxable income ratio	CTTOR (%)
Annual turnover (log)	1	-.131**	-.036**	.028**	.064**	-.068**	.047**	-.005*	.055**
GPM	-.181**	1	.378**	.026**	.108**	.066**	.060**	.164**	.284**
OPM	-.052**	.449**	1	.049**	-.220**	.109**	.036**	.201**	.267**
Other income ratio	.027**	.023**	.092**	1	.378**	.014**	.128**	-.009**	.043**
Other expense ratio	.050**	.058**	-.093**	.854**	1	.022**	.084**	-.043**	-.017**
Positive fiscal adj. ratio	-.034**	.085**	-.013**	.050**	.076**	1	.054**	-.071**	-.138**
Negative fiscal adj. ratio	.055**	.072**	.098**	.106**	.065**	.216**	1	-.010**	-.008**
Taxable income ratio	-.086**	.453**	.589**	.069**	.008**	-.018**	.014**	1	.531**
CTTOR (%)	.025**	.448**	.600**	.078**	.017**	-.021**	.024**	.918**	1

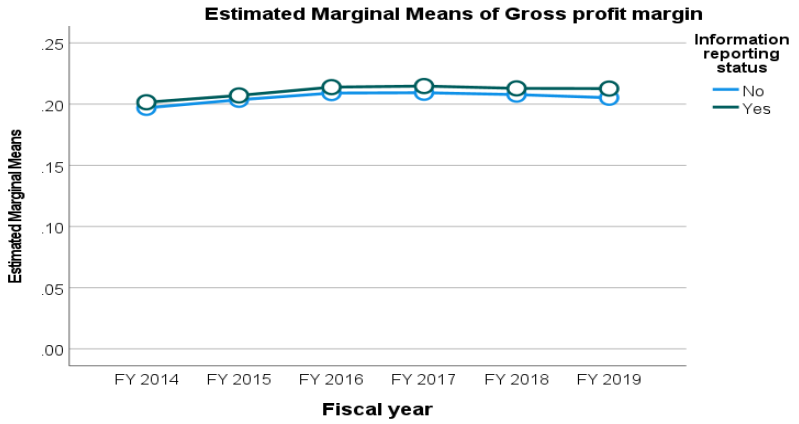
Note: Correlations for *no information reporting* group are above the diagonal; those for *information reporting group* are below.

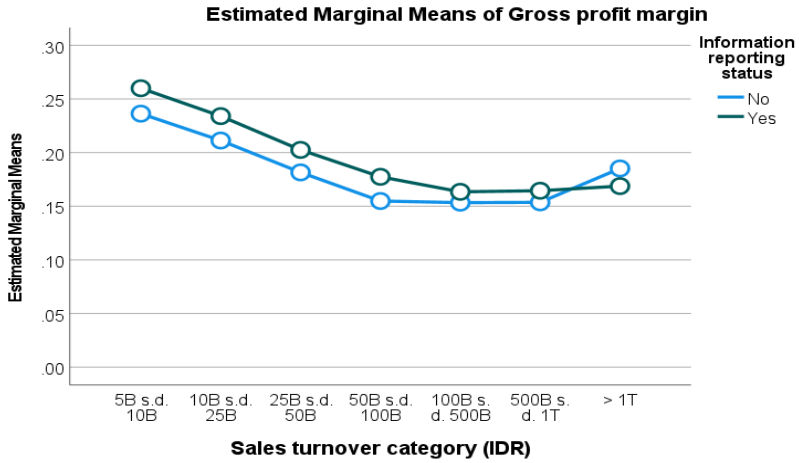
*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Inferential statistics: Graphical evidence of ANOVA (1)

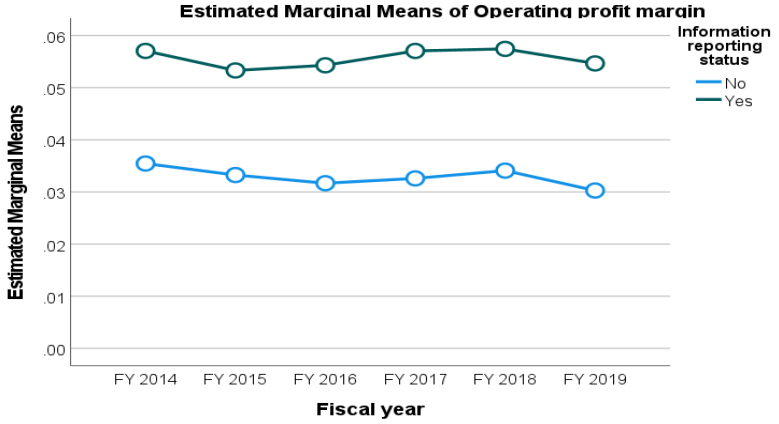
Comparison of *GPM* means by fiscal year and by annual turnover

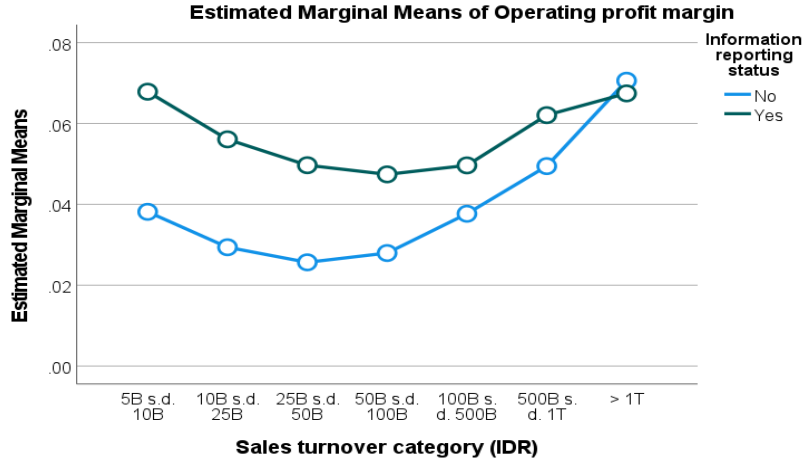




Note: There are visually 'trivial' differences in GPM mean between the two groups across six fiscal years. GPM values are flocked around 20% and are relatively consistent across the six fiscal years.

Comparison of *OPM* means by fiscal year and by sales turnover

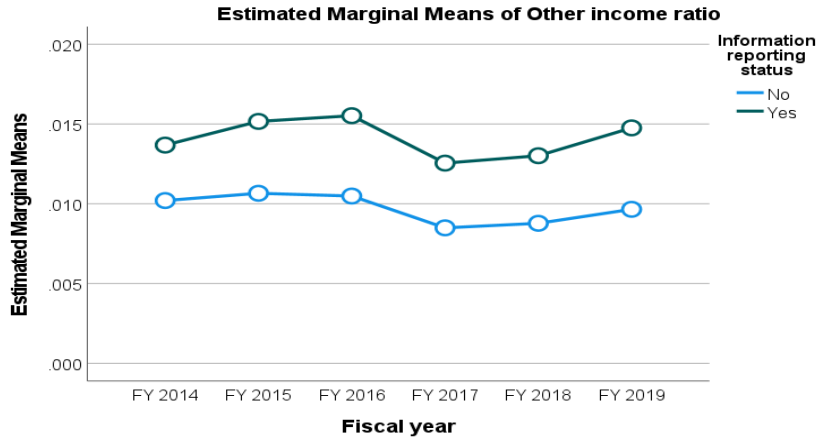


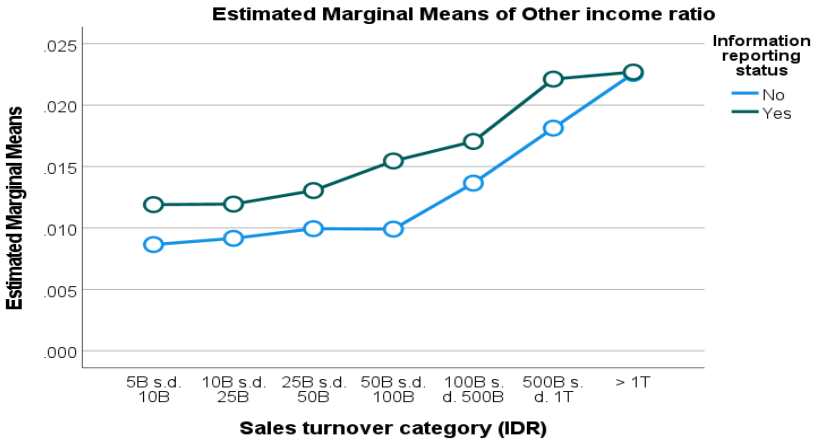


Note: In terms of OPM reported, the gap appears to be getting larger. Companies with information reporting report a 70% larger OPM value than companies without information reporting. This indicates larger expenses reported by companies without information reporting.

Inferential statistics: Graphical evidence of ANOVA (2)

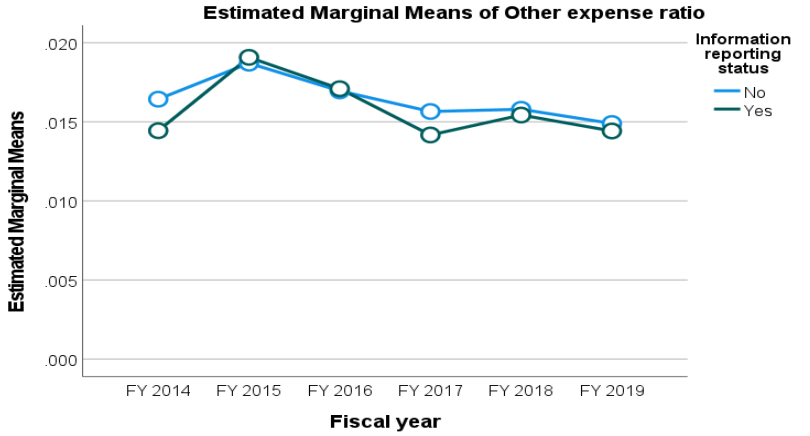
Comparison of *other income ratio* means by fiscal year and by annual turnover

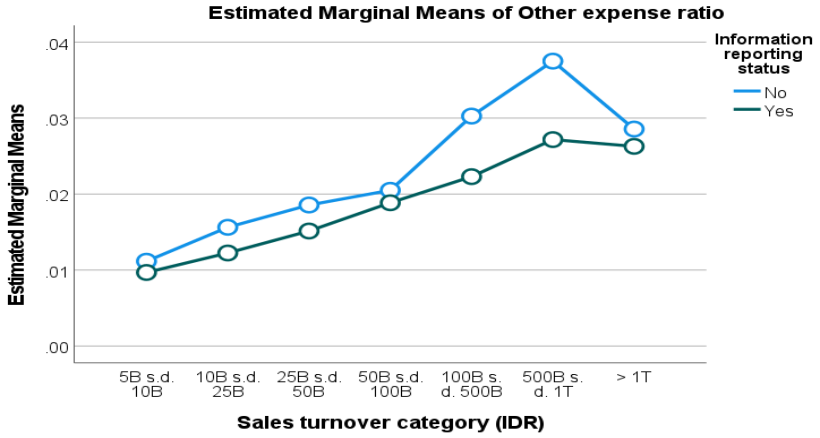




Note: The gap of absolute value of other income ratio reported is only 4%, yet this accounts for 40% larger other income ratio reported by companies with information reporting. Based on the turnover ratio, gap in other income ratio is smaller as the turnover grows.

Comparison of *other expense ratio* means by fiscal year and by sales turnover

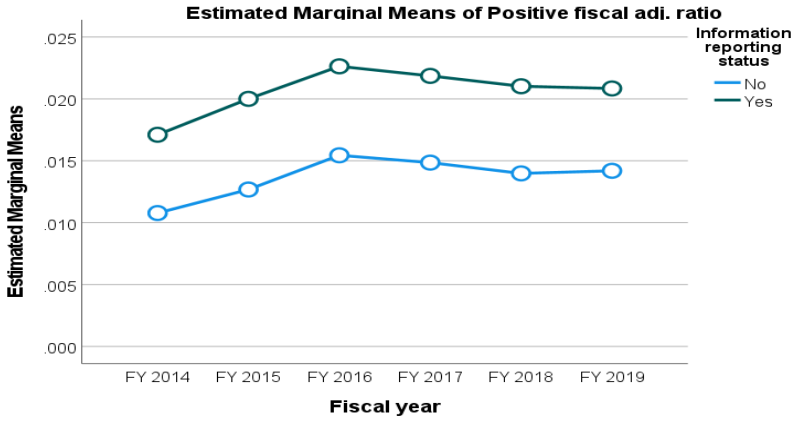


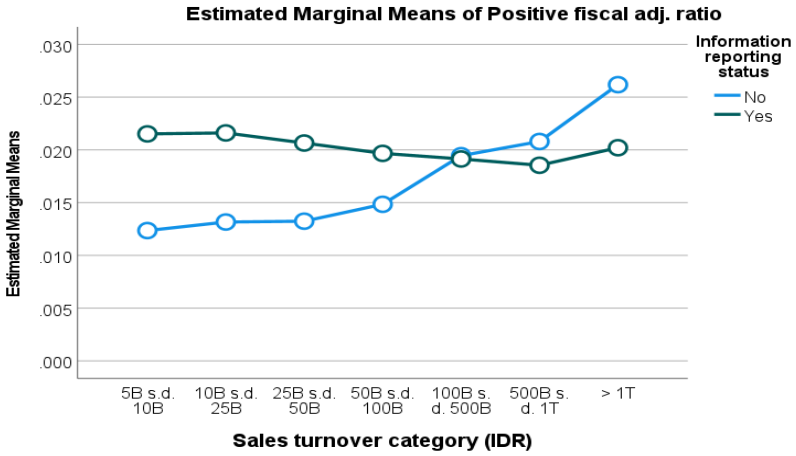


Note: Unlike other pattern where GPM, OPM, and other income ratio reported higher by companies with information reporting, graphical visual from other expenses ratio shows almost no difference between the two groups across years. However, based on the turnover reported, higher other expenses ratio reported by companies with no information reporting is visible.

Inferential statistics: Graphical evidence of ANOVA (3)

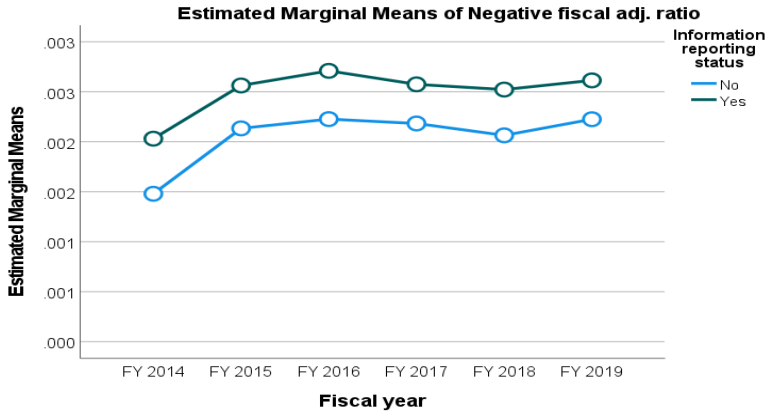
Comparison of *positive fiscal adj. ratio* means by fiscal year and by sales turnover

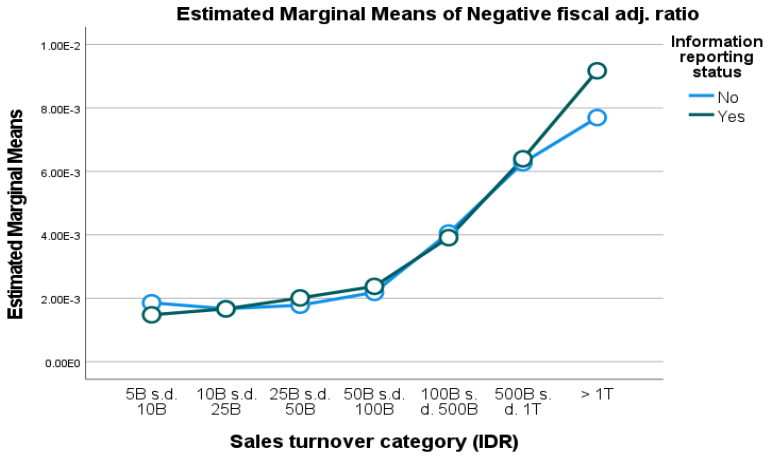




Note: The difference of positive fiscal adjustment ratio is 50% between the two groups. Even though the positive fiscal adjustment is always larger for the companies with information reporting across the observation years, the bottom panel shows this is contributed mainly by the companies with turnover of less than Rp500 billion.

Comparison of *negative fiscal adj. ratio* means by fiscal year and by sales turnover

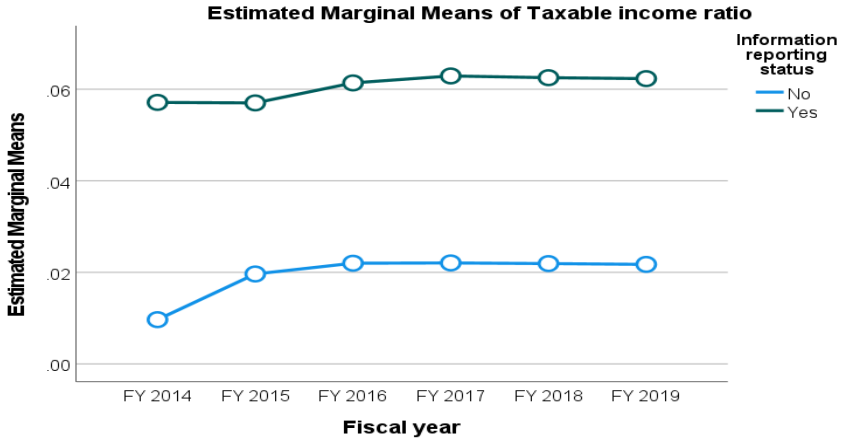


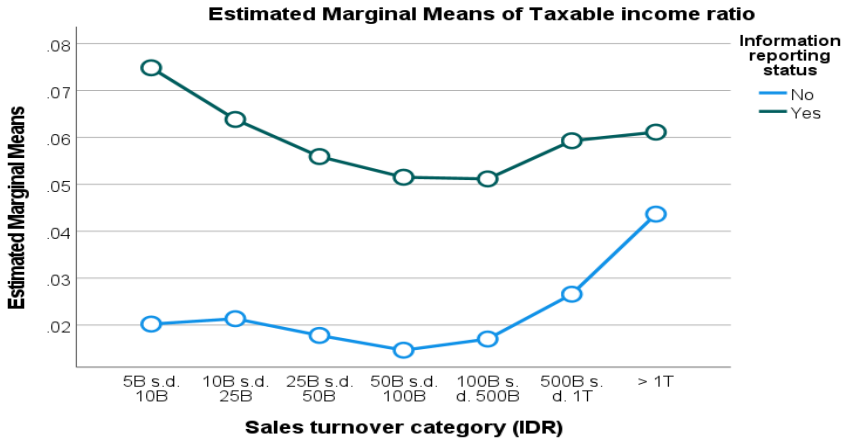


Note: The difference of negative fiscal adjustment ratio is 50% between the two groups. Unlike the pattern of positive fiscal adjustment, based on turnover ratio, the difference in negative fiscal adjustment is largely originated from the groups of companies with turnover of over Rp500 billion.

Inferential statistics: Graphical evidence of ANOVA (4)

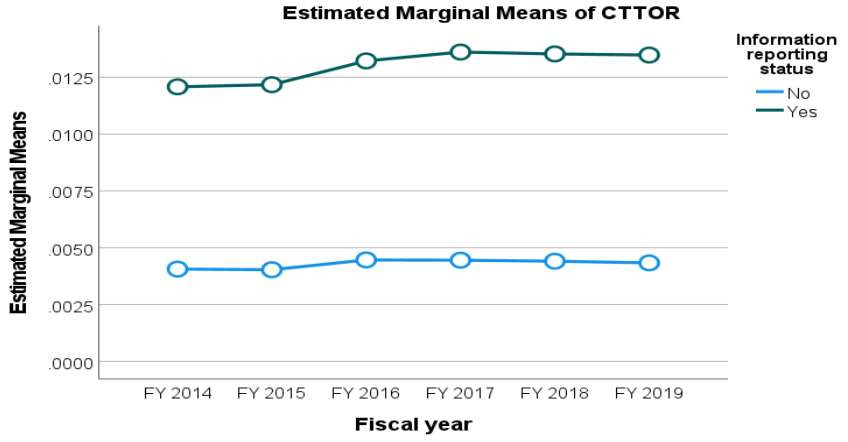
Comparison of *taxable income ratio* means by fiscal year and by sales turnover

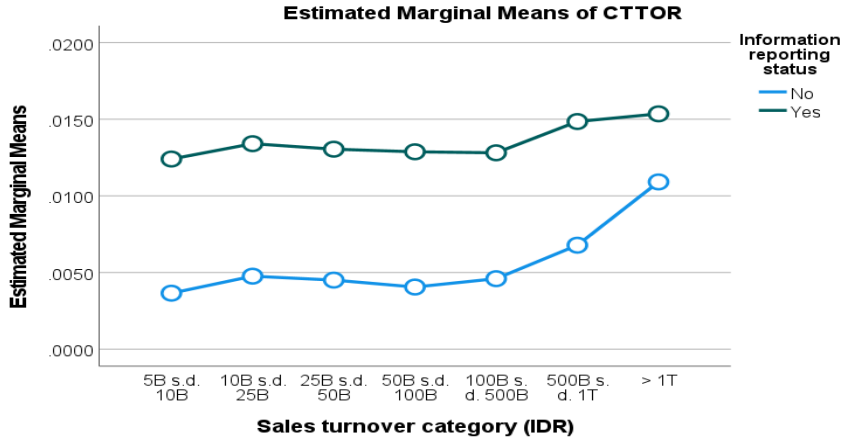




Note: The left panel shows a remarkable difference of 205% in taxable income reported by the two groups. The difference is correspondingly demonstrated across different turnover levels.

Comparison of *CTTOR* means by fiscal year and by sales turnover





Note: The top panel shows a difference of 205% in CTTOR reported by the two groups. The amount of gap is similar to the difference observed in the taxable income reported. The difference is also displayed across different turnover levels.

Inferential statistics: Cohen’ D test

Effect size of variables under study

Variables under study	Cohen's D effect size	Results
Gross profit margin	0.027	Very small effect
Operating profit margin	0.199	Small-medium effect
Other income ratio	0.051	Small effect
Other expense ratio	0.007	Very small effect
Positive fiscal adj. ratio	0.334	Medium-large
Negative fiscal adj. ratio	0.004	Very small effect
Taxable income ratio	0.626	Large effect
CTTOR (%)	0.689	Large effect

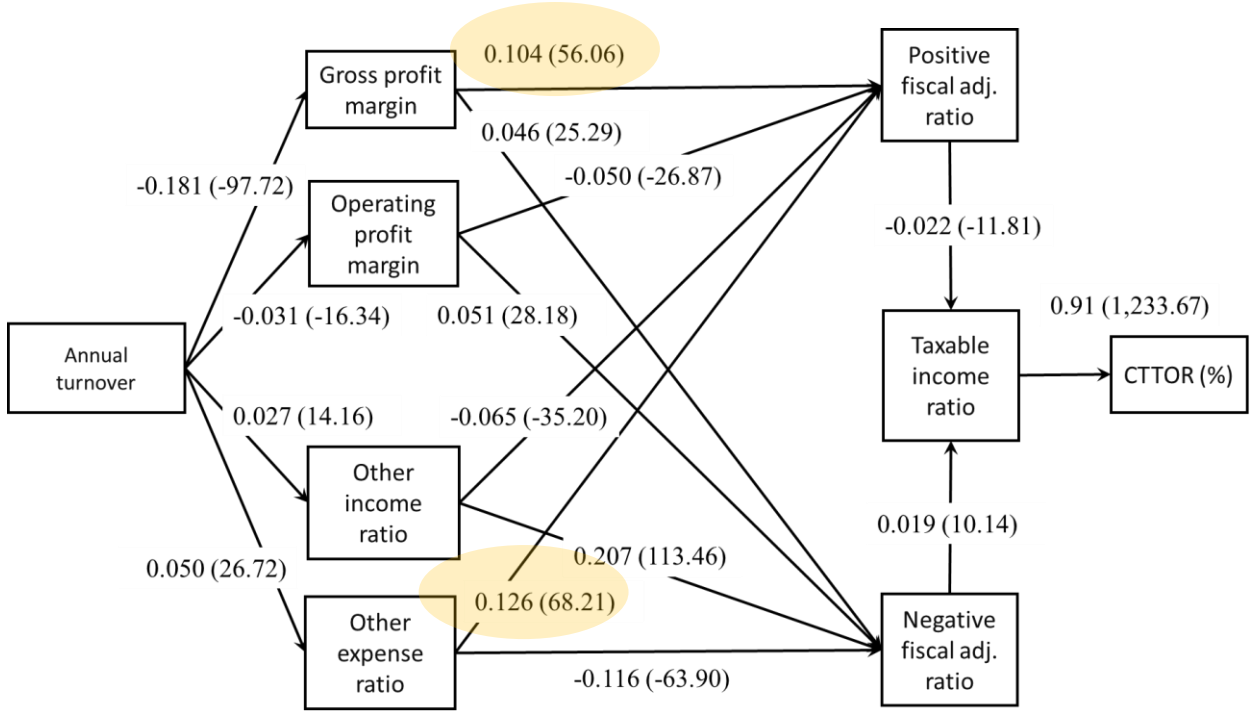
Note:

- The effect sizes for *CTTOR*, *taxable income ratio*, and *positive fiscal adjustment ratio* are the three largest.
- Using common guidelines for the size criteria, we found the effect sizes for taxable income ratio and CTTOR are large effect

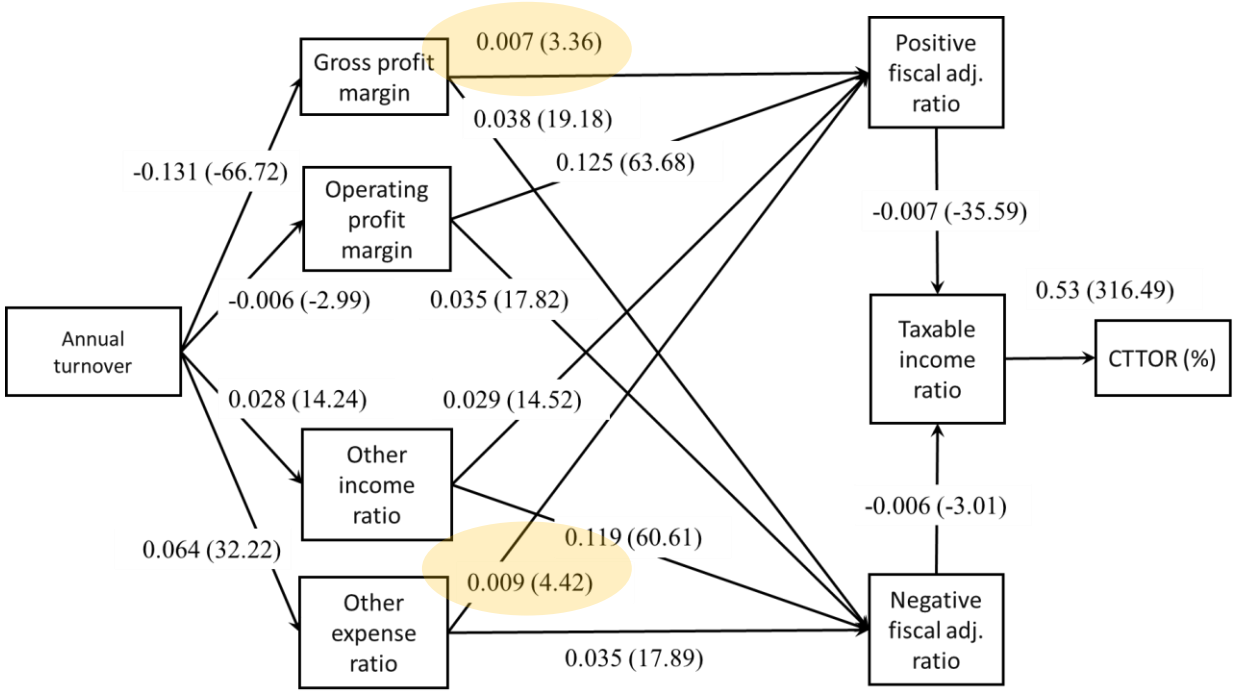
Inferential statistics: Path analysis (1)

Full path model tested with path coefficients: two group analyses

Panel A: sample with information reporting (n = 282,548)



Panel B: sample *without* information reporting (n = 255,706)



Note:

- The value not in the parentheses is the standardised coefficient. Value in the parentheses is critical ratios (C.R.)
- The highlighted area indicate where the value between the two groups is in stark contrast.

Inferential statistics: Path analysis (2)

Total effects for samples *with* information reporting n = 282,548

	X	Y_1	Y_2	Y_3	Y_4	Y_5	Y_6	Y_7
Y_1	-0.0226 (-0.1808)							
Y_2	-0.0021 (-0.0307)							
Y_3	0.0019 (0.0266)							
Y_4	0.0035 (0.0502)							
Y_5	-0.0011 (-0.0126)	0.0732 (0.1037)	-0.0643 (-0.0497)	-0.0800 (-0.0651)	0.1597 (0.1262)			
Y_6	-0.0003 (-0.0103)	0.0109 (0.0461)	0.0223 (0.0514)	0.0852 (0.2068)	-0.0494 (-0.1165)			
Y_7	0.0000 (0.0001)	-0.0006 (-0.0014)	0.0015 (0.0021)	0.0037 (0.0054)	-0.0036 (-0.0050)	-0.0124 (-0.0222)	0.0318 (0.0191)	
Y_8	0.0001 (0.0001)	-0.0108 (-0.0013)	0.0290 (0.0019)	0.0714 (0.0050)	-0.0685 (-0.0046)	-0.2393 (-0.0204)	0.6133 (0.0175)	19.2946 (0.9184)

Note:

- X = Annual turnover; Y1 = GPM; Y2 = OPM; Y3 = other income ratio; Y4 = other expense ratio; Y5 = positive fiscal adjustment ratio; Y6 = negative fiscal adjustment ratio; Y7 = taxable income ratio; Y8 = CTTOR (%).
- Standardised coefficient is in parentheses. All coefficients are significant at the 0.01 level

Inferential statistics: Path analysis (3)

Total effects for samples *without* information reporting n = 255,706

	X	Y_1	Y_2	Y_3	Y_4	Y_5	Y_6	Y_7
Y_1	-0.0252 (-0.1308)							
Y_2	-0.0007 (-0.0059)							
Y_3	0.0015 (0.0282)							
Y_4	0.0049 (0.0636)							
Y_5	-0.0001 (-0.0003)	0.0085 (0.0066)	0.2705 (0.1249)	0.1372 (0.0285)	0.0280 (0.0087)			
Y_6	0.0000 (0.0005)	0.0082 (0.0376)	0.0128 (0.0349)	0.0972 (0.1188)	0.0192 (0.0351)			
Y_7	0.0000 (0.0000)	-0.0003 (-0.0007)	-0.0058 (-0.0090)	-0.0039 (-0.0027)	-0.0008 (-0.0008)	-0.0209 (-0.0702)	-0.0104 (-0.0060)	
Y_8	0.0000 (0.0000)	-0.0016 (-0.0004)	-0.0346 (-0.0048)	-0.0232 (-0.0014)	-0.0047 (-0.0004)	-0.1250 (-0.0373)	-0.0623 (-0.0032)	5.9823 (0.5305)

Note:

- X = Annual turnover; Y1 = GPM; Y2 = OPM; Y3 = other income ratio; Y4 = other expense ratio; Y5 = positive fiscal adjustment ratio; Y6 = negative fiscal adjustment ratio; Y7 = taxable income ratio; Y8 = CTTOR (%).
- Standardised coefficient is in parentheses. All coefficients are significant at the 0.01 level

Conclusion

- We find support for the notion that information reporting improves tax compliance (Lederman, 2010; Adhikari et al., 2020).
- Firms with information reporting were paying a larger portion of tax—i.e., CTTOR—than firms without information reporting, despite the interesting fact that the two groups report similar gross profit margins. That is, while the average gross profit margin of firms with information reporting is only 3% larger than firms without information reporting (i.e., 21.1% compared to 20.5%), the CTTOR for the former group is 204% larger than that of the latter group (i.e., 1.31% compared to 0.43%).
- We find evidence that the two groups behave somewhat differently.
- Our findings suggest that firms with information reporting are more likely to positively correct their gross income relative to annual turnover and other expense ratio compared to the group without information reporting (i.e., b = 0.104 compared to b = 0.007), suggesting a plausible explanation on why the former group reports a larger taxable income ratio.
- We also find evidence that the relationship between other income ratio from side business and CTTOR is positive for firms with information reporting but negative for firms without information reporting (i.e., b = 0.071 compared to b = -0.023), indicating tax compliance is higher when the corresponding income is more detectable.

Implication

- Our findings indicate that ample rooms for improving compliance are available and that expanding the coverage of withholding or information reporting can help tax authorities achieving this goal. However, as a generic framework, two aspects should be carefully considered.

- First, it is important to consider the administrative impact for the impacted taxpayers—both as payers and payees. These include, but are not limited to, costs in relation to the provision of information required by both parties and the preparation of information returns for the tax authority.

- Second, it is also crucial to identify several corresponding factors that may influence the overall administrative impact. For instance, the overall administrative impact may be influenced by the extent to which withholding or information reporting is applied, the complexity of payee identification in place, the coverage of regimes in terms of business is impacted, and the extent of business process for producing and sending information returns to the tax authority.

- Finally, in addition to the need to establish more well-formed strategic alliances and partnerships with other relevant government insitutions, the DGT also needs to develop not only its capacity in data-matching, but also strenghten its information systems and data analytics capabilities.

Limitation

- This study only focuses on the demand side of the equation—i.e., only from the perspective of the tax authority.
- Our study employs a very large data set in which the anonymous, confidential tax record data are collected and analysed to improve the generalisability of the findings but could come at the expense of increased sensitivity due to less sampling error. That is, large samples tend to have less 'noise', and therefore, they make it easier to find 'signal'.
- We only use Indonesian firms' data from the fiscal year 2014 through 2019 and only focused on corporate income taxes, which may limit the generalisability of the results. The implication is that the relevance of our study to other fiscal years and to other types of taxpayers is therefore unknown.
- Our study only narrowly focused on the income-statement perspective of tax return data, i.e., Form 1771-I. For a better understanding, a fuller analysis should include the balance-sheet perspective. How do the results we document here vary across firms' assets? Do debt or capital structures shape how firms determine their tax-paying behaviour? Answering these follow-up questions are likely to generate useful additional insights.

Thank you

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