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The Effects of Indonesia's Country-by-Country Reporting Regulation on Multinational Enterprises' Real Investment

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ABSTRACT

Does tax transparency discourage investment? Indonesia's adoption of Base Erosion and Profit Shifting (BEPS) Action 13 concerning Country-by-Country (CbC) Reporting may have an unintended consequence on multinational enterprises' (MNEs) real investment in Indonesia. If MNE real investment has declined since the introduction of the CbC reporting regulation, the disadvantages of this policy may likely offset its benefits. This paper uses a regression discontinuity design and a difference in differences analysis, employing unique panel data from the Orbis database covering 622 enterprises in Indonesia from 2013 to 2021, to investigate whether MNEs reduced their real investment following the implementation of the CbC reporting regulation. This paper finds that real investment in the treatment group increased after the implementation of the CbC reporting regulation. The unintended consequence of the CbC reporting regulation is likely to discourage MNEs' real investment in Indonesia. Considering this result, Indonesian tax authorities should implement appropriate policy initiatives to effectively address this issue.

Keywords: transfer pricing, country-by-country reporting, Indonesia, real investment

1. INTRODUCTION

Profit shifting tax-motivated behavior by Multinational Enterprises (MNEs) has become an insoluble problem for Indonesia. Profit shifting refers to allocating MNE profit from high tax jurisdictions to low tax jurisdictions to minimize an MNE's overall tax burden (De Mooij & Liu, 2020; Buettner et al., 2017). The OECD (2022b) found that MNEs report their profit in locations that differ from their economic activities. MNEs report relatively high profit shares (29%), low intangible asset shares (15%), and low employee salary shares (4%) in low-tax jurisdictions[1]. It is perceived that MNEs have no significant economic activities in their operating jurisdiction, but their profitability is abnormal, beyond normal business circumstances (Choi et al., 2020). This inappropriate behavior has cost countries worldwide around USD 100-240 billion in tax revenue losses (OECD, 2022b).

Various policies have been implemented to limit this transfer pricing[2] issue, one of which is the

[1] These countries are considered investment hubs by the World Bank Classification, including the British Virgin Islands, Cayman Islands, Ireland, Jersey, Luxembourg, Marshall Islands, Mauritius, the Netherlands, Singapore, and Switzerland (OECD, 2022a).

[2] Transfer prices are the amounts that one subsidiary of a corporation reimburses another subsidiary for goods transferred between them; transfer pricing is a scheme used by MNEs to exploit cross-border tax rate differentials (Gruber, 2016). This scheme applies to transactions between affiliated companies intended to

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Country-by-Country (CbC) reporting. Indonesia implemented its CbC reporting regulation on December 30th, 2016, under the Minister of Finance Regulation No. 213/2016. International adoption of the three-layered approach to document transfer pricing transactions, consistent with Base Erosion and Profit Shifting (BEPS) Action 13, has also been implemented in Indonesia. According to the OECD (2015), the three-layered framework consists of: (i) a master file, a database of relevant information about all MNE group members; (ii) a local file, describing country-specific transaction data of MNE group affiliates conducted as domestic taxpayers; and (iii) the CbC report, which contains a standardized disclosure report providing global information of the MNE's income allocation, tax payments, and indicators of economic activity wherever the MNE operates. These documents are intended first to provide transparency among taxpayers who engage in related-party transactions in determining their transfer prices, and second to provide tax administrations with information to address potential tax avoidance by taxpayers (OECD, 2015).

Given the implementation of the CbC reporting regulation, there is the possibility of unintended[3] consequences regarding MNE real investment in Indonesia. If MNE real investment has declined since the introduction of the CbC reporting regulation, the disadvantages of this policy may likely offset its benefits. This unintended consequence has been highlighted in previous empirical studies that show that CbC reporting regulations influence enterprises' decisions to invest in and locate in a particular jurisdiction (De Simone & Olbert, 2022; Eberhartinger, 2020). By providing greater transparency to tax authorities, CbC reports can increase the detection risk (e.g., the risk of being audited) for enterprises that continue to avoid taxation. Reduced tax avoidance burdens enterprises with higher taxes and could lead to reduced real investment by enterprises in jurisdictions that have implemented CbC reporting (De Mooij & Liu, 2020).

This paper specifically aims to provide empirical evidence on the real effects of implementing the CbC reporting regulation in Indonesia. A regression discontinuity design and a difference-in-differences analysis are employed to investigate the effects of the CbC reporting regulation. To separate observations into treatment group and control group, this paper employs EUR 750 million revenue thresholds as the cutoff for the disclosure of this policy, i.e., MNEs with annual revenue at least EUR 750 million will be assigned as the treatment group and otherwise (MOF of Indonesia Regulation, 213/2016) (see Section 1.2 for details).

Although research evaluating CbC reporting regulations has increased in recent years, few studies focus specifically on the real investment effects of this policy in Indonesia. This paper, therefore, contributes to the literature by providing empirical analysis of the impact of CbC reporting regulations on real investment among MNEs operating in Indonesia. In addition, the results of this paper are essential for providing the Directorate General of Taxes of Indonesia (DGT) with insight into whether the implemented tax policy might dissuade MNEs from investing in Indonesia.

This paper has two objectives. First, this paper aims to add to the existing literature by providing empirical evidence on the effects of the CbC reporting regulation on multinational enterprise subsidiaries' real investment in

achieve the tax minimization goal by shifting profits to a party located in a low-tax jurisdiction (Director General of Taxes Regulation, 43/2010).

[3] The unintended consequence is a neutral concept in behavioral studies, meaning it can be either positive, negative, or merely neutral; the unintended consequence arises from a complex system and can have an impact across a wide range of areas (Merton, 1936). Merton (1936) posits that there are five possible reasons why the unintended consequence arises, i.e., lack of knowledge on a particular situation, ignorance by repeating something that was done in the past, the need for an instant solution, a necessity for giving priority decision on basic values in one area thereby disregarding other areas of society, and a misconception of the situation aroused by an incorrect prediction of the situation entangling with new behavior changes evoked following it.

Indonesia[4]. Second, this paper provides the Directorate General of Taxes of Indonesia (DGT) with insight to evaluate the adoption of the CbC reporting regulation, as a mandate[5] of the Base Erosion and Profit Shifting (BEPS) Action 13 (OECD, 2015). This research will focus on two primary issues:

(1) Does the Country-by-Country (CbC) reporting regulation affect multinational enterprise subsidiaries' real investment in Indonesia?

(2) How much has the multinational enterprise subsidiaries' real investment changed as a result of this policy?

1.1 Indonesia's Corporate Tax System

Indonesia's tax system uses a self-assessment system, which places trust in taxpayers to calculate tax liabilities, submit tax returns, and pay any taxes owed[6] (Government of Indonesia Law, 7/2021). With taxpayers' trust, the Directorate General of Taxes of Indonesia (DGT) has the authority to check tax compliance through tax inspections (e.g., tax audits) implemented and regulated by law. In practice, there are often differences in tax levies calculated by tax officers and taxpayers, leading to tax disputes.

Within the legal framework, when tax disputes occur, taxpayers are entitled to legal protection to resolve them[7] (Government of Indonesia Law, 7/2021). There are two types of tax dispute resolution procedures: those established at the domestic level and those provided for in tax treaties. The tax dispute resolution procedures provided by tax treaties commonly address the settlement of transfer pricing disputes (OECD Model, 2017).

Transfer pricing itself was originally a neutral concept referring to any price transferred for goods or services between parties with a special relationship. In terms of managerial accounting, in the decentralized[8] organizations, transfer prices are the price one subunit (e.g., subsidiary) charges for a good or service provided for another subunit within the same organization, i.e., a car manufacturing company has a separate subunit that produces engine to the car and then transferring cost of engines to another subunit (e.g., the assembly subunit) to make a car within the same company group (Hongren et al., 2012). On the other hand, according to Eden (2000), there is a transfer pricing manipulation scheme that aims to distort the actual price transferred between related parties within a group of companies to exploit cross-border tax rate differentials. This scheme involves shifting company expenses to a high-tax jurisdiction and transferring company revenue to a low-tax jurisdiction, with the aim of reducing overall corporate income tax payments.

In Indonesia, the corporate income tax (CIT) rate was 25% for the period 2013 to 2019 and 22% for 2020 onwards[9] (Government of Indonesia

[4] Indonesian firms act as the subsidiaries of the MNEs. MNEs are firms that operate in multiple countries, while a subsidiary is the subunit of an MNE that operates in another country (Gruber, 2016).

[5] The content of the peer review policy evaluation report on the implementation of CbC reporting regulation, which consists of an evaluation exercise and discussions, is not specifically regulated by OECD guidelines (OECD, 2020).

[6] The Commentary on Article 2 of the Government of Indonesia Law number 7/2021 regarding The Law on Harmonization of Tax Regulations, subsection General Taxation Provisions and Procedures, provides an explanation of Indonesia's tax system for how taxpayers fulfill their tax duties.

[7] Articles 25, 26, 26A, 27, and 27B of the Government of Indonesia Law number 7/2021 regarding The Law on Harmonization of Tax Regulations, subsection General Taxation Provisions and Procedures, provide procedures for Indonesia's tax administration for handling tax dispute resolution with taxpayers.

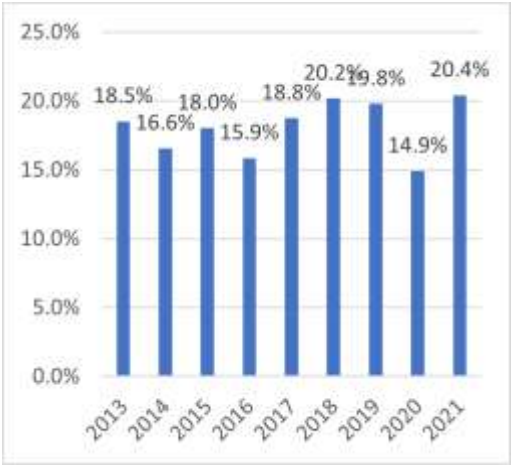
[8] Decentralization is an organizational structure that gives managers at lower levels the authority to make decisions in the company's best interest, based on local business knowledge wherever they are assigned (Hongren et al., 2012). This is a normal MNE strategy for profit maximization, aiming to maximize the global value chain in every country in which MNEs' affiliated companies operate.

[9] Article 17, Paragraph 1 of the Government of Indonesia Law number 7/2021 regarding The Government of Indonesia Law on Harmonization of Tax Regulations subsection Indonesia's Income Tax Law provides a provision for Indonesian business taxpayers on how the

Law, 7/2021). The OECD (2022b) found that the global standard statutory CIT rate for all jurisdictions was 20% in 2022. In comparison with the Southeast Asian countries, Indonesia's CIT rate is relatively higher than most of its Southeast Asian neighbors, such as Vietnam (20%), Thailand (20%), Brunei (18%), and Singapore (17%). Moreover, on average, corporate income tax revenue accounts for around 18% of Indonesia's total tax revenue (DGT, 2023). The proportion of corporate income tax revenue to national tax revenue collected by DGT from 2013 to 2021 is illustrated in Figure 1.

Figure 1

Indonesia's Corporate Tax Revenue as a Percentage of Total Tax Revenue (%)



Note. Source: DGT (2023)

1.2 Indonesia's Country-by-Country Reporting Regulation

DGT enacted its first instructions to taxpayers on how to treat transfer pricing transactions in 2010 through DGT Regulation number 43/2010. In this regulation, taxpayers are obliged to prove that they do not use transfer pricing to distort their profits to avoid paying taxes. Transfer pricing is the price set for transactions between associated enterprises, typically due to ownership (OECD, 2017). Taxpayers must show that their transaction prices reflect prices that would have been paid by independent enterprises engaging in a comparable transaction.

In 2017, DGT implemented a transfer pricing documentation regulation through the Minister of Finance (MOF) of Indonesia Regulation No. 213/2016 to address transparency gaps in transfer pricing determination. Through the transfer pricing documentation regulation, taxpayers are expected to prepare three documents: master files, local files, and Country-by-Country (CbC) reports. The master files present a holistic picture of a taxpayer's global business operations. The local files document information regarding related party transactions, the amounts of those transactions, and an arm's length[10] analysis of the taxpayer's transfer pricing determination. The CbC reports contain aggregated data for tax administrations and include information on a taxpayer's affiliates operating worldwide, including the global allocation of a taxpayer's income, taxes paid, and indicators of a taxpayer's economic activities. These documents are expected to improve taxpayer transparency for tax administrations and help them counter tax avoidance by taxpayers (OECD, 2015).

This CbC report, as required by BEPS Action 13 and the MOF of Indonesia Regulation number 213/2016, is intended as a private disclosure. The nature of a private disclosure is that the CbC report is reported only to the tax authority, not published to society (De Simone & Olbert, 2022). CbC reports are filed annually by the global ultimate owner (GUO) for all MNE group members in the jurisdiction where the GUO resides (OECD, 2015; MOF of Indonesia Regulation, 213/2016). To enable the automatic exchange of CbC reports between tax administrations, the Organisation for Economic Co-operation and Development (OECD)

high tax rate will be imposed on their company's profit within Indonesia's tax system.

[10] The Arm's Length Principle is an international standard that compares the transfer price between related parties with the price that would be charged by an independent party. An additional transfer pricing correction can be imposed by the tax authority on the excess profits earned by a party above the amount that would be agreed upon in independent parties' transactions under similar circumstances (OECD, 2017; UN, 2021).

established the Qualifying Competent Authority Agreement (QCAA), under which a tax administration receiving CbC report data from a GUO will automatically transfer it to the other tax administrations in which the MNE subsidiary operates. As of June 2022, Indonesia has 68 QCAAs in effect with other jurisdictions to facilitate the automatic exchange of CbC reports (OECD, 2022a).

Implementing CbC reporting may incur additional costs for taxpayers. Taxpayers bear additional costs to pay employees or contract tax consultants to prepare CbC reports. Therefore, to prevent this policy from burdening small taxpayers who pose a low risk of tax avoidance, not all taxpayers are obliged to prepare CbC reports. Taxpayers with annual gross revenue less than IDR 11 trillion in the previous fiscal year are exempted from preparing CbC reports. This figure equals EUR 750 million, in line with the BEPS Action 13 requirement (OECD, 2015).

On the other hand, additional costs are incurred with tax administration for CbC reporting. DGT must appropriately manage the abundant volume of information derived from CbC reports. Therefore, DGT needs to build capacity (e.g., training tax officials) to effectively use information on tax compliance risk management (OECD, 2017). DGT also needs to develop an information technology (IT) infrastructure (e.g., a database server) to ensure the reliable storage of CbC report data (OECD, 2017).

2. THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

This literature review section is divided into two sections. Regarding the benefits of CbC reporting, the first section provides information on MNE tax avoidance motives that are likely to decrease following the implementation of the CbC reporting regulation. The second section explains that the effect of the implemented CbC reporting regulation might dissuade MNEs from investing in Indonesia.

2.1 Corporate Tax Avoidance

Business interactions between two tax jurisdictions may result not only in double taxation but also in double non-taxation. These issues will negatively impact economic growth, supply chains, and global prosperity in every country. Accordingly, some MNEs may attempt to reduce their overall tax burden through tax avoidance. Hanlon and Heizman (2010) state that corporate tax avoidance is the exploitation of loopholes in tax regulations to reduce explicit corporate taxes levied by the government. Rohatgi (2007) explains that tax avoidance is any transaction that is designated within a legal framework to gain a tax advantage in the short term (i.e., temporary tax deductions) or reduce tax liability in the long term (i.e., permanent tax deductions), solely for the purpose of avoiding tax outside of commercial purposes.

A few studies found that CbC reports can deter enterprise tax avoidance through profit shifting (Joshi, 2020; Hugger, 2019). CbC reports provide new tax-related information to tax authorities, which will be used to assess transfer pricing risk. If the tax authorities receiving this information find that the risk of an enterprise shifting its profit is high, that enterprise will be audited. Enterprises that do not want to take the risk of being audited, because it is time-consuming and there is a likelihood of being penalized, will alter their behavior by reducing profit shifting. Through this channel (i.e., detection risk), the introduction of CbC reporting changes enterprise tax behavior (Joshi, 2020). On the other hand, Hugger (2019) argues that this behavioral change is observed only among enterprises in high-tax jurisdictions.

2.2 The Effects of Country-by-Country Reporting Regulation on Real Investment

Several studies have shown that CbC reporting regulations influence enterprise real investment and location decisions (De Simone & Olbert, 2022; Eberhatinger et al., 2020). Enterprises reduce their real investment as a trade-off for higher tax burdens resulting from the implementation of the

CbC reporting regulation. CbC reports can increase the risk of detection (e.g., audit) for enterprises (Joshi, 2020). Reduced tax avoidance burdens enterprises with higher taxes and could lead to reduced real investment by enterprises in jurisdictions that have implemented CbC reporting regulations (De Mooij & Liu, 2020). According to De Simone and Olbert (2022), following the implementation of the CbC reporting, enterprises increase their real investment in jurisdictions that offer preferential tax regimes.

Under the CbC reporting regulations, firms try to minimize their tax payments by shifting their real investment from higher-tax jurisdictions to lower-tax jurisdictions (De Mooij & Liu, 2020).

Let us assume that the MNE parent located in home country *H* decides on the amount of real investment (*k*) in its foreign subsidiary in country *S*, and that this real investment is financed by equity at a cost *r*. The MNE parent also supplies the subsidiaries with intermediate inputs (*x*) used in production at the local market at price *p*; when it supplies *x*, it charges a transfer price (p^T). Let us also assume that the tax rate in the country where the subsidiary is operated (τ^S) is lower than the tax rate in the country where the MNE parent resides (τ^H). In addition, the stricter CbC reporting regulations are denoted in a higher β. Based on these assumptions, the subsidiary generates the income as follows (De Mooij & Liu, 2020):

$$(1 - \tau^S)\,[f(k,x) - p^T x]\,. \quad (1)$$

Then, the income of the MNE parent is as follows (De Mooij & Liu, 2020):

$$(1 - \tau^H)\,(p^T - p)x + (1 - \tau^S)\,[f(k,x) - p^T x] - rk - \beta\,[p^T - p]^2 x\,. \quad (2)$$

Thereby, the following is the optimality condition for real investment by the MNEs, under the decreasing return, thus the MNEs' real investment will decrease (De Mooij & Liu, 2020):

$$(1 - \tau^S)\,f_k = r\,. \quad (3)$$

It follows that the MNE parent will supply intermediate inputs to the subsidiary at the optimal transfer price (De Mooij & Liu, 2020):

$$f_x = p + \frac{(\tau^H - \tau^S)(p^T - p) + \beta\,(p^T - p)^2}{2\,\beta}\,, \quad (4)$$

$$p^T = p - \frac{(\tau^H - \tau^S)}{2\,\beta}\,. \quad (5)$$

If the tax rate in the MNE parent and subsidiaries are the same, the strictness of CbC reporting regulations is also same, and the MNE parent charges arm's length[11] price for the intermediate inputs, then the marginal cost of subsidiaries in that country is equal to p (in other words, there is no advantage to be taken over transfer pricing) (De Mooij & Liu, 2020). Therefore, it can be inferred that Country-by-Country reporting regulations might dissuade MNE parents from investing in their foreign subsidiaries (e.g., in Indonesia), but not in the case of both the MNE parent and its subsidiaries under the same tax jurisdiction (De Mooij & Liu, 2020).

3. RESEARCH METHODOLOGY

The following section discusses the data and methodology used to identify the effects of the CbC reporting regulation on multinational MNE subsidiary real investment in Indonesia. First, the theoretical framework and hypothesis in this paper are described. Second, the data used in this research are presented. Third, the methodology used, a regression discontinuity design and difference-in-differences analysis, is then presented following the data explanation.

Globalization's impact extends beyond trade and information technology disruption to include tax competition and real investment (Choi et al., 2020). Many countries now compete with one another, using tax havens[12] policy to protect

[11] An arm's length price is the standard price used by the tax authority in the related-party transaction analysis, reflecting the normal price if the transactions are made by an independent party (OECD, 2017).

[12] A tax haven is a country with no or low corporate tax rates in its jurisdiction; the tax haven policy is a policy carried out by a government as a consequence of the race to the bottom effects in international tax competition between countries (Zucman, 2016; Saez & Zucman, 2020). The term " tax havens term is also known as the investment hubs country according to the World Bank Classification (OECD, 2022a) (see footnote 1).

their domestic industries and attract foreign direct investment (Zucman, 2016). Furthermore, understanding foreign direct investment itself (i.e., MNE real investment) is useful because MNEs can contribute to a country's economic development by creating a positive productivity externality for domestic enterprises (Andrews et al., 2015; Negara & Adam, 2012).

Table 1
Variable Descriptions

Variables	Explanation
Investment	real capital investment (million USD)
R	consolidated revenue (million EUR)
CbC reports	0= not obliged to file CbC report, 1= obliged to file CbC report
c	the index at the cutoff (EUR 750 million), 1= MNE subsidiary revenue at least EUR 750 million, 0= MNE subsidiary revenue less than EUR 750 million
v	vector variable
Post	0= pre-implementation period, 1= post implementation period
Post*CbC reports	interaction variable, obtained from multiplying variable Post with variable CbC reports that indicating difference-in-differences estimator, 1= post implementation period and obliged to file CbC report, 0= otherwise
x	control variable vector
Cash flow	cash flow (million USD)
Sales growth	sales growth (%)
R	consolidated revenue (million EUR)
Cash flow rate	cash flow rate (%)
Depreciation	depreciation (million USD)
Total asset	total asset (million USD)
Gross profit	gross profit (million USD)
Sales	sales (million USD)
ε	error term variable

Source: compiled by author

Moreover, real investment demand might be determined by the government's real investment policy (e.g., through the tax regulations channel) (Saez & Zucman, 2020; Mankiw, 2019). Mankiw (2019) argues that tax regulations determine a firm's decision to accumulate capital in many ways. It is thus important to understand that tax regulation can be an effective tool to influence taxpayers' behavior regarding real investment, in the short or long term. Then, since Indonesia is a capital-importing country, this research is necessary to observe the effects of MNE real investment on the country's sustainable economic growth (Krugman et al., 2018).

The research objective of this paper is to extend the De Mooij and Liu (2020) study, which argues that the unintended consequence of the CbC reporting regulation is likely to discourage MNE real investment in Indonesia. The increased corporate tax disclosure (i.e., through detection risk) arising from the CbC reporting regulation will be followed by a decrease in corporate tax avoidance (Joshi, 2020; Hugger, 2019). Reduced tax avoidance burdens enterprises with higher taxes and could lead to behavioral change among enterprises, reducing their subsidiary real investments in jurisdictions that have implemented CbC reporting regulations (De Mooij & Liu, 2020; Buettner et al., 2017). This MNEs' behavior changes on real investment afterward could lead to decreased domestic output, and increased real investment reallocation toward the other countries, which indicates a production shifting from the country that previously enjoyed a real investment inflow (Choi et al., 2020; De Mooij & Liu, 2020;

Figure 2
The Effects of CbC Reporting Regulation on MNEs Real Investment in Indonesia

Note. Source: compiled by author

Buettner et al., 2017). Figure 2 shows the interlinkage of corporate tax avoidance, tax disclosures, and MNEs real investment in Indonesia.

A hypothesis is constructed to answer the research questions: whether the CbC reporting regulation, acting as a policy variable, is statistically significant as a determinant of MNE subsidiary real investment in Indonesia. This research hypothesizes the value of H_a as a one-sided alternative equation as follows:

$$H0: \ \mu = \mu 0, \quad (6)$$

$Ha:$ Multinational Enterprise subsidiary's real investment in Indonesia will be decreased following the implementation of Country-by-Country (CbC) reporting regulation ($\mu < \mu_0$), where μ is the mean of the treatment group, and μ_0 is the mean of the control group.

The null hypothesis H_0: $\mu = \mu_0$ means that MNE subsidiary real investment will not decrease following the implementation of Indonesia's CbC reporting regulation. If this is true, it implies that the implementation of Indonesia's CbC reporting regulation does not affect MNE subsidiary real investment. Conversely, if $\mu < \mu_0$, the implementation of Indonesia's CbC reporting regulation is negatively correlated with MNE subsidiary real investment in the treatment group. The p-value is used for testing the null hypothesis against the alternative hypothesis.

3.1 Data

This research draws on a panel dataset of MNEs' subsidiaries operating in Indonesia, including annual financial statements and ownership data for the period 2013 to 2021. This data was obtained from the Orbis database (Bureau van Dijk). Orbis data is compiled from sources across countries, including chambers of commerce, local public authorities, and credit institutions. This database has been developed by Bureau van Dijk since 1991 and contains financial and business data from across the globe.

Annual corporate ownership data for Indonesia was obtained for the period 2013 to 2021. A company is defined as an MNE affiliate in Indonesia if at least 25% of its shares are owned by foreign entities[13] (Government of Indonesia Law, 7/2021). This threshold is the same as that noted in Article 24 of International Accounting Standard (IAS) 2009, which requires the parent company to acquire more than 25 percent of the entity's shareholding for related party transaction disclosures. To separate the samples into treatment and control groups, this research uses thresholds for MNE subsidiaries' consolidated revenue: above and below EUR 750 million. This EUR 750 million revenue threshold meets the requirement of the CbC report guidance under the Minister of Finance of Indonesia Regulation number 213/2016. This regulation has been in force since the fiscal year commencing on 1 January 2017. In sum, the data includes 5,598 observations from 622 MNE subsidiaries operating in Indonesia. Tables 1 and 2 summarize important variables for this research purpose.

3.2 Methodology

The empirical strategies employed to estimate the effect of CbC reporting regulation include a regression discontinuity design (RDD) and a difference-in-differences (DD) model. According to Cunningham (2021), one of the benefits of employing both RDD and DD models is that they can address endogeneity issues (e.g., omitted-variable bias) in the variable of interest under weaker assumptions. Therefore, the estimation results can identify the policy's causal impact. The details of each analysis are discussed as follows.

[13] Article 18 of the Law number 7/2021 regarding The Government of Indonesia Law on Harmonization of Tax Regulations subsection Indonesia's Income Tax Law provides provisions for Indonesian business taxpayers to treat transfer pricing transactions, particularly on how the shares threshold categorized as a subsidiary or affiliated company of foreign companies (e.g., MNEs) under Indonesian income tax law.

3.2.1 Regression Discontinuity Design (RDD)

The first empirical strategy used to examine the effect of the CbC reporting regulation on real investment by MNEs' subsidiaries operating in Indonesia is a sharp regression discontinuity design (Joshi, 2020). The independent variable in this regression discontinuity design (RDD) model is the MNE subsidiary's consolidated revenue in the preceding year, with a 750 million Euros threshold. The outcome variable is real investment.

In the pre-policy implementation period, MNE subsidiary revenue is predicted to be smooth at the cutoff (i.e., local average treatment effect) across the revenue threshold. However, real investment is predicted to show discontinuity at the 750 million Euro threshold (De Simone & Olbert, 2022). To generate an unbiased estimate for the treatment group in a regression discontinuity design, the 750 million Euros threshold is set as a local randomized index (Hanh et al., 2001). In other words, the consolidated revenue should not be easily manipulated by MNEs (Joshi, 2020). In this regard, manipulation of consolidated revenue, though possible, is uncommon for MNEs because they are required to alter the timing of revenue recognition, which can trigger further scrutiny (Joshi, 2020).

The aim of this research is to identify whether discontinuities[14] in MNE subsidiary real investment policy prior to the CbC reporting regulation are mirrored by discontinuities in MNE subsidiary real investment policy after the regulation was implemented (Hanh et al., 2001). This research uses the regression discontinuity design developed by Ludwig and Miller (2007). In addition to a graphical analysis using the binned scatterplot method, this research also carries out local polynomial regression discontinuity analysis to provide a detailed explanation of the empirical result. Following the estimator of Ludwig and Miller (2007), this research estimates the following RDD model:

$$\boldsymbol{CbCReports_c = 1\,(R_c \geq 750)}\,, \quad (7)$$

$$Investment_c = mR_c + CbCReports_c\,\alpha + v_c\,. \quad (8)$$

$\boldsymbol{Investment_c}$: $Investment_c$ is the outcome variable measured using real investment at the time $\boldsymbol{t}$ with the index c. To calculate the investment variable (in other words, real capital investment) in year ($\boldsymbol{t}$), this research calculated the differential of the fixed tangible asset reported value in year ($\boldsymbol{t}$) with fixed tangible asset reported value in previous year ($\boldsymbol{t}$ -1), and then added the depreciation value from the previous year for each MNE subsidiary (De Mooij & Liu, 2020):

$$Investment_t = Fixed\ Tangible\ Asset_t - Fixed\ Tangible\ Asset_{t-1} + depreciation\,. \quad (9)$$

According to Article 16 of the International Accounting Standard (IAS) 2020, fixed tangible assets are fixed assets, i.e., property, plants, and machinery/equipment, owned and used by the company to produce goods or services for a certain period, in this case, more than one fiscal year, as a factor of production of the company.

$\boldsymbol{CbCReports_c}$: $CbCReports_c$ is the CbC report variable, an indicator variable equal to 1 for 2017 and following years if the company preceding-year consolidated revenue of the MNE subsidiary operating in Indonesia was at least 750 million Euros, and 0 otherwise.

$\boldsymbol{R_c}$: R_c is the consolidated revenue of the MNE subsidiary operating in Indonesia. This research examines the sensitivity of the results to the bandwidth by recalculating the bias-corrected coefficient for the treatment group at selected bandwidths (±750 million Euros).

c: **c** is the CbC report variable, an indicator variable equal to 1 for 2017 and later years if the company's preceding is the index of the MNE subsidiary operating in Indonesia, and its consolidated revenue is at least 750 million Euros (i.e., the cutoff). This index defines the $CbCReports_c$ and $Investment_c$ variable, sorted in descending order (i.e., assigning c=1 to the MNE subsidiary revenue that is at least at the cutoff of 750 million Euros, and assigning c=0 otherwise).

[14] Discontinuity is a weighted average treatment effect, i.e., each observation is weighted directly proportional to the post (ex-ante) likelihood that the mean realization of an outcome variable would be close to the cutoff (in other words, a certain threshold) (Lee & Lemieux, 2010).

$\boldsymbol{v_c}$: v_c represents vector variable. A vector variable is a variable used in a regression discontinuity model and can represent either the running variable or the outcome variable.

3.2.2 Difference-in-Differences Model (DD)

To examine the effect of the CbC reporting regulation on real investment by MNEs' subsidiaries operating in Indonesia, considering obtaining robust estimates, this research also employs a difference-in-differences analysis. For this model, the average treatment effect will be used to compare the treatment and control groups. The treatment group comprises MNE subsidiaries operating in Indonesia if the company's preceding-year consolidated revenue was at least 750 million Euros, commencing in 2017 (Joshi, 2020). The control group comprises MNE subsidiaries operating in Indonesia with consolidated revenue below 750 million Euros in the previous year, starting from 2017 (Joshi, 2020). The use of EUR 750 million as a threshold is consistent with both BEPS Action 13, which serves as the global minimum standard, and the Minister of Finance of Indonesia Regulation number 213/2016.

The empirical strategy of the DD is to have the treatment group as an MNE subsidiary under Indonesia's CbC reporting regulation, and the control group as an MNE subsidiary that is exempt from preparing CbC reports. This model is extended from De Mooij and Liu (2020) model to examine the effect of the CbC reporting regulation on real investment by MNEs subsidiaries operating in Indonesia:

$$Investment_{it} = \alpha_0 + \beta_1 CbCReports_{it} + \beta_2 Post_t + \beta_3 Post * CbCReports_{it} + \beta_4 x_{it} + \varepsilon_{it}. \quad (10)$$

$\boldsymbol{Investment_{it}}$: $Investment_{it}$ is the outcome variable for observation i at the time t. To calculate the investment variable (in other words, real capital investment) in year (t), this research calculated the differential of the fixed tangible asset reported value in year (t) with fixed tangible asset reported value in previous year (t -

Table 2
Descriptive Statistics

Variable	Observation	Mean	Std. Dev.	Min	Max
Investment (mUSD)	5598	35.69	172.25	-880.69	5048.74
R (mEUR)	5598	1488.13	6731.88	-0.24	83155.74
CbC Reports	5598	.285	.451	0	1
Post	5598	.555	.497	0	1
Post*CbC Reports	5598	.130	.337	0	1
Cash flow (mUSD)	5598	49.30	203	-917	3960
Sales growth (%)	5598	.036	17.99	-1083.16	134.66
Cash flow rate (%)	5598	-6.18	337.17	-20767.42	1279.32
Depreciation (mUSD)	5598	24.10	101	0	2230
Total asset (mUSD)	5598	214	670	.0007	11600
Gross profit (mUSD)	5598	114	324	-196	7220
Sales (mUSD)	5598	365	1030	-22.30	17100

Source: Orbis database (Bureau van Dijk), compiled by author

1), and then added the depreciation value from the previous year for each MNE subsidiary (De Mooij & Liu, 2020) :

$$Investment_t = Fixed\ Tangible\ Asset_t - Fixed\ Tangible\ Asset_{t-1} + depreciation. \quad (11)$$

According to Article 16 of the International Accounting Standard (IAS) 2020, fixed tangible assets are fixed assets, i.e., property, plants, and machinery/equipment, owned and used by the company to produce goods or services for a certain period, in this case, more than one fiscal year, as a factor of production of the company.

$\boldsymbol{CbCReports_{it}}$: $CbCReports_{it}$ is a dummy variable that takes the value of 1 if MNE subsidiaries are obliged to prepare CbC reports, and 0 otherwise. To implement DD analysis, this research uses revenue from 2017 to 2021 to determine the treatment and control groups, assigning 0 to MNE subsidiaries whose annual gross revenue was less than 750 million Euros in the tax years 2017 to 2021, and 1 otherwise.

$\boldsymbol{Post_t}$: $Post_t$ is a dummy variable that takes the value of 1 for all tax years where the CbC reporting regulation is in effect (2017 to 2021), and 0 otherwise. This research uses the years 2013 to 2021 to define the treatment and control groups, with 0 indicating an MNE subsidiary during the pre-implementation period (2013 to 2016) and 1 indicating an MNE subsidiary during the post-implementation period (2017 to 2021).

$\boldsymbol{Post * CbCReports_{it}}$: $Post * CbCReports_{it}$ is the main variable of interest and indicates the difference-in-differences estimator as the interaction of variable $\boldsymbol{CbCReports_{it}}$ and variable $\boldsymbol{Post}$. The DD model uses a 2 x 2 model, which consists of a combination of 4 end results (i.e., 0, 0, 0, and 1) obtained by multiplying variable $\boldsymbol{Post}$ with variable $\boldsymbol{CbCReports_{it}}$. When the result is 1, then the MNE subsidiary will be considered as treatment group. Conversely, when the result is 0, then the MNE subsidiary will be identified as control group.

$\boldsymbol{x_{it}}$: x_{it} represents a control variables vector for observation $\boldsymbol{i}$ at the time $\boldsymbol{t}$. The model of the difference-in-differences analysis is extended from De Mooij and Liu (2020) to examine the effect of the CbC reporting regulation on real investment of MNE subsidiaries operating in Indonesia. The reasons for including control variables in this difference-in-differences model are to ensure the estimates do not change, improve efficiency, check for randomization, and adjust for conditional randomization (Roberts & Whited, 2013). Following De Mooij and Liu (2020), this research utilizes cash flow, sales growth, revenue, cash flow rate, depreciation, total assets, gross profit, and sales as the control variables in this DD model. Revenue is the total revenue generated by a company (either from operating, investing, or financing) in a certain period (one fiscal year). Sales is operating revenue, the total amount of goods and services sold by the company in a certain period (one fiscal year). The sales growth rate is defined as the proportion of this year's operating revenue to the preceding year's operating revenue (De Mooij & Liu, 2020). Cash flow is the net cash flow, the total amount of cash recognition earned from operating, investing, and financing activities carried out by a company in a certain period (fiscal year). Cash flow rate is defined as the proportion of this year's cash flow to the preceding year's cash flow (De Mooij & Liu, 2020). Depreciation is the amount of value reduction of fixed assets recognized by the company in a certain period (fiscal year). Gross profit is the net revenue earned from sales revenue minus variable costs that directly contribute to the goods and services sold (in other words, cost of goods sold), gained by the company in a certain period (fiscal year).

$\boldsymbol{\varepsilon_{it}}$: ε_{it} represents an error term variable for observation $\boldsymbol{i}$ at the time $\boldsymbol{t}$. Error term (in other words, disturbance) is a variable that represent an unobservable factors related to the outcome variable (Wooldridge, 2020).

4. RESULTS AND DISCUSSIONS

This section discusses empirical results, beginning with the regression discontinuity design and then the estimates from the difference-in-differences analysis.

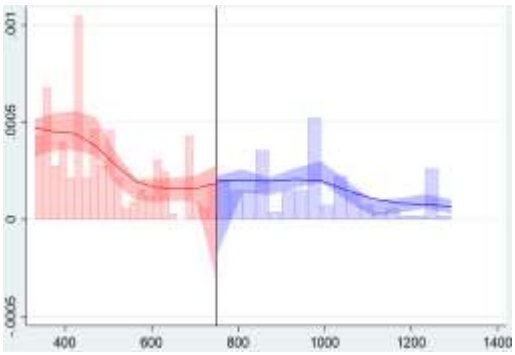
4.1 Regression Discontinuity Design (RDD) Result

The results are presented in the following subsections. The internal validity check, which discusses the key identification of this RDD model, is presented first, followed by a graphical presentation and the estimation results of the RDD model.

4.1.1 RDD's Internal Validity Check

Gerardino et al. (2022) postulate that at least two assumptions must be satisfied with a Regression Discontinuity Design (RDD) model. These assumptions are: 1.) there is no discontinuity of changing characteristics occurring at the cutoff; and 2.) there are no outcome changes at the cutoff that occurred through the influence of the other channels (exclusion restriction assumption). Consistent with this view, Lee and Lemieux (2010) state that the minimum assumption is that a continuous trend in the dependent variable holds in the treatment group. In other words, there is no manipulation in either the control or the treatment group at the cutoff; if this assumption holds, the empirical result can be statistically significant.

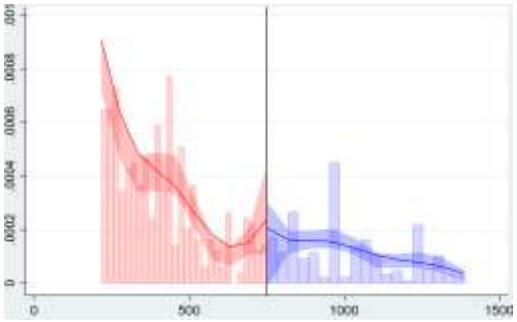
Figure 3
McCrary Density Test (Pre-Policy Implementation)



Note. Source: STATA, compiled by author

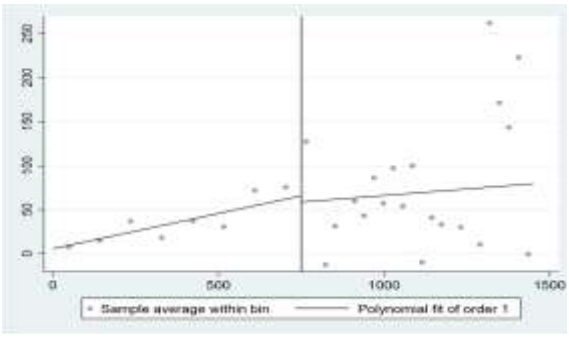
Figures 3 and 4 present the results of the assumption test for the RDD model. It can be inferred that this RDD model satisfied the assumption (McCrary density test) for both the pre-policy implementation and post-policy implementation periods, which means that this model is consistent with the no manipulation assumption. How reasonable is this continuity assumption in this setting? The MNE subsidiary unquestionably had the incentive and presumably the control over its revenue (sales) recognition (Joshi 2020). However, the CbC reporting regulation was first enacted by the Indonesian MOF in 2016, and the disclosure threshold was not known to MNE subsidiaries until 2017. For that reason, it seems unlikely that an MNE subsidiary can choose precisely which side (i.e., the control or treatment group) it wants to be in, because it did not know the exact revenue threshold before the regulation was established.

Figure 4
McCrary Density Test (Post-Policy Implementation)



Note. Source: STATA, compiled by author

Figure 5
Regression Discontinuity Investment Plot (Pre-Policy Implementation)



Note. Source: STATA, compiled by author

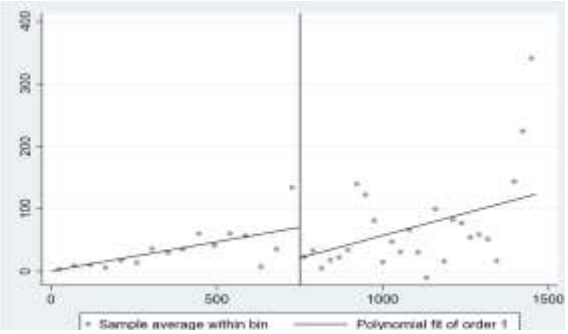
4.1.2 RDD's Graphical Presentation

Graphical analysis can be used as an initial means to provide visual evidence of any discontinuity in the dependent variable at the cutoff. Figure 5

shows the real investment plot around the EUR 750 million cutoff. Based on empirical evidence, this graph shows there was little discontinuity in the investment variable at the cutoff during the pre-policy implementation period. On the other hand, Figure 6 shows the real investment plot around the EUR 750 million cutoff during the post-policy implementation period. Compared with Figure 5, the graph in Figure 6 exhibits a large decline in discontinuity of the investment variable at the cutoff. Given this visual evidence, this research has found that MNE subsidiaries' real investment in Indonesia decreased after the implementation of the CbC reporting regulation.

Figure 6

Regression Discontinuity Investment Plot (Post-Policy Implementation)



Note. Source: STATA, compiled by author

4.1.3 RDD's Estimation Result

After obtaining visual evidence of discontinuity, this research used local polynomial regression methods to further investigate the effect of the CbC reporting regulation. This research compares the post-implementation effect of CbC reporting regulation using the statistical value of the bias-corrected outcome of the investment variable, which gives a coefficient of -65.051 with a significant p-value of 0.000 (99% confidence level) (see Table 3).

On the other hand, the pre-implementation effect of CbC reporting regulation using the statistical value of bias-corrected outcome of the investment variable gives a coefficient of -1.1076 (see Table 3). In sum, Table 3

Table 3

Regression Discontinuity Estimates of the Effect of Indonesia's CbC Reporting Regulation on Real Investment

Variable	Post-Implementation (2017-2021) Control	Treatment	Pre-Implementation (2013-2016) Control	Treatment
Investment (mUSD)				
Conventional	-	-45.414***	-	-4.3002
	-	(16.441)	-	(24.828)
	-	[0.006]	-	[0.862]
Bias Corrected	-	-65.051***	-	-1.1076
	-	(16.441)	-	(24.828)
	-	[-0.000]	-	[0.964]
N	2136	192	995	99
Spline	Linear	Linear	Linear	Linear
Bandwidth)	0 to 750	750 to 1500	0 to 750	750 to 1500

Note : This table reports the RDD's local linear regression estimates. Standard errors in parentheses. p-values in brackets. *Significant at the 10 percent level. **Significant at the 5 percent level ***Significant at the 1 percent level.
Note. Source: STATA, compiled by author

shows the investment variable decreasing approximately 65 million US Dollars (i.e., around 8% of the revenue) in the real investment level of the treatment group relative to the real investment level of the control group after the implementation of the CbC reporting regulation at a statistically significant p-value of 0.000.

4.1.4 RDD's Subsample Analysis

Every industry has its own specific characteristics that may differ and affect the actual investment of an MNE subsidiary in Indonesia. Moreover, an MNE subsidiary in a particular industry may have different real investment spending than one in another industry. Therefore, to unravel variation across industries and observe MNE subsidiary responses to the CbC reporting regulation, this paper conducts a subsample analysis of RDD.

Appendix 1 presents visual evidence of the discontinuity in real investment across industries. Manufacturing, agriculture, livestock, forestry, and fisheries exhibit greater discontinuity than the average across all industries. Agricultural, livestock, forestry, and fisheries observations are the most sensitive to the implementation of the CbC reporting regulation. It is worth noting that MNE subsidiaries across industries exhibit varying levels of real investment changes following the implementation of the CbC reporting regulation (see Appendix 1).

Corresponding to Figure A1, Table 4 shows the magnitude of RDD estimates on real investment in each industry. The real investment above the cutoff decreased substantially across all industries. The estimate for agriculture, livestock, forestry, and fisheries is higher than the average industry estimate. Combined all results together, these suggest evidence of a decline in real investment among MNE subsidiaries obliged to prepare CbC reports after the implementation of CbC reporting regulation.

Table 4

Regression Discontinuity Estimates of the Effect of Indonesia's CbC Reporting Regulation on Investment per Industry

Variable	Agriculture, Livestock, Forestry, and Fisheries	Mining	Manufacturing	Trade	Services
Investment (mUSD)					
Conventional	-154.62**	-61.562	-26.82***	-16.94	-46.497
	(73.535)	(47.866)	(8.9454)	(37.302)	(35.412)
	[0.035]	[0.198]	[0.003]	[0.650]	[0.189]
Bias Corrected	-209.3***	-168.2**	2.618	-21.80	4.189
	(73.535)	(47.866)	(8.9454)	(37.302)	(35.412)
	[0.004]	[0.000]	[0.770]	[0.559]	[0.906]
N	269	311	345	285	290
Spline	Linear	Linear	Linear	Linear	Linear
Bandwidth)	750 to 1500	750 to 1500	750 to 1500	750 to 1500	750 to 1500

Note : This table reports the RDD's local linear regression estimates. Standard errors in parentheses. p-values in brackets. *Significant at the 10 percent level. **Significant at the 5 percent level ***Significant at the 1 percent level.
Note. Source: STATA, compiled by author

4.2 Difference-in-Differences Model (DD) Result

The results are presented in the following subsections. The parallel trend assumption, which underlies the key identification of this DD model, is presented first, followed by the estimation results of the DD model.

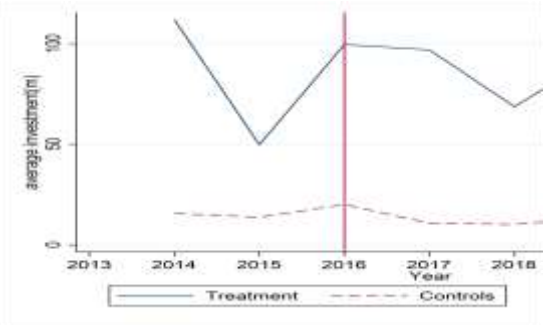
4.2.1 DD's Parallel Trend Assumption

To estimate the policy effect, the key identification assumption is parallel trends. This assumption requires that changes in real investment for the treatment and control MNE subsidiary groups will follow the same trend in the absence of the CbC reporting regulation (Cunningham, 2021; Angrist & Pischke, 2015). To test parallel trends in the period when the regulation was not in effect, 2014 real investment data is used to determine which group each observation belongs to. Then, using 2017 to 2021 data as the post-implementation period and 2014 to 2016 data as the pre-implementation period, the difference in real investment between the two periods is observed.

Joshi (2020) posits that to obtain robust estimates in a DD analysis, the parallel trends assumption should hold for both the treatment and control groups with respect to the dependent variable (i.e., real investment). Figure 7 shows that, except for 2015, during the pre-policy implementation period, the parallel trend assumption holds for this DD model, driven by the effect of the CbC reporting regulation. However, a different trend was found with the 2015 investment variable for the treatment group, which can be explained as a size (scale) issue. This is because when there is a shock, the investment variable may have a relatively small impact on a small enterprise and a relatively large impact on a large enterprise (Mankiw, 2019; Krugman et al., 2018).

Figure 7

The Assumption Test of Difference-in-Differences Model



Note. Source: STATA, compiled by author

4.2.2 DD's Estimation Result

Table 5 presents the results of the difference-in-differences (DD) model using the 2017-2021 data (the post-implementation period) and the 2013-2016 data (the pre-implementation period). The

Table 5

Difference-in-Differences Estimates of the Effect of Indonesia's CbC Reporting Regulation on Real Investment

Variable	Post Implementation (2017-2021)
β_3 ($Post * CbCReports$ variable)	
DD estimator (mUSD)	-18.5338*
Standard Error	11.0709
r2	0.4259
N	3,640
Prob > F	0.0000

Note : This table reports the DD's estimates. Standard errors in parentheses. *Significant at the 10 percent level. **Significant at the 5 percent level ***Significant at the 1 percent level.

Note. Source: STATA, compiled by author

difference in the MNE subsidiary's real investment is observed. The coefficient β_3 ($Post * CbCReports$ variable) is the point of interest of this model since it specifies the estimated value of the effect of the CbC reporting regulation on real investment by comparing the evidence from two certain groups, which are the treatment and control groups during the post-policy implementation period (Joshi, 2020). β_3 ($Post * CbCReports$ variable) is declining and has a significant statistical value in the model (F value 0.000).

Table 5 shows that β_3 ($Post * CbCReports$ variable) has a statistically significant effect with a 90% confidence level. There was an 18 million US Dollars (i.e., around 2.5% of the revenue) decrease in the real investment level of the treatment group relative to the control group during the post-policy implementation period of the CbC reporting regulation. Therefore, this result indicates that the MNE's real investment is lower after the implementation of the CbC reporting regulation in Indonesia.

Another noteworthy point is that DD estimates are more generalizable than RDD estimates since they not only observe the difference around the cutoff. Therefore, it can be used to estimate the economic impact of CbC reporting regulations. Taking all results above together (i.e., RDD and DD estimates), the findings suggest that the introduction of CbC reporting regulations discourages MNEs' real investment in Indonesia (in other words, reject the null hypothesis).

5. CONCLUSION

This paper has investigated the effect of the CbC reporting regulation on MNEs subsidiaries real investment in Indonesia. Understanding MNE real investment is useful because MNEs can contribute to a country's economic development by creating a positive productivity externality for domestic enterprises (Andrews et al., 2015; Negara & Adam, 2012). Despite the positive productivity externality effect of MNEs on local firms, profit shifting[15] and tax-motivated behavior by MNEs have also become perennial problems for Indonesia.

Building on a previous study, this paper argues that there is an unintended consequence of MNE real investment following the implementation of the CbC reporting regulations, specifically in Indonesia. The empirical results of this paper suggest that implementing the CbC reporting regulation discourages MNE real investment behavior in Indonesia. It is necessary to note that, based on the fundamental continuity assumption, the change in MNEs' real investment behavior was driven by the CbC reporting regulation rather than other factors (Cunningham, 2021; Angrist & Pischke, 2015).

As with any Regression Discontinuity Design (RDD) analysis, the effects can only be observed regarding MNE real investment around the cutoff, or the CbC reports revenue threshold[16], which is EUR 750 million. The local average treatment effect assumption is important to generalize the result. The RDD result suggests that the implementation of CbC reports decreased MNE real investment by approximately USD 65 million (i.e., around 8% of the treatment group's revenue relative to the control group's revenue). This paper also found that the magnitude of the results varies across industries. MNEs in Agriculture, Livestock, Forestry, and Fisheries were indicated to be the most sensitive toward the implementation of the CbC reporting regulation (see Table 4).

To obtain more generalizable results than those from RDD analysis, a difference-in-differences (DD) analysis was also conducted to estimate the causal effect of the CbC reporting regulation. The results suggest that MNEs obliged

[15] Profit shifting refers to the allocation of MNE profit from high tax jurisdictions to low tax jurisdictions to minimize an MNE's overall tax burden (De Mooij & Liu, 2020; Buettner, Overesch, & Wamser, 2017).

[16] The threshold effect is a model of the utility function that describes how firms' behavior changes above a certain threshold of preferences; e.g., if firms meet the threshold (i.e., above the regulatory requirement), they will adopt new preferences. For example, let us assume new behavior is U (x), previous behavior is U (y), and ε is the threshold. Based on these assumptions, the threshold effect is as follows: U(x)>U (y)+ ε (Nicholson & Snyder, 2012).

to file CbC reports reduced their real investments by approximately USD 18 million (i.e., around 2.5% of the treatment group's revenue relative to the control group's revenue). Overall, these results suggest that if MNEs are obliged to file CbC reports, their ability to avoid tax through transfer pricing is limited, leading to a decrease in MNEs' real investment.

To the best of the author's knowledge, this paper's results are the first estimates of the effect of the CbC reporting regulation on MNE real investment in Indonesia at the firm level and using the Orbis database (Bureau van Dijk). It is also noteworthy that the findings of this paper are generally in line with previous studies, including De Simone and Olbert (2022) and Eberhartinger et al. (2020). Like De Simone and Olbert (2022) and Eberhartinger et al. (2020), this paper found that the County-by-Country disclosure aimed at constraining tax avoidance through transfer pricing transactions will discourage MNEs' real investment behavior in countries that have implemented this policy.

6. IMPLICATIONS AND LIMITATIONS

This paper argues that understanding the unintended consequences of the policy evaluation process is critical to designing an appropriate public policy initiative. This paper then has three policy implications derived from the research findings.

First, given the unintended consequences of implementing the CbC reporting regulation, Indonesia's government is expected to soften the regulation. This could include, for example, establishing a transitional CbC reporting safe harbor, a permanent CbC reporting safe harbor, and transitional penalty relief . The proposals for the safe harbor provisions would have benefited both the countries (e.g., the countries where the MNE parent and subsidiaries reside) and, more so, the taxpayers (OECD, 2022c). It is a novel proposal that would have resulted in a business-friendly atmosphere and positive investor sentiment. Including the definition of safe harbor in Indonesia's CbC reporting regulation is intended to reduce the strictness of the regulation and to ensure a modicum of certainty and predictability among the MNE group regarding the taxation regime, tax allowances, tax deductions, and transfer pricing (OECD, 2022c). Additionally, introducing tax incentives for MNEs could play an important role in balancing the trade-off against the unintended consequence of discouraging real investment arising from the implementation of the CbC reporting regulation.

Second, Indonesia's government can promote international coordination on implementing CbC reporting as a compulsory action for all countries worldwide by endorsing the Inclusive Framework on BEPS. Such an initiative can increase global taxpayer information acquisition for tax administrations and reduce the injustice that affects only the countries that enforce it, thereby ensuring that all tax administrations where an MNE group operates obtain the same information (OECD, 2013). Since exchange of information related to Country-by-Country reports is one important channel to provide certainty and predictability on preventing harmful transfer pricing practices, not only for tax administration but also for business taxpayers, binding international cooperation between tax authorities to implement CbC reporting regulation is necessary to limit the practice of transfer pricing carried out by MNEs worldwide (IMF, 2023).

Third, further research by Indonesia's research institutions can evaluate whether the CbC reporting regulation will affect MNE real investment in the short- and long-term (OECD, 2022a). The MNEs' real investment decision (i.e., to reduce real investment in the jurisdictions with stricter CbC reporting regulations and high corporate tax rates) afterward could lead to decreased domestic output and increased real investment reallocation toward the other countries, which indicates a production shifting from the country that previously enjoyed a real investment inflow (De Simone & Olbert, 2022; Eberhartinger et al., 2020; Choi et al., 2020; De Mooij & Liu, 2020; Buettner et al., 2017). Since Indonesia is a capital-importing country and a relatively high-tax jurisdiction, further research is important to observe the effects of MNE real investment on the country's sustainable economic growth.

Using a regression discontinuity design and a difference-in-differences analysis, this research shows that the implementation of the CbC reporting regulation is associated with a decline in MNEs' real investment in treatment firms. According to Cunningham (2021), one of the benefits of employing both regression discontinuity and difference-in-differences models is that they can address endogeneity issues (e.g., omitted-variable bias) in the variable of interest under weaker assumptions. Therefore, the estimation results can identify the policy's causal impact. Despite this paper's results, there are some limitations.

First, this paper uses real investment as an outcome variable to measure the policy implications of CbC reporting; it accordingly opens the door for further study using other outcome variables (proxies) of the CbC reporting regulation. Due to a lack of data, this paper cannot identify the effect of the CbC reporting regulation on the other outcomes, for instance, effective tax rates, tax/sales ratios, and other possible variables, to prove whether this policy constrains taxpayers by limiting their ability to avoid tax through transfer pricing schemes.

Second, since MNE real investment is considered a long-term decision, the effect of the CbC reporting regulation needs to be evaluated over a longer period. Also, by adding data from another country, future research can conduct a cross-country policy impact analysis to broaden the in-depth analysis of this paper's results.

Third, although this research has employed two models, the regression discontinuity design and the difference-in-differences analysis, the estimation results from these models might still be local average treatment effects (Cunningham, 2021; Angrist & Pischke, 2015; Hanh et al., 2001). Given the impacts on MNE real investment uncovered by this paper and the limitations above, future research can address other important questions, such as whether the benefits of implementing CbC reporting regulations outweigh their unintended consequences.

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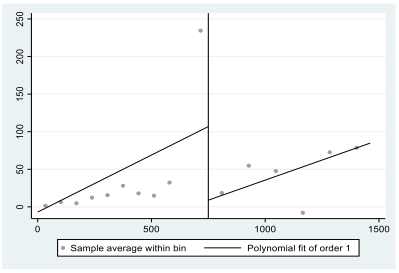
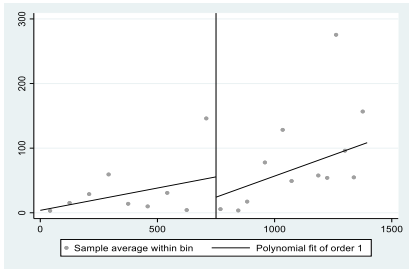
APPENDIX

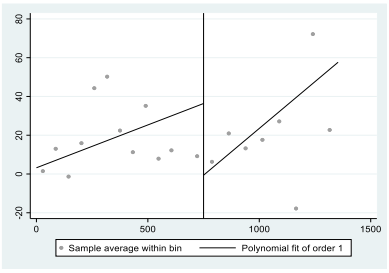
Appendix A
The Industry Heterogeneity Effect -of the Effect of Indonesia's Country-By-Country Reporting Regulation on Real Investment- RDD's Investment Plot (Post-Policy Period) 2017-2021



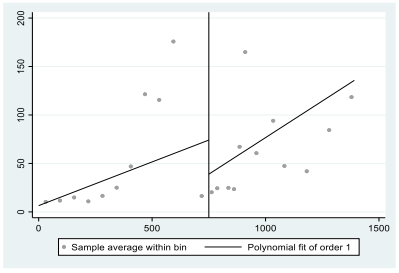
Agriculture, Livestock, Forestry, and Fisheries



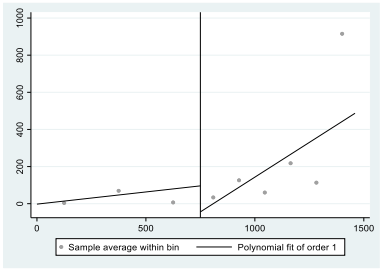
Mining



Manufacturing



Trade



Services

Source: STATA, compiled by author