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EVALUATION OF THE SUPER TAX DEDUCTION POLICY ON RESEARCH AND DEVELOPMENT ACTIVITIES IN INDONESIA

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Abstract:
The Indonesian government encourages industrial sector participation in research and development (R&D) activities. One of the government's supports in increasing private R&D is issuing a super tax deduction (STD) policy for R&D activities. However, the number of taxpayers who have received confirmation of conformity to carry out R & D still needs to be more extensive compared to the total number of taxpayers. This research aims to evaluate the effectiveness of applying STD to R&D activities. This study uses a qualitative method. Data collection was carried out through in-depth interviews and literature studies. The research results show that STD incentives are not fully effective with two-dimensional indicators. First, the suitable policy has not run optimally because the goal of providing STD incentives to increase research and development activities in Indonesia has not been achieved. Second, the right environmental dimension has yet to be effective due to the potential for multiple interpretations related to recognizing and recording R&D costs between accounting and taxes.

Keywords: Evaluation, Research and Development, Super Tax Deduction, Tax Incentive

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INTRODUCTION

The development of science and technology is one of Indonesia's Vision 2045. The quality of human resources will increase if the understanding of knowledge and mastery of technology increases. It could encourage the sustainability of economic growth. In order to achieve this vision, the government supports the creation of innovations. In particular, innovation plays a vital role in improving economic performance. In addition, innovation significantly contributes to developing countries, especially Indonesia, avoiding the middle-income trap, supporting industrial productivity, and encouraging technological progress (Damuri et al., 2018). However, Indonesia is still expanding to strengthen the national innovation system. In implementing innovation activities, weaknesses are still areas for improvement, and innovation needs to be carried out in an integrated and sustainable manner (Irawan & Putra, 2022). Therefore, the government and stakeholders establish policies to increase innovation in Indonesia. Chauvin and Hirschey (1993) argue that research and development (R&D) activities can improve innovation performance significantly. Investments in R&D activities play an essential role in making companies more innovative and contributing to the country's economy (Mulugeta, 2021). Thus, companies that carry out R&D activities have a competitive advantage and global competitiveness to expand their business.

Increasing innovation through R&D activities, which aim to boost competitiveness and stimulate economic growth, is essential for a country's governance. Developing and developed country governments are focusing on developing innovation strategies and policies. One of the strategies used is to increase the funds for R&D activities sustainably. According to the research results of Kim, Lee, Park, and Choo (2012), developed countries have a higher intensity of R&D

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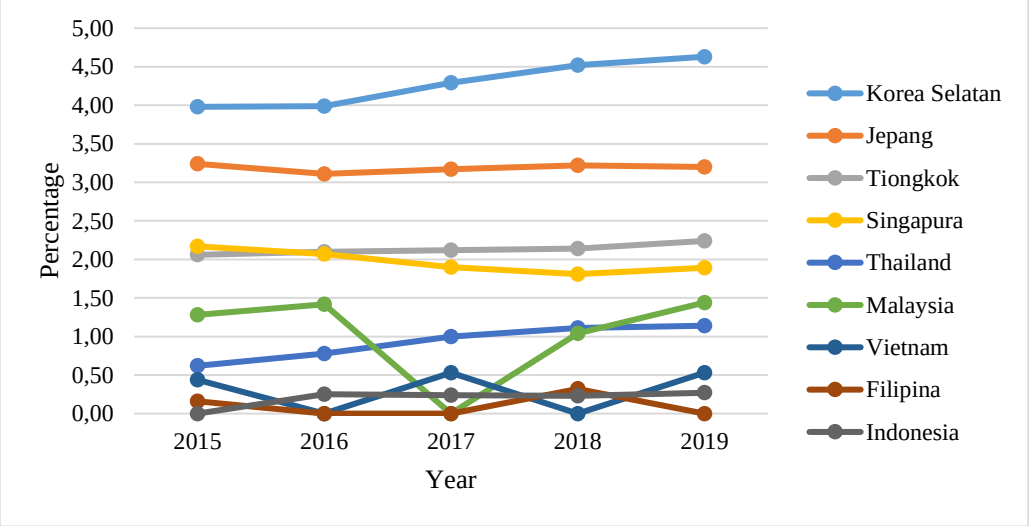
activities than developing countries. In other words, infrastructure and R&D activities in developing countries still need to be below those of developed countries (Sezgin, 2020). This opinion is supported by Government Expenditure in Research and Development (GERD) data as a percentage of Gross Domestic Product (GDP) published by the World Bank, namely:



Source: World Bank, 2022

Figure 1. Percentage of Government Expenditure on Research and Development to GDP 2015-2019

Based on Figure 1, the two countries with the most significant percentage of GERD in the East Asia and Southeast Asia region are South Korea and Japan, which are included in the group of developed countries. Furthermore, Singapore's total GERD percentage decreased from 2.17% in 2015 to 1.81% in 2018, but this percentage increased 2019 by 1.89%. On the other hand, China's GERD has increased from 2015 to 2019, with a percentage of 2.06% in 2015 and 2.24% in 2019. Meanwhile, five other countries, Thailand, Malaysia, Vietnam, the Philippines, and Indonesia, have percentages of government spending on R&D activities that still need to catch up to that of South Korea and Japan. In addition to having a low percentage of GERD to GDP, Indonesia has a proportion of spending on R&D activities that still depends on the government sector. The private sector's contribution to funding R&D activities remains relatively tiny (Aulia, 2020). The private sector or business's role in the research-creation or discovery process is also insignificant.

In order to realize Indonesia's goal of becoming a knowledge-based economy, the creation of innovation through R&D activities needs the support of all stakeholders. Tax incentive policies are one of the government's efforts to support R&D activities. In 2020, the government issued Regulation of the Minister of Finance Number 153/PMK.010/2020 concerning Granting a Reduction in Gross Income for Certain R&D Activities in Indonesia as an implementing regulation for Government Regulation Number 45 of 2019. The regulation regulates a tax incentive policy in the form of Super Tax Deduction (STD) on R&D activities carried out by the private sector. Even though the STD policy has been in effect since 2019, relatively few corporate taxpayers take advantage of STD tax incentives. The number of taxpayers submitting applications or notifications to take advantage of STD R&D incentives from 2019 to 2021 only reached 22 corporate taxpayers (Kementerian Keuangan, 2021). Based on data from the Ministry of Finance's Financial Report for 2021, no

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taxpayers are utilizing the STD R&D facility to report the Annual Corporate Income Tax Return for the 2020 tax year. This condition is an exciting phenomenon gap for further analysis in this study.

Regarding the research gap, studies on tax incentives for R&D activities have yet to reach a consensus regarding the implications of R&D activities for the growth of research activities. Some researchers explain that tax incentives can increase corporations' investment in R&D activities (Wu, 2005; Jia & Ma, 2017). However, research by Chen and Gupta (2017) and Mitchell, Testa, Martinez, Cunningham, and Szkuta (2020) shows that tax incentive policies on R & D could be more effective in stimulating investment in research activities in the private sector. In addition, companies may face adjustment costs in developing R&D activities even though they have obtained tax incentive facilities (Himmelberg & Petersen, 1994). This study aims to evaluate the effectiveness of STD incentives for R&D activities to encourage research activities conducted by the private sector.

METHODS

The research method used to prepare this article is a qualitative descriptive method. Nazir (1988) argues that the descriptive method aims to explain communities, objects, circumstances, mindsets, and events in the present. In order to support the method used, researchers conducted in-depth interviews and literature studies in data collection. Analysis of books, journals, and other literature is the main object of writing (Creswell, 2014).

RESULT AND DISCUSSION

The charging of R&D costs as a deduction from gross income in Indonesia is regulated for the first time in Article 6 Paragraph 1 letter f of Law no. 10 of 1994 concerning Amendments to Law Number. 7 of 1983 concerning Income Tax stipulates that the amount of taxable income for domestic taxpayers and permanent establishments is determined based on gross income minus costs for obtaining, collecting and maintaining income, including costs for company R&D conducted in Indonesia. Furthermore, these regulations are detailed in the Explanation section of Article 6, paragraph 1 letter f of Law Number 17 of 2000 concerning the Third Amendment to Law Number. 7 of 1983 concerning Income Tax, which stipulates that company R&D costs carried out in Indonesia in a reasonable amount to find new technology or systems for company development may be charged as company costs. The charging of R&D costs is a deductible expense on gross income.

In order to encourage the contribution of private corporations in carrying out research activities, the government provides STD tax incentive facilities. The application of tax incentives for R&D activities through STD is regulated in Minister of Finance Regulation Number 153/PMK.010/2020 (MoF No. 153/2020) as implementing regulation for Government Regulation Number 45 of 2019 (GR No. 45/2019). STD is a new type of tax incentive for R&D activities. The regulation aims to provide convenience for companies carrying out R&D activities by obtaining greater tax deductions according to the applicable criteria. The provision of STD incentives is aimed at domestic corporate taxpayers who carry out certain R&D activities in Indonesia. The incentive is a reduction in the gross income of up to 300% of the total costs incurred for certain R&D activities in Indonesia.

The additional provisions for reducing gross income by 200% of the R&D costs incurred include four things. First, an additional reduction of 50% if R&D results in intellectual property rights in the form of patents or plant variety protection rights registered domestically. Second, an additional 25% reduction if R&D results in intellectual property rights in patents or plant variety protection rights, registered in addition to domestic or PVP offices. Third, an additional reduction of 100% if R&D reaches the commercialization stage. Fourth, an additional 25% reduction if R&D

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results in intellectual property rights are carried out through collaboration with research institutions, government development, and higher education institutions in Indonesia.

Evaluation of the Effectiveness of STD Policy on R&D Activities in Indonesia. Measurement of effectiveness in this study is part of the evaluation of a policy. According to Nugroho (2017), policy evaluation is an action to assess the suitability of the results or output of a policy with predetermined policy objectives. One of the criteria in the evaluation is effectiveness. According to Nugroho (2017), the dimension of effectiveness includes five aspects, namely: (1) the right policy, (2) the exemplary implementation, (3) the right target, (4) the right environment, and (5) the proper process. This study uses the five indicators to evaluate the effectiveness of STD's tax incentives for R&D activities. These indicators are described as follows:

Evaluation of The Right Policy. Nugroho (2017) explains that a rule or regulation meets the criteria for the right policy if the implemented policy is formulated based on the problem to be solved, the policymakers have authority, are competent in their field, and can achieve the set goals. Based on GERD average comparison data from 2010 to 2018, Indonesia's R&D spending ratio (0.15%) is smaller than South Korea's (3.51%), Finland's (3.15%), Japan's (3.16%), United States (2.69%), and Germany (2.73%). In addition to the low ratio of R&D spending to GDP, the private sector's contribution to R&D activities is still relatively low. According to the 2021 Tax Expenditure Report, the source of funds for R&D activities comes from companies only reaching 9.15%.

On the other hand, the government's contribution to R&D activity funds was recorded at 83.88% (Badan et al., 2022). One of the reasons for the low contribution of the private sector to R&D activities is budget constraints and uncertainty over the success of R&D activities. This is the opinion expressed by Reny Meilany th, the Coordinator of the Industrial Fiscal Facility Function of the Ministry of Industry: "*R&D activities require a fairly large budget, and the biggest problem in the industry is the uncertainty of the success of the R&D results in themselves. So, there is a greater chance of failure. That is what is done if there is an R&D activity.*"

With the condition that R&D activities have not run optimally, the government is trying to encourage R&D activities, especially for the private sector, by providing STD incentives for R&D activities. This facility is classified as expenditure-based. Expenditure-based tax incentives for R&D provide income tax deduction facilities based on the amount of R&D spending incurred by companies. While preparing STD incentive policies for R&D activities, several ministries/government agencies coordinate with each other. The Ministry of Industry initiated the formulation of STD policy for R&D activities.

Furthermore, the proposal is coordinated with five other ministries/government agencies as STD policymakers for R&D activities. As a party whose function was to formulate fiscal regulations, Badan Kebijakan Fiskal (BKF) collects information and data related to R&D activities in Indonesia, including GERD, the number of researchers, the number of private sectors carrying out R&D, and the number of patents. After BKF collected the data and information, BKF confirmed the validity of the data obtained with data owned by the Ministry of Industry regarding industrial sectors that have carried out R&D activities. In addition, BKF discussed with the Ministry of Research and Technology, or Badan Riset dan Inovasi Nasional (BRIN), the strategy or roadmap for R&D development in Indonesia. Regarding tax regulations, BKF cooperates with the Directorate General of Tax (DGT) to determine the form of tax incentives for R&D activities.

After the regulation was issued, the number of corporate taxpayers who received approval for applications for STD incentives had only reached 24, with 175 research proposals as of October 10, 2022. Judging from the total number of taxpayers who submitted incentives, there were 29 taxpayers with 237 research proposals. This shows that five taxpayers and 62 research proposals do not comply

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with the R&D criteria stipulated in MoF No. 153/2020 as the implementing regulation of GR No. 49/2015. Compared to the number of corporate taxpayers in Indonesia, the number of corporate taxpayers applying for STD incentives is still relatively small. The 2021 Manufacturing Industry Directory report shows that companies carrying out business activities aligned with the R&D focus reached 18,306 (Badan et al., 2021). The highest percentage comparison between the number of taxpayers who filed and the total taxpayers only reached 1.79%. Details of the number of taxpayers based on R&D focus can be explained in Table 1.

Table 1. Comparison of the Number of Taxpayers who Obtain STD Conformity Notifications for R&D Activities with the Total Number of Taxpayers

No	R&D Focuses	Number of Taxpayers Obtaining Compliance Notifications	Total Taxpayers	Comparison of the Number of Taxpayers
1	Pharmacy, Cosmetics, and Medical Devices	9	502	1.79%
2	Chemistry Based on Oil and Gas and Coal	5	1,610	0.31%
3	Food	4	7,167	0.06%
4	Agro-industry; Transportation; Energy; Basic Metal and Non-Metal Mineral Materials; Textiles, Leather, Footwear, and Miscellaneous	6	8,015	0.07%
5	Electronics and Telematics/ Information and Communication Technology	0	339	0.00%
6	Capital Goods, Components, and Auxiliary Materials	0	712	0.00%
7	Defense and security	0	41	0.00%

Source: Central Bureau of Statistics, 2021

After the implementation of STD incentives for R&D activities, the government reviewed the use of incentives through data on the number of R&D costs used. The estimated R&D spending that proposes STD incentives for R&D activities reached IDR 1,143 billion. This is by the information explained by Dedi Kusnadi as the Extension function of the Banten Regional Office of DGT in the Inspirational Tax Chat Talkshow, namely: "*Earlier we discussed the 11 focuses, only eight focuses have been proposed... There are still three focuses that have not been. The estimated use of R&D costs is quite good: IDR 1,143 billion or IDR 1.1 trillion. The state budget will be broken again if the government funds the R&D costs.*"

By examining the number of taxpayers who have obtained application approval, implementing the STD incentive policy for R&D activities has not achieved the objectives mandated in GR No. 45/2019. The role of the business and industrial worlds in conducting R&D activities is still limited. Three focuses of R&D activities have not taken advantage of STD incentives for R&D activities, which include electronics and telematics/ information communications technology (ICT); capital goods, components, and auxiliary materials; and defense and security.

Evaluation of The Right Implementation. Nugroho (2017) explains that proper implementation relates to the actors implementing the policy, and there is no overlapping of the duties and responsibilities of the actors involved. Policy-implementing actors can be classified into

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three parties: the government, the government in collaboration with the community, and the community. The accuracy of implementing actors is one of the dimensions of the effectiveness of a policy. STD's policy on R&D activities is a monopoly, so the government is implementing the policy. This is because government agencies function as parties with the authority to formulate, implement, supervise, and evaluate STD incentive policies. STD policy implementation of R&D activities involves several government agencies. The implementing actors of the STD policy on R&D activities consist of the BRIN, ministries/government agencies that handle fields related to R&D themes, and the Directorate General of Taxes.

As an institution that manages R&D activities, BRIN is responsible for issuing approval or rejection decisions on STD incentive requests for R&D activities submitted by corporate taxpayers. Article 7, paragraph 4 MoF No. 153/2020 explains that the ministry that organizes government affairs in science and technology verifies the conformity of the R&D activity proposals submitted with the proposal provisions and R&D criteria to obtain an additional reduction in gross income. After going through the research process, BRIN will provide conformity notifications for submitting activity proposals to taxpayers. This is to the explanation Hariyanto gave as the Coordinator of STD Utilization for the R&D Activities of the Deputy for Utilization of Research and Innovation, namely: "*Taxpayers propose through Online Single Submission (OSS) according to MoF. From there, the business automatically already has requirements; he has a tax ID number, a fiscal letter, and so on, so we have just accepted the proposal. We withdraw the proposal, download it, and evaluate it in substance and administration according to the requirements in the MoF. So, check this one by one, from the expenses, the budget, and the novelty of the substance that based on the MoF requirements, there is something new that we need to prioritize.*"

Suppose the taxpayer has reached the patent registration and commercialization stage. In that case, BRIN is tasked with submitting notifications of the additional utilization of the reduction in R&D costs, which can be deducted from gross income after substantial research. This is to the explanation Hariyanto gave as the Coordinator of STD Utilization for the R&D Activities of the Deputy for Research and Innovation Utilization of BRIN, namely: "*In substance, we produce notifications. Later, the notification will be in the form of a single-sheet document. Later, when he (the taxpayer) wants to apply for a tax deduction, there are documents in the annual report... the DGT will notify that. It should be a year because it is an annual report. Because we verify in substance; oh, it is approved, fixed, or rejected.*"

BRIN can coordinate with other ministries/government agencies in the research proposal conformity verification process. Article 7, paragraph 5 MoF No. 153/2020 elaborates that the ministries that carry out government affairs in the field of science and technology work together with the relevant ministries/government agencies that handle fields related to the R&D theme being applied for in conformity research. The role of the ministries/government agencies is by the focus and theme of R&D activities contained in the STD policy on R&D activities. In practice, ministries/government agencies coherent with the R&D theme have yet to be involved in the research process for R&D proposals submitted by taxpayers. While researching R&D proposals, BRIN only coordinates with expert researchers who work internally at BRIN in the proposed R&D field. This is in line with the information explained by Hariyanto as the Coordinator of STD Utilization for R&D Activities of the Deputy for Research and Innovation Utilization of BRIN, as follows: "*In practice, we were only internal to BRIN because there were administrative factors that were not good enough. We are RORC (Research Organization and Research Center), so we recruit experts who evaluate it from there. BRIN had not cooperated with other ministries yet because there are administrative factors that are not good enough… only one proposal and then discussed with other ministries seems less efficient.*"

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After the taxpayer has received a notification of conformity to carry out R&D activities and a notification of utilization to charge a maximum R&D cost of 300%, supervision is required regarding STD incentives for R&D activities. DGT is responsible for supervising the implementation of STD policies on R&D activities. An explanation regarding the DGT's supervisory function in implementing STD incentives for R&D activities was elaborated by Intan Pertiwi Putri Sasaki as the staff of the Directorate of Tax Regulations II, namely: "*The Directorate General of Taxes has the authority to supervise the use of super tax deduction incentives for R&D activities. If it turns out that one day there are costs not covered by the provisions in MoF 153, the DGT has the right to make fiscal corrections to these costs.*"

DGT is responsible for the formulation and implementation of tax policies. If the DGT carries out the function over STD policies, the DGT has the right to examine the report on the utilization of R&D costs submitted by the taxpayer. This aims to ensure that R&D costs that receive super tax reduction incentives comply with the cost provisions stated in MoF No. 153/2020. Control activities carried out by DGT also prevent tax evasion practices by taxpayers through exploiting loopholes in R&D incentives. Nevertheless, MoF No. 153/2020 has regulated regulations regarding an additional 25% reduction for patent registration abroad if the taxpayer has registered a patent domestically. In detail, the prevention of harmful tax practices in STD implementation of R&D activities was explained by Intan Pertiwi Putri Sasaki as the staff of the Directorate of Tax Regulations II, as follows: "*Then the second 200% has provisions. First, the company must register patent or PVP rights in Indonesia. When the company also registers it abroad, it is still given the 25% facility. The taxpayer will not be able to take advantage of the 25% if the patent is not reported in Indonesia. So, like this, the 200% stages, if I see here, are 50%, 25%, 100%, and 25%. We agree there first. So, the first 50% is given if R&D results in patents and PVP rights being registered domestically. Then the second is 25% if the R&D and patents are also registered abroad, but when the taxpayer registers only abroad, all the facilities will be null and void because they cannot.*"

To support the enforcement of regulations related to additional reductions in R&D costs, DGT performs a supervisory function to prevent tax evasion practices. DGT will coordinate with each regional tax office to supervise the utilization of R&D costs. This aims to maintain state revenue from the taxation sector. Tax revenues have a significant role in the country's development. Therefore, DGT, as the tax authority, has the right to monitor the use of STD incentives for R&D activities.

In implementing the STD policy on R&D activities, each implementing actor has coordinated according to their respective functions and duties. Each research proposal submitted by a taxpayer is reviewed by BRIN together with technical ministries/government agencies or expert researchers in the research field for which the super tax reduction incentive is proposed. In the process of researching proposals for R&D activities, there were no institutions other than BRIN and technical ministries/government agencies that intervened. After carrying out the research process, BRIN will provide conformity and utilization notifications to taxpayers and DGT through the OSS system.

The supervision process of STD policy for R&D activities is the responsibility of the DGT. The supervision is related to reporting R&D costs proposed for super tax reduction incentives. The tax authority has a function to review reported R&D costs by the provisions in MoF No. 153/2020. If the R&D costs submitted by the taxpayer are not by the provisions, the tax authority has the right to correct these costs. In the supervisory process, DGT is the only institution with the right to monitor activities related to R&D costs that get super tax deduction facilities. Thus, the functions and duties of each implementing actor in the STD policy on R&D activities do not overlap or conflict with their implementation.

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Evaluation of The Right Target. According to Nugroho (2017), a policy is declared on target if it meets three criteria. The first criterion is that the targeted intervention by the plan does not overlap with the realization of other plans and does not conflict with the realization of other policies. The second criterion is that the target is in a state of support or refusal to intervene. The third criterion is that policy implementation is new or updated. In assessing the effectiveness of the policy, all three of these criteria must be met.

The target of STD policy for R&D activities are companies that contribute to the implementation of R&D activities that have a high number of patents and carry out commercialization activities for the products. STD policy for R&D activities is aimed at domestic corporate taxpayers. Utilization of STD incentives for R&D activities is limited to specific industrial sectors based on the R&D focus regulated in MoF No. 153/2020. The focus of R&D activities provided by the STD facility includes food; pharmaceuticals, cosmetics, and medical devices; textiles, leather, footwear, and miscellaneous; transportation; electronics and telematics/ICT; energy; goods, capital, components, and supporting materials; agro-industry; base metals and non-metallic minerals; introductory chemistry based on oil and gas and coal; defense and security. Reny Meilany, as the Coordinator of the Industrial Fiscal Facility Function of the Ministry of Industry, explained that the industrial sector can apply for STD incentives for R&D activities, as follows: "*Of course, this incentive is given to accelerate government programs. So, if the name of the government program is certain, if we are in the industry, there is something called the Master Plan for National Industrial Development. The direction of the plan is in the long term, from 2015 to 2035. To achieve that direction, priority industries are mapped, so that is what we will prioritize to take advantage of this STD facility. There is a direction like that: this incentive also supports accelerating government programs stipulated in government regulation. If it is called an incentive, it is unfair; something must take precedence over the others, so why can't all the incentives be given? That is no longer called an incentive; that is a general provision, so incentives must still be narrowed to one particular object or subject.*"

The STD incentive policy for R&D activities also regulates the criteria for R&D activities that domestic corporate taxpayers can submit for super tax reduction facilities. Based on Article 4, paragraph 1 letter c MoF No. 153/2020, certain R&D activities that can be provided with additional gross income must meet the following criteria:

a. Aims to acquire discoveries
b. Based on an original concept or hypothesis
c. Have uncertainty over the result
d. Plan and have a budget
e. The aim is to create something that can be freely transferred or traded on the market.

The R&D criteria that require researchers to obtain discoveries places restrictions on taxpayers who can apply for STD incentives. Some taxpayers cannot use the super tax deduction facility because they are constrained by R&D criteria, which require products/services to be produced through R&D activities. R&D activities that are product development or product diversification do not meet the R&D criteria stipulated in MoF regulation No. 153/2020. This is to the explanation given by Reny Meilany as the Coordinator of the Industrial Fiscal Facility Function of the Ministry of Industry, as follows: "*Moreover, the definition of R&D is made rigid if the criteria are adjusted to relate to ordinary research problems that researchers usually do, it is different. Research conducted by researchers and research conducted by industry have different characteristics.*"

In addition to tax subject restrictions, STD incentives for R&D activities also limit research location. R&D activities that can be submitted for STD incentives by domestic corporate taxpayers engaged in one of the research focuses is R&D carried out in Indonesia. Article 29C paragraph 1 GR

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No. 45/2019 explains that a reduction in gross income of up to 300% can be given to domestic taxpayers who carry out certain R&D activities in Indonesia. Therefore, costs for R&D activities outside Indonesia cannot be submitted for STD incentives for R&D activities. The limitation of the research locus aims to focus on the development of R&D in Indonesia to support the economy.

Regarding compatibility with other policies, the formulation of STD incentives for R&D activities is by Pillar I of Indonesia's 2045 Vision. Pillar I of Indonesia's 2045 Vision is related to human development and mastery of science and technology. One of the government's efforts to develop human resources and mastery of science and technology is to increase science and technology contributions. With the increase in R&D activities, the quality of human resources has developed. This aligns with the opinion expressed by Prof. Gunadi, an academician and professor of taxation at the Faculty of Administrative Sciences, University of Indonesia: "*If quality is a kind of intelligence or skill. However, these contributions to research and development must be obtained by qualified and skilled human resources in whatever is encountered. Yes, this may influence research models on how to develop the quality or IQ of Indonesians. So maybe the research on educating the nation needs training or something like that so that people become qualified.*"

Issuance of STD incentives for R&D activities is a catalyst in the implementation of Pillar I of Indonesia's Vision 2045. In order to realize the development of science and technology resources and expertise, the government establishes STD incentives for R&D activities to support the creation of innovations. This is to the information elaborated by Awwaliatul Mukarromah DD, TC Assistant Manager Fiscal Research and Advisory, as follows: "*The pillars are made in general, while this tax is one of the catalysts, an instrument to achieve the goals of these pillars or the vision and mission of these. In my opinion, this is because this is still new, especially this policy. We can see that this is a breakthrough step from the government to catch up with other countries. Then also increase innovation and technology in Indonesia.*"

If examined from the suitability of STD policy for R&D activities with other tax incentive policies, the STD incentive policies for R&D do not create potential conflicts or overlap. STD facilities for R&D activities are formulated by considering state tax revenues. Under this policy, taxpayers can only apply for STD incentives for R&D activities. If a taxpayer has received tax incentives in the form of a tax allowance and investment allowance, the taxpayer cannot apply for a super tax reduction for R&D activities. Article 4, paragraph 6 MoF No. 153/2020 explains that additional gross income reduction for R&D costs cannot be given to assets that are part of an investment that has obtained a net income reduction facility.

Regulations regarding restrictions on submitting STD incentives for assets that have received other tax incentives aim to prevent double dipping. Taxpayers use duplication of reduction (double dipping) to reduce the tax burden by doubling or duplicating favorable tax policies in a country (Susanto, 2022). Providing tax incentives for reducing super R&D costs reduces state tax revenues because the tax owed by taxpayers to the state is reduced. If a taxpayer takes advantage of more than one tax incentive on the same asset base, the decrease in tax revenue will be even more significant. Therefore, the STD incentive policy has accommodated the overlap between tax policies, especially tax allowance and investment allowance tax incentives.

Every tax incentive policy has the risk of reducing state revenue from the taxation sector, including STD for R&D activities. Providing tax incentives in the form of super tax reductions provides relief for taxpayers. On the other hand, tax revenues have decreased due to decreased tax payable. Nevertheless, providing STD facilities for R&D activities encourages long-term economic growth. R&D activities use inputs that include capital goods, raw materials, and resources. These inputs encourage economic factors that grow from the application of resources, such as involving Indonesian researchers in research activities. In addition, the use of inputs can create a demand-pull.

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Demand-pull occurs when the demand for an item increases, encouraging the industry to create or produce that item. If goods are produced in Indonesia, a new economy will be created. In other words, the economy is created from R&D activities to form a new tax base (royalties). Furthermore, if R&D activities produce goods to be produced or commercialized, then R&D activities can create a new economy through increased product trading activities.

In implementing the STD policy for R&D activities, the taxpayer is ready to support STD policies for R&D activities. The taxpayer will apply for a super deduction facility if the taxpayer is ready to fulfill all the mechanisms and procedures for requesting an STD policy for R&D activities. The industrial sector that carries out R&D activities by the R&D criteria and classification has the right to submit an STD policy for R&D activities. STD's policy on R&D activities does not obligate taxpayers who have met MoF 153/2020 criteria to apply for these incentives. The government provides a choice for companies to take advantage of or not to take advantage of the super tax reduction facility. This is in line with the information explained by Intan Pertiwi Putri Sasaki as the Directorate of Tax Regulations II's Executor: "*We are at the Ministry of Finance at DGT/BKF. We provide facilities but do not force taxpayers to take advantage of these facilities. If the taxpayer wants to take advantage of the facility, go ahead; if the taxpayer does not want to, go ahead.*"

One form of taxpayer readiness in implementing STD incentives for R&D is reflected in taxpayer support utilizing these incentives by predetermined provisions. Utilization of super tax reduction incentives provides benefits for taxpayers to reduce the tax burden owed. This is by the statement of Mr. X as the Finance Manager at Company X, as follows: "*There are two motivations. First, we want to support the implementation of the super tax deduction program for R&D activities by appealing to the socialization of the Director General of Taxes. Second, we want to relish this facility because the amount of R&D costs incurred by my company is quite large, so it is expected to reduce the company's burden.*"

STD's policy on R&D activities is a new policy formulated by the government to support company participation in R&D activities. Before the implementation of STD incentives for R&D activities through GR No. 45/2019, the taxpayer has the right to charge R&D fees of 100% of the costs incurred. This is regulated in Article 6, paragraph 1, letter f of the Income Tax Law, which explains that taxable income is calculated based on gross income, fewer costs for obtaining, collecting, and maintaining income, including company R&D costs in Indonesia. Because the industry's need to create or discover a product requires R&D activities, the government has formulated STD incentives for R&D activities. The preparation of the STD incentive policy for R&D activities is based on Article 6, paragraph 1, Letter F of the Income Tax Law. The statement by Intan Pertiwi Putri Sasaki as the staff of the Directorate of Tax Regulations II, elaborates further regarding the conformity of STD regulations on R&D activities with Article 6 Paragraph 1 letter f of the Income Tax Law, as follows: "*In letter f it is the cost of research and development for companies carried out in Indonesia, it can be fully deducted. Then comes this facility where taxpayers can reduce the costs incurred for R&D up to 300%, where this 300% is given in two stages. The first stage is 100%, then an additional 200%. Now, 100% of this is in line with Article 6, paragraph 1 of the letter earlier because the costs of research and development carried out in Indonesia can be charged in full regardless of the type of fee. So, the first 100% is guaranteed. Then, this MoF came to provide the second 200% facility. All the costs that have already been received 100% will be filtered again, which costs are entitled to an additional 200%.*

By implementing STD incentives for R&D activities, the industry's role in carrying out research activities is hoped to increase. Super tax deductions provide relief for companies in meeting their debt tax payment obligations. Thus, companies can allocate the tax burden to finance R&D activities

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that require substantial funds. Successful research activities can create a new tax base through royalties for creating goods or products to increase tax revenues.

Evaluation of The Right Environment. Public policy can be declared an appropriate environment when the policy's internal environment and the policy's external environment support the implementation of the policy (Nugroho, 2017). Support for the internal policy environment is the interaction/relationship between the institutions formulating it and the actors implementing it. On the other hand, support for policies from the external environment comes from the public, non-governmental organizations, and interest groups.

In the internal policy environment, the interaction between the drafting agencies and those implementing STD policies for R&D activities is reflected in the relationship between BRIN and DGT as policy-formulating institutions with corporate taxpayers. The interaction between these institutions began when the taxpayer applied STD incentives for R&D activities through the OSS system. Requests for incentives are made by entering data and uploading proposals for R&D activities and *Surat Keterangan Fiscal* (SKF) on the OSS system. Then, BRIN works with the technical ministries/government agencies in the field of R&D submitted by the taxpayer to examine the application documents. Suppose the taxpayer's application meets the criteria and focus of R&D stipulated in MoF 153/2020. In that case, BRIN will submit a notification of conformity to carry out R&D activities to the taxpayer, technical ministries/government agencies, and DGT. Taxpayers who have received conformity notifications are required to make a report on R&D costs every year. R&D cost reports that have been compiled are uploaded to the OSS system. The report is accessed using BRIN and DGT guidelines to evaluate the development of R&D activities carried out by taxpayers.

If the R&D activities carried out by the taxpayer have resulted in a patent and commercialization, the taxpayer can apply for the utilization of STD incentives for R&D activities. In order to obtain utilization approval, the taxpayer must provide proof of R&D that has resulted in a patent and commercialization. Next, the taxpayer completes the application data for facility utilization and uploads supporting evidence to the OSS system. Then, requests for data and supporting evidence are submitted to BRIN. BRIN and technical ministries/government agencies work together to conduct verification. Based on this verification process, BRIN delivers notifications of super tax reduction incentives to taxpayers who have met the requirements and classification of R&D. The notification includes information on the additional percentage of the reduction and the year the incentive was started. Every taxpayer who has received a utilization notification must make a report on R&D costs every year as a form of accountability for the use of incentives submitted to BRIN and DGT.

In terms of the external environment of the policy, Nugroho (2017) explains that three indicators determine the effectiveness of a policy. The first indicator is public perception or opinion regarding policy and policy implementation. The implementation of the STD policy on R&D activities received a positive reaction from the public. By enforcing the STD policy on R&D activities, the tax burden on R&D issued by companies is reduced so that the research activities carried out by taxpayers can increase. This is the statement of Awwaliatul Mukarromah DD, TC Assistant Manager Fiscal Research and Advisory: "*That is right, the STD R&D policy aims to encourage the private sector to carry out R&D activities. So, if we look at the historical background, the existence of STD had support from the government, especially during the Jokowi era; he was very intensive in providing incentives from tax holidays to stimulate this economy.*

On the other hand, research and development activities require a large amount of funds. Of course, with the limitations of the state budget and government funds, this requires a more active role from the private sector, which is familiar. Because other countries also do the same thing. So, R&D activities are not only

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limited to research conducted by the government or officially existing research institutions but also from the company side to develop products, technologies, etc."

The second indicator in the external environment dimension is the interpretation of several elements. Applying STD policies to R&D activities, the interpretation is based on MoF No. 153/2020. As an implementing regulation, MoF No. 153/2020 has the potential for multiple interpretations for taxpayers who apply for STD incentives for R&D activities. In MoF No. 153/2020, the mechanism for recognition and recording is not regulated in detail. This creates ambiguity in determining and calculating R&D costs proposed by the STD facility for R&D activities. This creates ambiguity in determining and calculating R&D costs proposed by the STD facility for R&D activities. These problems are, according to the information explained by Mr. X as the Finance Manager at Company X, as follows: "*The rules only say how much expenses can be considered as a part of STD incentive. It just describes all the expenses. That means the cost of R&D becomes the cost of R&D. So there was a case with me; these costs in this company were capitalized first, not included in the P&L. I am wondering if the costs are capitalized. Can this be included or not as R&D expenses that can get super tax facilities?*"

Companies incur costs to acquire scientific knowledge, intellectual property, and trademarks. These costs are classified as R&D costs. From an accounting perspective, the determination of R&D costs is divided into two stages: research and development (Kieso et al., 2020). Based on the Statement of Financial Accounting Standards (PSAK) 19 Paragraph 8, research is defined as original and planned research to obtain updated knowledge and technical understanding of new knowledge. At the research stage, companies may not recognize intangible assets from research activities. Expenditure related to the research phase is recognized as an expense when incurred. This is motivated by the company's inability to demonstrate the existence of intangible assets that generate future economic benefits.

On the other hand, PSAK 19 paragraph 8 defines development as the application of research findings or other knowledge to a plan or design for the production of raw materials, tools, products, processes, systems, or services that are new or have undergone substantial improvements, before the commencement of commercial production and usage. Companies can recognize intangible assets in the development stage if the stages meet the requirements. From a taxation perspective, the recognition of R&D costs is not distinguished between the research or research phase and the development stage. The difference in recognition between accounting and tax results in different interpretations from the tax authorities and taxpayers. Different interpretations of tax policies trigger potential fiscal corrections the tax authorities make. R&D costs that are recorded as intangible assets and are submitted for STD incentives have the risk of being corrected through a tax audit. This condition raises concerns for taxpayers who have already taken advantage of these incentives.

In addition to public perceptions and interpretations related to policies, the external environment also includes the perceptions of specific individuals who have an essential role in interpreting and implementing policies. Interest in utilizing STD policy for R&D activities comes from domestic companies and foreign business consortia. One of the business consortiums intending to apply for STD incentives is the Japan International Cooperation Agency (JICA). In developing its business, JICA has collaborated with the Ministry of Industry to carry out three pilot projects covering matching hubs, R&D assistance, and the development of an export strategy for the Indonesian automotive industry (Hariani, 2022).

Evaluation of The Right Process. According to Nugroho (2017), implementing public policy includes three processes. The first process is policy acceptance, which explains that the public understands the mechanisms needed to carry out the policy, and the government understands the tasks that must be carried out. The second process is policy adoption, which explains that the public

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accepts the mechanisms needed to implement policies, and the government accepts the tasks that must be carried out. The third process is strategic readiness, which elaborates that the public and the government are ready to implement policies. The three public policy processes are carried out in stages. Hierarchically, strategic readiness is the highest level of the policy process. In implementing the STD policy on R&D activities, the policy process has reached the strategic readiness stage. From the side of government institutions, which include BRIN, ministries/government agencies (according to the proposed R&D focus), and DGT, they have carried out their duties and functions in implementing STD policies on R&D activities. On the other hand, several companies have applied for STD incentives for R&D activities.

The readiness of government ministries/agencies to implement STD policies for R&D activities is reflected in the mechanism for submitting research proposals and supporting evidence that R&D has obtained patents and achieved commercialization activities. All research proposal submissions and notifications to submit evidence of R&D activities submitted by taxpayers are submitted through the OSS system. The OSS system is a one-stop integrated service managed by the *Badan Koordinasi Penanaman Modal* (BKPM). With the implementation of the OSS system, it is easier for the authorized Ministries/Institutions to coordinate the process of utilizing STD policy for R&D activities. This is on the information submitted by Syarif Ibrahim Busono Adi as an informant from the State Revenue Policy Center of the Badan Kebijakan Fiskal, as follows: "*The R&D application mechanism is through OSS. There, we ask the company to input what the R&D theme is, what the planned results are to achieve, what the planned R&D costs are, and how many human resources are planned to be used.*"

The use of the OSS system makes it easy for government institutions responsible for implementing STD incentives for R&D to obtain information regarding the progress of the incentive application process. Therefore, each related ministry/institution knows the research progress of the activity proposals submitted and checks on the additional utilization of reduced R&D costs. This condition is to the statement elaborated by Reny Meilany as the Coordinator of the Industrial Fiscal Facility Function of the Ministry of Industry, namely: "*The notification is from the OSS system. In the past, before there was an OSS system, we lost. We do not know which one submitted an application, which was then rejected, or which one was accepted. Now, if it is included in the OSS system, we can already find out, but it is just a notification.*"

Strategic readiness in implementing STD incentives for R&D activities can also be seen in implementing duties and functions for each government institution in the research or selection process for submitting STD facilities for R&D activities carried out by BRIN. The research is based on the R&D criteria and R&D focus set out in MoF No. 153/2020. Besides BRIN, the ministries/government agencies are also responsible for researching the suitability of activity proposals with the proposal's provisions. The ministry cooperates with BRIN to review research proposals submitted by taxpayers. In supervising the implementation of STD incentives for R&D activities, DGT plays a vital role in reviewing the additional utilization of super tax deductions. As a tax authority, DGT can review reports on R&D activities and costs and calculate the utilization of gross income deductions submitted through the OSS system. If the taxpayer submits the report and reports the amount and type of R&D costs correctly, the DGT can make additional corrections to reduce gross income.

In terms of target recipients of the STD policy for R&D activities, the company is ready to implement the STD policy for R&D activities. Industry readiness is reflected in the level of knowledge and understanding regarding regulations and procedures for applying for STD incentives. The industry has obtained information regarding the provisions for applying for these

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tax facilities from socialization or outreach activities carried out by government agencies. After participating in socialization activities, the company took the initiative to ask questions to the competent authorities when they had questions regarding the STD incentive provisions for R&D activities. However, several companies were prevented from applying for these tax incentives because the R&D activities did not comply with the R&D criteria in MoF No. 153/2020. This is the explanation Reny Meilany gave as the Coordinator of the Industrial Fiscal Facility Function of the Ministry of Industry: "*When we did the socialization, several industries also made direct contact with our office. However, it turned out that there were indeed several cases that could not be continued because they were different from what was mandated in the MoF, especially about issues that included the criteria for the name R&D. That is what is limited there because the R&D criteria cannot be like routine engineering. What the industry is doing is product diversification.*"

With the limitations of R&D criteria set out in MoF No. 153/2020, companies can only submit some R&D activities that are being carried out. Therefore, companies cannot apply for STD incentives for R&D activities even though the company already understands the mechanism for submitting STD incentives for R&D activities. In addition to limiting the definition and criteria for R&D activities, taxpayers face the issue of recognizing and recording R&D costs, which can be submitted for additional super tax deductions.

CONCLUSION

Based on the results of the analysis related to evaluating the effectiveness of STD policies on R&D activities, it shows that the implementation of STD tax incentives for R&D activities has not been fully effective. The right policy indicators have not run optimally because the goal of STD tax incentives to increase the creation of innovation in Indonesia has not been achieved. In addition, the right environmental indicators have not worked effectively, especially in the external environment. Interpretations related to recording and recognizing R&D costs have the potential for multiple interpretations between taxpayers and tax authorities.

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