

## **TAX POLICIES SUPPORTING RESEARCH ACTIVITIES OF NON-PUBLIC RESEARCH ORGANIZATIONS: OVERVIEW AND IMPLICATIONS FOR VIETNAM**

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### **Summary:**

*As Vietnam's economy expands, the government policies in the field of science and technology (S&T) are adjusting gradually. These adjustments include the socialization of S&T activities to encourage businesses, groups, and individuals to participate in S&T. The policies also permit various organizations and individuals, including those from other countries, to establish and register non-public S&T institutions and carry out S&T activities in the territory of Vietnam. These non-public organizations operating in research and development (R&D) have played a significant role in the country's overall socio-economic development and the progress of S&T. Recognizing their importance, it's essential to have policies that support and enhance the R&D activities of these institutions, aligning with their role in the country's growth. This article examines the gaps in tax policies affecting the support for R&D activities in non-public organizations in Vietnam. It proposes solutions by analyzing these gaps and referring to effective international policies that support R&D activities in non-public organizations.*

**Keywords:** Tax; Policies; Non-public organizations; Research and development; Science and technology.

**Code:** 24011801

### **1. Introduction**

After more than 30 years of reform, science and technology (S&T) in Vietnam has achieved significant progress in building and developing capacity, positively contributing to socio-economic development and ensuring national security, improving living standards, and bringing the country from an underdeveloped country to the group of middle-income countries. However, compared to the set goals and tasks, science and technology in Vietnam have not yet reached their potential and position and have not become a strong driving force to promote socio-economic development and overcome the situation of lagging behind other countries in the region and the world. One of the main causes of this situation is that investment in science and technology in Vietnam is still low compared to countries

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with developed science and technology, with most financial resources being limited and still depending on the state budget.

Research and development (R&D) activities have an indirect role in promoting economic growth by stimulating innovation and creativity within a country. Technological innovation in industry is formed from investment in R&D activities, which is the main driving force of economic growth, while businesses only invest in R&D activities if they can earn profits (*Grossman & Helpman, 1993*). Therefore, if the benefits of investing in R&D activities are guaranteed through investment promotion policies, businesses will invest more, leading to a promotion innovation process and the result is productivity growth. International experience shows that the more developed a country is in science and technology, the higher the proportion of investment in R&D of the non-state sector compared to the state budget. The state budget only funds basic research and research that serves the common interests of the country (*OECD, 2010*). In developed countries such as Europe, Korea, and Japan, this ratio usually ranges from 3:1 to 5:1. China has a proportion of 3:1 and tends to increase over time. In Vietnam up to now, the state budget is still the main resource, accounting for 52% of total social investment in science and technology (*Do Thanh Long, 2020*). It should be recognized that, no matter how much the State pays attention, the State's resources are still very limited in the current context of the country still facing many difficulties and cannot be compared with the abundant potential of the non-state sector, especially of the business sector.

To achieve practical results in economic growth and become a developed country in the future, developing effective policies to encourage the non-public sector to invest in R&D activities is extremely necessary and urgent. However, to be able to develop effective support policies, the first thing to do is to review current policies on supporting R&D activities. Therefore, this article focuses on reviewing existing support policies to draw implications for improving policies in the future.

## **2. Concept of non-public research organization**

### ***2.1. Concept of non-public research organization***

The connotation of the concept of “non-public research organization” has been reviewed in Vietnamese books and documents to clearly define the connotation of this concept. Currently, in Vietnam's policies and legal regulations, there is no term “non-public research organization”. In particular, “non-public research organizations” in this study are determined based on three aspects: (1) the legal status of the organizations; (2) organizations, the law, have the function/task of scientific research and technological development; and (3) not owned by the State organizations.

The process of reviewing terms defined in Vietnam's regulations and laws shows that some subjects/objects meet the above criteria, including:

*First, non-public S&T organizations.* Accordingly, “A science and technology organization is an organization whose main functions are scientific research,

*research, implementation and development of technology, science and technology service activities, established and registered to operate by the provisions of law.”* (Article 3, Law on Science and Technology 2013). According to Clause 2, Article 3, Decree No. 08/2014/ND-CP guiding the 2013 Law on Science and Technology, “non-public S&T organizations” are S&T organizations run by businesses, individuals and not by organizations (National Assembly, Standing Committee, Government; Supreme People's Court; Ministers, Heads of ministerial agencies and agencies under the Provincial People's Committee). Thus, this object has the following characteristics: (1) The governing organization (deciding to establish) is not a state agency; (2) May be affiliated with an enterprise but not an enterprise; and (3) Must register for a science and technology activity license at the local Department of Science and Technology or the Office of Registration of Science and Technology Activities (Ministry of Science and Technology).

By type of non-public S&T organizations include research institutes, S&T centers... Draft Circular amending and supplementing many articles of Circular No. 03/2014/TT-BKHCHN dated March 31, 2014 of the Minister of Science and Technology guiding the conditions for establishment and registration of operations of science and technology organizations, representative offices, and branches of science and technology organizations, has clarified the forms of science and technology organizations. Accordingly, forms of non-public S&T organizations include institutes, centers, laboratories, research stations, monitoring stations, testing stations, science-production unions, federations, schools, faculties, and other forms of names.

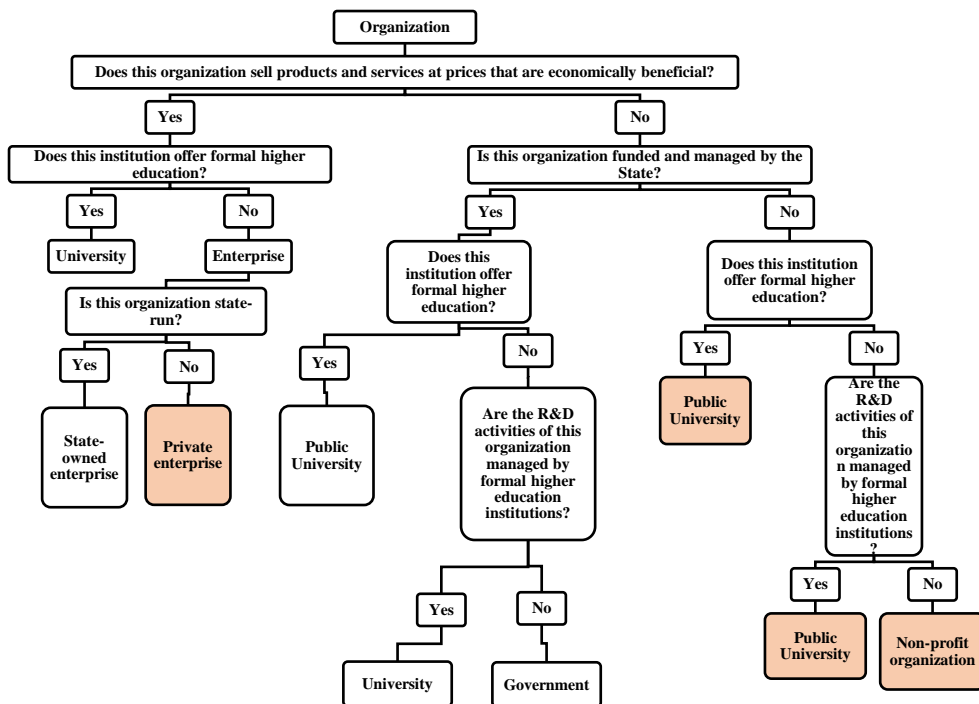
*Second, high-tech enterprises.* According to Clause 4, Article 3, High Technology Law, high-tech enterprises are “enterprises that produce high-tech products, provide high-tech services, and have high-tech research and development activities”. High-tech enterprises must meet the criteria specified in Decision No. 10/2021/QĐ-TTg related to (1) revenue from high-tech products, (2) the ratio of total expenditure for operations of the enterprise research and development, (3) the proportion of employees directly performing research and development.

Thus, based on the above classification, “non-public research organization” in this study is understood as an organization that conducts research and development (R&D) under an enterprise such as CMC Technology Research and Application Institute belongs to CMC Group, or belongs to non-public universities such as Phenikaa Institute of Research and Technology under Phenikaa University, or Institute of High-Tech Research and Development under Duy Tan University, or research institutes under the Association such as the Functional Food Research Institute, or Vietnam Functional Food Association and high-tech enterprises.

## ***2.2. The concept of “non-public research organization” in the international frame of reference***

This section will focus on determining which concept of “non-public research organization” analyzed in Section 2.1 is compatible with the system of research organizations in general according to the international system of reference. Based

on the definition in Clause 11, Article 3 of the 2013 Law on Science and Technology, and the classification of S&T organizations and according to the 2015 Frascati Guidelines, non-public research organizations in Vietnam's policy are equivalent to corporate research organizations of private businesses, non-public universities, and non-profit organizations such as the Association. Figure 1 positions non-public S&T organizations in Vietnam's policies according to Frascati's classification reference system, 2015 (OECD, 2015), in which:



Notes:

DN: Business sector; DH: University; CP: Government

Source: Frascati Manual (2015)

**Figure 1.** Decision tree for classifying institutional units for R&D organizations

The orange boxes position non-public research organizations in Vietnam's policies according to Frascati's classification system of reference, 2015. In which:

- *R&D organizations belonging to enterprises:* For example, CMC Applied Research Institute belongs to CMC Group, Loc Troi Agricultural Research Institute belongs to Loc Troi Group, departments/departments with research functions such as the Company's Technical Department Vietnamese Steel, Duy Khanh Mechanical Company...

- *Non-public university organizations:* For example, High Technology Research and Development Institute - Duy Tan University; Institute of Research and Technology, PHENIKAA Institute of Advanced Research, PHENIKAA University;
- *Organizations belonging to associations:* For example, the Functional Food Research Institute belongs to the Vietnam Functional Food Association.

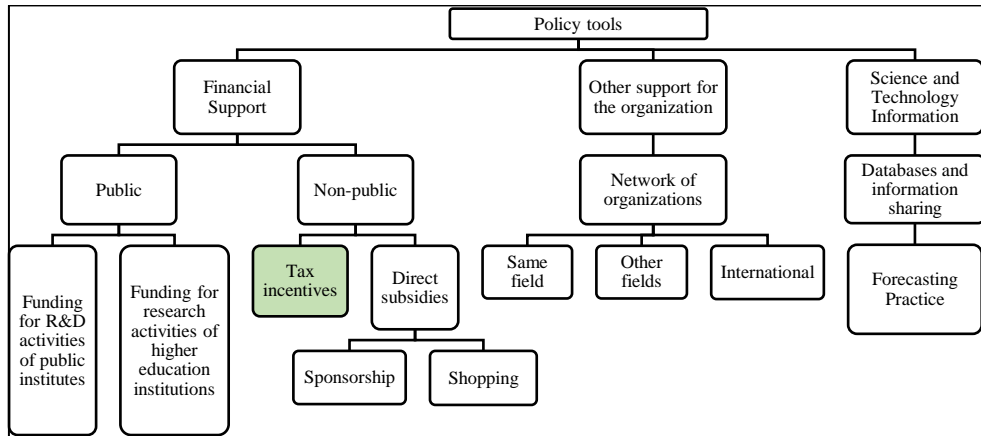
### **3. Policies to support scientific research activities and experimental implementation**

Technological progress is said to be one of the key factors determining economic development. The question is: How to best promote the motivation of market actors (businesses) to create the level of scientific progress that the Government wants? However, studies show that businesses invest in R&D lower than expected for two reasons:

- *First*, because knowledge goods from R&D can be easily imitated/appropriated by competitors, businesses cannot fully recover profits from their R&D investments because some of the benefits will shift to other businesses. Intellectual property rights, especially patents, are infringed in a variety of ways, and valuable product and process innovations are copied quickly. Even when intellectual property rights are effectively protected, R&D still creates positive externalities that spill over to other businesses and benefit the economy. Therefore, companies tend to invest less in R&D projects than they should because they know that other companies will reap some of the profits, or they tend to wait for other companies to participate in R&D projects rather than doing it by themselves (*Chavez, 2020*).
- *Second*, the nature of scientific research is that there is uncertainty about the results that will be achieved and there are risks, so many companies will hesitate to invest in R&D and delay because of this uncertainty. And because the returns from R&D spending can take a long time to be realized (*Bevan, 2019; Chavez, 2020*).

Therefore, the production of these knowledge goods may encounter market failure, and this is where the government can intervene by directly funding research activities conducted by research organizations belonging to different public and non-public universities, as well as by economic policies supporting R&D for businesses (*Güçeri et al., 2020; OECD, 2023a*).

Currently, many studies focus on the policy “trinity”: direct government funding for research (for government laboratories and universities), government funding for private R&D (through subsidies or procurement), and tax incentives for corporate R&D (*Bevan, 2019*). A widely used and popular policy system theory to classify the variety of existing policy instruments is the “NATO system” developed by Robert Hood (*Hood, 2007*). This system classifies policy instruments according to the government resources used for the scope of the policy (Figure 2).



Source: Bevan (2019)

**Figure 2:** Diagram of different policy instruments related to R&D (and part of innovation policy)

Thus, the policy to support R&D activities is a public policy to promote R&D activities to achieve set goals. The motivation for countries to promulgate policies in this field is to improve the quality, scope, and quantity of scientific research, develop science and technology levels, and attract high science and technology human resources. From there, build a foundation for R&D research capabilities, especially the ability to independently deploy scientific activities. Policies to support R&D activities aim at main goals including: (1) Solving social problems through scientific research, developing new technologies, and promoting innovation; (2) Building science and technology capacity; (3) Achieving higher research level; and (4) Enhance national, industry and business competitiveness. Depending on the specific conditions and requirements of each country, the policy's objectives may be different and change from period to period, in the context of international and domestic developments.

**4. Policy to support R&D activities of non-public research organizations in Vietnam**

**4.1. Policies for non-public science and technology organizations**

Decree No. 73/1999/ND-CP dated August 19, 1999, on policies to encourage socialization of activities in the fields of education, health, culture, and sports. This Decree is guided by Circular No. 18/2000/TT-BTC (expired in 2006). This Decree stipulates several policies to support “non-public establishments” operating for non-commercial purposes. However, “non-public establishments” in the field of Science and Technology are not covered by the scope of this policy.

Decree No. 53/2006/ND-CP dated May 25, 2006, of the Government replacing Decree No. 73/1999/ND-CP added a group of subjects operating in the field of Science and Technology and was guided by Circular No. 91/2006/TT-BTC. In

particular, “non-public service providers entities” enjoy the following preferential policies:

- Rent houses and infrastructure at preferential prices;
- Receive incentives from the State for land allocation or land lease in the following forms: Land allocation without collection of land use fees; Allocating land with land use fees exemption; Land lease and land rental exemption;
- Exemption from registration fees when registering land use rights and home ownership rights;
- Receive incentives on value-added tax, export tax, and import tax according to the provisions of the Law on Value Added Tax, Law on Export Tax, Import Tax, and current regulations;
- Enjoy the Corporate Income Tax rate of 10% throughout the operating period;
- The order, procedures, and methods of determining the tax amount to be exempted or reduced according to current tax laws.

#### **4.2. Policies to support R&D activities carried out by businesses**

The policy review process in this study has helped group policy issues supporting R&D activities carried out by businesses into the following groups: (1) Tax incentives; (2) Credit incentives; (3) Land incentives; and (4) Other policies to support R&D activities of enterprises in addition to the above policies, such as: fund mechanisms and science, technology, and innovation programs.

Within the framework of this article, the research team focuses on reviewing tax incentive policies for business organizations in carrying out R&D activities.

**Table 1:** Summary of Vietnam's tax policies for enterprise R&D activities

No	The Law on S&T regulates cases of tax incentives	Consolidated Document No. 09/VBHN-BTC (Decree guiding the Law on Corporate Income Tax)	Consolidated Document No. 66/VBHN-BTC (Circular guiding the Law on Corporate Income Tax)
<b>A</b>	<b>Corporate income tax</b>		
<b>A1</b>	Income from performing scientific research and technology development contracts	Income from the performance of scientific research and technology development contracts according to the provisions of the law on Science and Technology, is exempt from tax during the contract implementation period and for a maximum of 03 years from the date of starting business. Revenue from performing scientific research and technology development contracts.	a) Income from the performance of tax-exempt scientific research and technological development contracts must meet the following conditions. - Have a certificate of registration for scientific research activities. - Confirmed by the competent state management agency in charge of science as a scientific research and
<b>A2</b>	Income from products made from new technology applied for the first time in Vietnam; The product is still in the trial production period		

No	The Law on S&T regulates cases of tax incentives	Consolidated Document No. 09/VBHN-BTC (Decree guiding the Law on Corporate Income Tax)	Consolidated Document No. 66/VBHN-BTC (Circular guiding the Law on Corporate Income Tax)
		Income from selling products made from new technology applied for the first time in Vietnam according to the provisions of law and instructions of the Ministry of S&T is exempt from tax for a maximum of 05 years from the date of revenue from product sales. Products; Income from selling experimentally produced products during the trial production period according to the provisions of the law	technology development contract. b) Income from sales of products made from new technology applied for the first time in Vietnam is tax exempt and must ensure that the new technology applied for the first time in Vietnam is approved by state management agencies. Competent scientific confirmation (Article 8).
A3	High-tech enterprises, agricultural enterprises applying high technology, and some activities in the high-tech field	Apply a tax rate of 10% for fifteen years (Article 15) Tax exemption for 4 years, 50% reduction of tax payable for the next 9 years (Article 16)	High-tech enterprises and agricultural enterprises applying high technology according to the provisions of the Law on High Technology are entitled to preferential tax rates from the year of issuance of the Certificate of High-tech Enterprises and applied Agricultural Enterprises high technology.
A4	Science & Technology Services <sup>2</sup>		
A5	Funding from organizations and individuals for scientific research activities; The grant received is used for scientific research activities	Tax exemption (Article 4)	Tax exemption (Article 8)
	Technology transfer in the priority field is transferring to organizations and individuals in difficult socio-economic areas and extremely difficult socio-economic areas.	Tax exemption (Article 4)	Tax exemption (Article 8)
	Other cases are specified in tax laws	Apply a tax rate of 10% for fifteen years (Article 15)	New investment projects that enjoy corporate income

<sup>2</sup> S&T services are service activities and technical support for scientific research and technological development; activities related to intellectual property, technology transfer, standards, technical regulations, measurement, product and goods quality, radiation safety, nuclear and atomic energy; Information, consulting, training, fostering, dissemination, and application of scientific and technological achievements services in socio-economic fields.



80 Tax policies supporting research activities of non-public research organizations:...

No	The Law on S&T regulates cases of tax incentives	Consolidated Document No. 09/VBHN-BTC (Decree guiding the Law on Corporate Income Tax)	Consolidated Document No. 66/VBHN-BTC (Circular guiding the Law on Corporate Income Tax)
		Tax exemption for 4 years, 50% reduction of tax payable for the next 9 years (Article 16) Subject: for enterprise income from implementing new investment projects (Article 13)	tax incentives according to regulations must be granted an Investment License or Investment Certificate by a competent State agency or be allowed to invest following the law on investment. Private.
		Apply a tax rate of 10% for 15 years (Article 15) Tax exemption for 4 years, 50% reduction of tax payable for the next 9 years (Article 16) Subjects: for business income from implementing new investment projects in areas with extremely difficult socio-economic conditions, economic zones, high-tech zones, business income	Entitled to corporate income tax incentives is all income arising from production and business activities in the preferential area (Article 18).
	The State encourages and creates conditions for organizations and individuals to self-train, participate in, and sponsor the training and retraining of human resources and fostering S&T talents. Funds are deductible when determining taxable income. (Article 22, Law on Science and Technology)	Deductible when determining taxable income (Article 9)	
<b>B.</b>	<b>Import and export tax</b>		
	The Law on Science and Technology regulates cases of tax incentives	Import-Export Tax Law	Consolidated Document No. 06/VBHN-BTC (Decree guiding the Law on Import-Export Tax)
	Machinery, equipment, spare parts, and supplies that cannot be produced domestically need to be imported for direct use in scientific research and technological development activities.	Tax exemption for imported goods is machinery, equipment, spare parts, specialized supplies that cannot be produced domestically, and specialized scientific documents and books used directly for scientific research and development. Technology, developing	The basis for determining domestically unproduced goods is implemented according to the regulations of the Ministry of Planning and Investment. Basis for identifying specialized machinery, equipment, spare parts, and supplies used directly for scientific research,

No	The Law on S&T regulates cases of tax incentives	Consolidated Document No. 09/VBHN-BTC (Decree guiding the Law on Corporate Income Tax)	Consolidated Document No. 66/VBHN-BTC (Circular guiding the Law on Corporate Income Tax)
		technology incubation activities, incubating science and technology enterprises, and technological innovation (Article 16)	technology development, development of technology incubation activities, S&T business incubation, and innovation Technology is implemented according to regulations of the Ministry of Science and Technology.

*Source: Compiled by the authors*

## 5. Tax policy gap to support R&D activities of non-public research organizations

This section focuses on reviewing gaps in tax policies to support R&D activities of non-public S&T organizations and businesses.

### 5.1. Corporate income tax

A *review* of business incentive policies stipulated in the 2013 Law on Science and Technology; Decree guiding the Law on Corporate Income Tax (09/VBHN-BTC); The Circular guiding the Law on Corporate Income Tax (66/VBHN-BTC) shows some unclear or inadequate points as follows:

#1. It is unclear whether the “Science and Technology Activities Registration Certificate” issued by the Department of Science and Technology/Ministry of Science and Technology can be used as a “Scientific Research Activity Registration Certificate” to include in the tax incentive dossier;

#2. There is no regulation on “Competent state management agencies for science” specifically, which agencies are they? In which case is the Department of Science and Technology, and in which case is the Ministry of Science and Technology?

#3. There are no criteria to determine what is a “Scientific research and technology development contract”;

#4. There are no criteria to determine “products made from new technology applied for the first time in Vietnam”;

#5. Only the type of “S&T application” (deployed for S&T enterprises) is specified in Decrees and circulars guiding for S&T enterprises (Decree No. 13/2019/ND-CP, Circular No. Circular No. 03/2021/TT-BTC...). The remaining forms of S&T services (service activities, technical support for scientific research and technological development; activities related to intellectual property, technology transfer, standards, technical regulations, measurement, product and goods quality, radiation, nuclear and atomic energy safety; information, consulting, training, fostering and dissemination services) have not been yet regulated for implementation?

#6. There are no regulations on certifying an activity as a “scientific research activity” (who is the competent authority to certify, who promulgates the certifying confirmation process and criteria)?

### **5.2. Import and export tax incentives**

#7. There are no regulations from the Ministry of Science and Technology on the list of imports serving science and technology activities, although there are regulations on the list of machinery, equipment, spare parts, specialized means of transport, raw materials, and supplies, domestically produced semi-finished product components according to Circular No. 14/2015/TT-BKHDT. This leads to businesses not knowing how to deploy. Typically related to this issue, the Vietnam-Korea Institute of Science and Technology issued Official Dispatch No. 117/CV-VKIST dated May 6, 2021, asking about the handling of import tax and value-added tax for imported scientific research equipment for the General Department of Customs (Ministry of Finance). Official dispatch of the General Department of Customs (No. 2371/TCHQ-TXNK) dated May 20, 2021, affirmed “*Basis for identifying specialized machinery, spare parts and supplies used directly for scientific research study, technology development, development of technology incubation activities, science and technology business incubation, and technology innovation implemented by regulations of the Ministry of Science and Technology.* Thus, the answer goes back to the Ministry of Science and Technology and currently, there is no satisfactory answer to this issue because there is no regulation from the Ministry of Science and Technology on the list of imported equipment for science and technology activities.

## **6. Policy implications**

This section includes policy recommendations based on: (1) International experience and research; and (2) Inadequacies from the policy gap in section 5.

### **6.1. International experience using tax tools to support business R&D activities**

Countries across the world over the past few decades have increasingly relied on tax incentives to support private sector R&D. R&D-focused countries such as France, Canada, and China channel more than half of public capital to private sector R&D through the tax system (*OECD, 2023b*). These countries, along with many others, began using tax instruments to support R&D, even before the emergence of much literature on the effectiveness of R&D tax incentives (*Güçeri et al., 2020*).

The reasons why policymakers are beginning to find that the simply designed tax credits are preferable to direct subsidies are because in this case the administrative costs are potentially lower than in the case of using tax incentives, and enhance the government's ability to stimulate private R&D while letting businesses decide which projects to invest in. By opting for a tax system, the government no longer must set up panels of experts to evaluate projects and choose which one is among them, as in the case of project direct subsidies. Furthermore, companies themselves understand the market better and, therefore, can invest in more profitable

opportunities. However, this convenient aspect of using the tax system also comes at a cost: the total cost of the program in terms of exempted tax revenues is much greater than the cost of direct subsidies to the government budget.

Countries around the world apply different support taxes for businesses' R&D activities. Table 2 summarizes the tax support measures of leading countries in supporting business R&D and those measures have been effective according to OECD research (*OECD 2016*).

**Table 2.** Main characteristics of tax incentives for R&D in selected OECD and other countries

Design tax policy to encourage R&D	
1. Tax incentives for R&D based on spending	
• Volume-based R&D tax credit	Australia, Austria, Belgium, Canada, Chile, Denmark, France, Hungary, Iceland, Ireland, New Zealand, Norway, UK
• Increased R&D tax credit	United States (credit on a fixed, indexed, and incremental basis for simplified credit)
• The system combines increased volume and credit	Italian, Japanese, Korean, Portuguese, Spanish
• R&D tax deduction exceeds 100% recovery	Belgium, Brazil, China, Czech Republic, Greece, Hungary, Netherlands, Poland, Russian Federation, Slovenia, Slovak Republic, South Africa, Turkey, UK
2. Tax relief on payroll taxes or related contributions	Belgium, France, Netherlands, Hungary, Russia, Portugal, Sweden, Türkiye
3. Higher tax incentives for R&D for small and medium enterprises, young businesses, or startups	Australia, Belgium, Canada, France, Italy, Japan, Korea, Netherlands, Norway, Portugal, Spain, UK
4. A ceiling on the amount of money that can be received for specific incentives	Australia, Canada, Chile, Denmark, France, Hungary, Iceland, Italy, Japan, South Korea, New Zealand, Norway, Portugal, Slovak Republic, Spain, Sweden, Turkey, UK, USA
5. Tax incentives for R&D based on income	Belgium, China, Colombia, France, Hungary, Ireland, Israel, Italy, Luxembourg, Netherlands, Portugal, Spain, Switzerland, Turkey, UK
6. There are no tax incentives for R&D	Estonia, Finland, Germany, Mexico

Source: OECD (2016)

*Tax incentives based on R&D spending* are a form of accelerated/immediate tax depreciation based on R&D spending. Accelerated tax depreciation is when the return on R&D investment is faster than the basic economic depreciation of the long-term asset for tax purposes. Most countries allow companies to immediately deduct employee wages and R&D investment, even though the R&D investment is expected to generate future income only.

*Income-based tax incentives* through lower tax rates on future earnings from R&D investments will increase the after-tax rate of return on such investments, which may

attempt to address the failure market due to firms not fully appropriating their return on investment (spillover effect). Tax incentives based on income and R&D expenditure can be designed to provide approximately the same level of tax incentives on a present-value basis.

In addition, income-based tax incentives also have another form called the “Patent (IP) Box Regimes”. This is a form that countries around the world have applied many years ago.

The “patent box mechanism” (also known as the intellectual property mechanism) helps non-public research organizations enjoy a lower income tax rate than the prescribed income tax for income derived from the creation of intellectual property. Typically, the types of intellectual property that qualify for preferential income tax are patents and software copyrights. Depending on the patent box regime of each country, income derived from intellectual property can include royalties, licensing fees, profits from patent sales, revenue from goods and services related to intellectual property, and compensation for losses due to infringement of intellectual property rights.

The patent box mechanism allows a preferential organization to only pay taxes on income generated by patents that is much lower than the income generated from the ordinary business activities of a company. Currently, 13 out of 27 EU member states have applied the patent box mechanism, which are: Belgium, Cyprus, France, Hungary, Ireland, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Slovakia, and Spain. Non-EU countries are Andorra, San Marino, Switzerland, Türkiye, and the UK which have also implemented a patent box mechanism. The reduced tax rates offered under the patent box scheme range from 0% in San Marino to 12.5% in Türkiye. The use of patent box mechanisms to stimulate R&D activities of non-public research organizations is the latest innovation in the field of corporate R&D support policies. Similarly, the 2017 US corporate tax reform “Tax Cuts and Jobs Act” (TCJA) also introduced a patent box mechanism to the US tax system (Güçeri et al., 2023).

Research results on the impact of patent box regime policies have shown mixed results. The intended effect of the patent box mechanism is to stimulate R&D leading to the generation of intellectual assets and ultimately enhancing firm productivity and growth. Ten years ago, research by *Karkinsky & Riedel (2012)*, followed by *Böhm et al. (2015)* and *Ohrn (2016)* showed that the patent box policy increased R&D in general, directly at subsidiaries of multinational corporations in countries with patent box policies or indirectly in MNE subsidiaries located in countries without patent box policies, but with similar affiliates in a country with a patent box regime policy (*Schwab & Todtenhaupt, 2021*).

However, incentives based on the patent box mechanism only bring downstream “rewards” to those enterprises that succeed in R&D and obtain patents, and to those enterprises that already hold exclusive rights to the patents and inventions. R&D is a risky activity, naturally leading to a high failure rate, so incentives based on income derived from patents may not provide the incentives and benefits for the company to undertake such R&D activities (*Haufler & Schindler, 2023*). From a policy perspective, recent research suggests that patent box regimes can be considered a “harmful form of tax competition” and that they should be replaced by

well-designed R&D “tax credits”. This patent income tax policy mostly benefits existing companies that already have a lot of diverse R&D activities to gain higher returns from their successful investments (*OECD, 2016*) rather than companies with limited potential that need to be supported and are not very effective in increasing the number of patents (*Bloom et al., 2019*).

Additionally, calculating income eligible for R&D tax incentives from patents is difficult, as it is difficult to determine the income stream generated by one technology/patent when multiple technologies/patents - often issued at different times - are used to manufacture a complex product (such as a semiconductor). Measuring technology/patent income is inherently difficult because the income flow between related parties must be calculated in the absence of a clear price for the use of intellectual property rights with third unrelated parties (*OECD, 2016, 2023b*).

## **6.2. Policy implications**

### *6.2.1. Develop a tax policy complex to support R&D for non-public research organizations*

Compared to a series of popular tax incentive policies in the world listed in section 6.1 (including Expenditure-based R&D tax incentives; Salary tax reduction or related contributions; Exclusive R&D tax incentives more generous for small and medium-sized enterprises, young businesses or startups; Ceiling on the amount that can be received for specific incentives), Vietnam has only applied corporate income tax incentives (income-based tax incentives) and patent box mechanism policy specified in Decree No. 13/2019/ND-CP on science and technology enterprises. Thus, Vietnam's tax support policy for R&D in the non-public sector is still very limited, and Vietnam's tax policy framework still lacks many policy tools compared to international standards.

In addition, a plus point is that policies in Vietnam also focus on supporting exploitation and promoting patents. For example, regulations in Circular No. 75/2021/TT-BTC issued by the Ministry of Finance provide guidance on financial management for implementing the Intellectual Property Development Program until 2030. The Circular clearly states the budget level to support the registration of protection for inventions, industrial designs, and trademarks; The register for protection and recognition of new plant varieties. Specifically, in the case of domestic protection registration: For applications for patent protection and registration for protection and recognition of new plant varieties, the support level is 30 million VND/application; For industrial design and trademark protection applications, 15 million VND/protection certificate. In case of registration for protection abroad for specified subjects, the support level is 60 million VND/validly accepted application, or corresponding documents according to the regulations of the international organization or the country applying.

Many universities, research institutes, provinces, and cities across the country have policies to support and promote patent registration. The number of registrations and the number of patents granted tend to increase. For example, as a place with a large source of national intellectual property, the Vietnam Academy of Science and Technology has implemented groundbreaking policies to exploit and quickly bring research results into the S&T market. Accordingly, there are research directions that

focus on solving “low-lying areas” in research so that technology is closest to the needs of businesses, such as application research directions that require “outputs” to register patents and useful solutions; Project direction for pilot production projects to increase the scale of semi-industrial production and direction for research projects to develop commercial products ready to be transferred to businesses based on patented research results. Mechanisms and useful solutions (*Ha Linh, 2023*).

The corporate income tax incentive policy and the patent box policy from international experience both have positive and negative aspects as analyzed in section 6.1. That is completely normal because a policy always has weaknesses and strengths. Therefore, countries often use a tax policy mix as listed in Table 1 to encourage businesses’ R&D activities comprehensively and fully. Thus, in the future, Vietnam should consider introducing tax policy combinations to support and motivate businesses to conduct R&D activities.

#### *6.2.2. Standardize defined terms used in the policy*

In addition, it should be noted that, in the process of integration of science and technology, synchronization of the concept of science and technology policy is very necessary and a prerequisite. This not only creates favorable conditions for Vietnam to participate in policy research and policy surveys such as those of the OECD when Vietnam's S&T statistical system uses connotations equivalent to those of the international reference system. The reason why the group of articles emphasizes this recommendation is that the identification and positioning of “non-public research organizations” in the international system of reference shows the review and construction of new science and technology and innovation policies need to research terms and definitions with similar connotations reflected in documents of science and technology-oriented organizations such as the OECD. Avoid using concepts that have not been compared for their connotation/compatibility with standardized terms in the world. Standardizing this basic term definition is a very important foundation and the first step to take to bring Vietnam's science and technology industry into international integration, ensuring we use the same language about science and technology with the world if you do not want to fall into a situation of different understandings when not standing in the same frame of reference when learning international good practice and experiences on science and technology policy as well as when participating in the international science and technology statistical system. Participation in the world statistical system will help make comparisons between countries and economies more reliable in terms of methods, data, and policy recommendations, thus being closer to the current situation.

#### *6.2.3. Review documents to ensure “implementation” of the policy*

The 7 policy gaps identified in section 5 show that, although policies to support science and technology activities for non-public science and technology organizations are close to international policies in terms of policy design, they are still limited in terms of implementation such as:

- The effectiveness and social impact are unclear because the implementation faces many difficulties due to the lack of guiding circulars such as Decree No. 53/2006/ND-CP;

- Particularly for supporting S&T activities for businesses (S&T and high-tech enterprises), related gap issues can be grouped into 2 groups of issues:
  - + Group 1: Introducing concepts in the policy but not explaining the connotation to be able to determine that in practice the policy implementation is a “bottleneck” that needs immediate attention and resolution (for example space #2-3-4-7);
  - + Group 2: Lack of regulations (e.g., gap #1-5-7) makes policies incompatible and inconsistent.

Recommendations from the policy gaps in Group 1 and Group 2 show that there needs to be an effective assessment of the implementation of tax incentive policies for R&D activities in enterprises and non-public S&T organizations to continue making policy amendments and updates and to bring more policy efficiency in practice.

## 7. Conclusion

Tax incentives are important in reducing tax liabilities for organizations that are taking significant risks in their business operations and R&D investments. Therefore, financial incentives for R&D need to be considered as a part of the overall tax system, overall innovation strategy, and integrated into a country's overall economic and investment environment. Due to the diversity and heterogeneity between non-public S&T institutions and different types of private sector R&D investments, Vietnam needs further research on different financial incentive combinations to identify the financial and economic conditions that yield the greatest improvements in productivity and welfare from significant government investments in corporate R&D and non-public S&T institutions. In addition, the standardization of concepts of science and technology organizations used in policy according to the international reference system also needs attention in the process of developing and drafting policies, creating conditions for participating in international research as well as international benchmarks in the process of regional and world science and technology statistics. Assessing the implementation effectiveness of tax policies in practice is very important to remove “bottlenecks” in the process of putting policies into practice./.

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