
Reactions of Entrepreneurs and Effects of Introduction of Intellectual Property Box Privilege in Poland

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Abstract:

Purpose: The purpose of the article is to assess the effectiveness of support for innovation processes in Poland with the IP BOX instrument. The research questions were formulated: How do Polish entrepreneurs respond to tax incentives? Does the use of tax privileges improve the level of innovation of the Polish economy?

Design/Methodology/Approach: The used method was the analysis and criticism of the literature, deductive reasoning, analysis of statistical data on the scope of use of this instrument and its effects. The research covers the period from 2016 to 2023, in which taxpayers have the opportunity to take the tax benefits.

Findings: The level of exemptions in absolute terms, and the share in GDP, are low. Currently, 23 countries in Europe use IP BOX, Poland joined this group in 2018 and the number of beneficiaries of the preferential IP BOX rate and tax due on income have been growing dynamically since the beginning. The expected effect of IP BOX is an increase in patent activity and knowledge diffusion. Since the introduction of IP BOX, the number of patents has been declining. This is partly the result of extending the tax preference to developers of computer software that is not a subject of the patent procedure. To the largest extent, the IP BOX benefit PIT taxpayers.

Practical Implications: The tax privileges introduced in Poland have been met with great interest by entrepreneurs. The application of this privilege causes a significant drain on state budget revenues. The effect of reducing the tax burden is compounded by the simultaneous use of the IP BOX and the R&D tax relief. The position of the Polish economy in innovation rankings, despite the support of entrepreneurs, is not improving.

Originality/Value: There was presented our own assessment of the purposefulness and effectiveness of tax incentives.

Keywords: Innovation, R&D activity, intellectual property, tax relief.

JEL classification: H25, O32, O34.

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1. Introduction

Innovation is a factor in economic growth, determining the competitiveness of the economy, the health and well-being of society, the quality of public services, the success of the transformation of the digital and ecological economy (Communication, 2022, C332). The positive external effect of innovation is the transfer of knowledge to the economy, which benefits other entities, increasing the absorptive capacity of modern technologies and triggering a chain reaction of improving products, services, processes (Communication, 2022, C414).

The increase in the level of innovation depends on investments in research and development by the state and the private sector. The innovative activities of an enterprise, compared to ordinary operating activities, carry a greater risk of uncertain results from expenditures on research and development activities. For this reason, innovation projects beneficial to society, with high risk or low return, will not be undertaken by private entrepreneurs (Velinov *et al.*, 2023; Grima *et al.*, 2023).

Most countries include public support for innovative ventures in their economic policies, in the form of budget subsidies and various indirect forms. Particularly important are incentives for entrepreneurs to undertake research and development activities that result in innovation (Norena-Chavez and Thalassinou, 2022). Among them, tax instruments in the form of deductions for R&D expenditures, reducing the burden, and a preferential tax rate on income from intellectual property rights Intellectual Property BOX (IP BOX) are widely used.

The subject of consideration is the IP BOX tax instrument with a strong incentive effect on entrepreneurs, but ambiguously assessed in terms of the effects of increasing the level of innovation and controversial due to unintended side effects of its use. The purpose of the article is to assess the effectiveness of support for innovation processes in Poland with the IP BOX instrument.

There was used the method of analysis and criticism of the literature, deductive reasoning, analysis of statistical data on the scope of application of this instrument and its effects. The research covers the period between 2016 and 2023, in which the R&D tax relief and IP BOX were made available in Poland.

2. Tax Instruments for Supporting Innovation

Innovation policy should be aimed at strengthening the resilience and competitiveness of the economy and improving the conditions for investment in research and development, implementation of new technologies and application of research results (Communication, 2020, C628; Grima and Thalassinou, 2018).

The scope of business innovation support in each country is measured by implied tax subsidy rates, which determine the level of tax preferences for research and

development activities. In 2023, the vast majority of OECD countries (about 80%) used support instruments of varying magnitude, e.g., in Bulgaria, Estonia, Latvia relief for innovation activities is not made available, and the highest tax subsidy rates are found in Portugal - 39%, France - 36% and Poland - 36% (Mengden, 2024).

Increasing the effectiveness of support for innovation activity requires the use of different combinations of economic policy tools. The choice of forms should take into account distortions that distort competition and free trade. Direct support of innovative activity from public funds is more costly, as it involves state budget resources and generates additional administrative costs.

Subsidies are desirable to support activities at the initial stage of the innovation life cycle and to conduct expensive and underfunded basic research (Annual, 2024). Direct support in the form of grants is estimated to be moderately effective.

The numerous indirect forms of support used in various configurations, in different countries include, among others, the awarding of public contracts, incurring expenditures on education, research, the use of fiscal measures in the form of tax credits and exemptions, the provision of repayable advances, state guarantees, the purchase of shares/stock of innovative enterprises by the state, the provision of land, the provision of products or services at preferential prices (Communication, 2022, C 414). Indirect forms have the advantage of involving mainly private funds. Tax privileges to support innovation have a different construct and required criteria for use.

The IP BOX tax on income earned from intellectual property rights is a privilege of applying a reduced income tax rate. The IP BOX's burden-reducing effect is a strong incentive for R&D activities that result in legally protected innovative solutions. Innovative investment ventures attract high-skilled human capital and contribute to the creation of high-tech jobs, increased revenues and profits for enterprises (Evers, 2015).

In 2024, most European countries used the IP BOX solution (23 countries), varying in the tax rate (from 2% in Malta to 12.5% in Turkey) and the definition of the tax base (Sara, 2024).

The advantage of the IP BOX, compared with the R&D tax credit, is preferential taxation of the successfully completed and commercialized effect of research work, while the privilege of the R&D tax credit involves the deduction from the tax base of expenditures incurred on research and development activities, regardless of their final effect. The application of tax privileges for R&D activities affects the effective tax rate. In extreme cases, the results of unsuccessful work can reduce the effective rate to a negative value, thus the relief becomes an inefficiently used subsidy (Evers and Miller, 2015).

Evaluation of the effectiveness of incentives for innovation activity is not clear-cut. Experience shows both a positive, negative and neutral relationship between incentives and innovation growth (Gamez, ..., 2022). EU 2023 tax report shows lack of correlation between tax incentives and R&D expenditures (Annual ..., 2024). The exception is SMEs, which are strongly affected by tax incentives. Contrary to expectations, it has been proven that patent activity is higher in countries with a higher effective tax rate.

The conclusion was justified by the response of entrepreneurs to high burdens, encouraging them to use deductions for R&D expenses from tax. The higher a company's income, the greater the pressure to reduce the tax burden (Sehaj, 2024). Much more important than the tax rate, is human capital and institutional factors: low levels of corruption, quality of regulation, cooperation with public research centers, trust in institutions, access to direct public support, access to credit and venture capital (Annual, 2024).

It has been proven that tax reliefs and subsidies have a stronger spillover effect on knowledge and technology than the number of patent applications, thus bringing greater real benefits to the economy (Sehaj, 2024). Privileges in the form of IP BOX have a positive impact on patent activity, but the link between ongoing scientific and research activity and patents is not obvious due to the transfer of patents to countries with lower tax rates.

An international comparison of the innovation index of the economy (innovation index 2024) leads to the conclusion that there is no direct relationship between the provision of IP BOX privilege and innovation. The highest level of innovation is characterized by Scandinavian countries, where IPBOX does not occur (R+D, 2024).

A certain and distinguishing feature of companies deriving income from intellectual property rights is higher revenue per employee, and the benefit of employees is higher average employee salary, in comparison to other companies (Intellectual..., 2025).

3. Adverse, Undesirable Effects of Tax Incentives

Support for R&D activities of enterprises contributes to the increase of the welfare of society, but at the same time it distorts market information, causing distortions. More important, undesirable, side effects of the application of privileges concern the irrationality of choices, depletion of the state budget, distortion of competition, violation of the principle of tax justice, tax avoidance.

Aid in the form of subsidies mainly supports weaker enterprises, so that more efficient entities may be pushed out of the market. A situation in which the best are not rewarded and the weaker ones are not pressured to restructure becomes a source of irrationality, and support for inefficient enterprises in the long term can hamper

the productivity and innovativeness of the entire industry (Communication, 2022, C414).

The premise of the introduction of the IP BOX was to accelerate the development of knowledge and its dissemination. In fact, it is a strong fiscal incentive for undertaking profitable innovation ventures. The drive of companies to maximize profits puts the burden of financing costly and risky projects developing basic research on the state (Evers and Miller, 2015).

Any tax privileges should be considered as a form of subsidizing the beneficiaries. By introducing reliefs, the state decides to waive a part of the budget revenue. The greater complexity of the tax structure generates higher administrative costs related to the control of the correctness of the application of the instrument, settlement of costs and determination of the tax base at a preferential rate by the taxpayer, as well as resolving disputes in court.

State aid distorts international competition if it affects the choice of location of activities. While the intention of IP BOX was to support innovation activities in the country where they are carried out, experience shows that research and development activities, patents and the benefits derived from them are transferred to countries with more favorable tax conditions.

It is expected that the spread of IP BOX will lead to a reduction in the benefits of countries that have introduced it and an increase in costs in countries that have not applied this privilege (Evers, Miller, 2015). The introduction of the nexus mechanism, intended to curb profit shifting practices, in practice fosters undesirable merger and acquisition processes that distort competition (Game, 2022).

Simple tax systems are judged to be a more favorable solution, as they reduce the possibility of exploiting loopholes for tax avoidance, generate less maintenance costs for tax administration and reduce the taxpayer's transaction costs associated with determining tax liability.

The inclusion of tax privileges in the tax structure violates the principle of tax fairness, the essence of which is equal treatment of taxpayers. Those who benefit from tax benefits are charged an effective tax rate. Countries with a smaller difference between the nominal and effective tax rate have been found to have greater tax certainty, making them more fiscally competitive and more able to attract investments (Lopez, 2024).

A tax system with extensive privileges induces entrepreneurs to choose a tax strategy aimed at minimizing the burden, often going against the principles of rational economy. The difference in the details of the IP BOX solutions and the differences in tax rates from country to country, promote the exploitation of the separation of the location of business and profiting from intellectual property rights.

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Differences in detailed solutions of IP BOX and differences in tax rates from country to country, promote the exploitation of the separation of the location of business and profiting from intellectual property rights. Tax planning has intensified the phenomenon of transferring intangibles, profits, research and development activities to countries with favorable tax jurisdictions (Evers, 2015).

Because of profit transfer practices, IP BOX has been seen as part of unfair tax competition from the beginning. Curbing the harmful phenomenon of profit transfer is served by the nexus mechanism introduced in 2015, which reduces the aggressiveness of IP BOX, but does not eliminate it (Haufler, 2023).

The idea behind the nexus index is to make the taxpayer more interested in carrying out the entire process of producing intellectual property, from research to the creation of the intellectual property to its commercialization, thus increasing the chances of taxing the income in the country where the R&D was carried out.

Another community initiative, introducing a global minimum tax of 15% on capital groups income (Pillar 2) starting in 2023, may stifle interest in using IP BOX (Council, 2022). The limit to the profitability of using the IP BOX tax preference will be when the effective income tax rate reaches, the 15% level.

4. Reactions of Polish Entrepreneurs to the Introduction of IP BOX

IP BOX was introduced in Poland at the end of 2018 (Law, 2025, Article 24d). The privilege of a reduced rate of taxation on income from intellectual property rights can be benefited in Poland by PIT and CIT taxpayers who have created, developed or improved an object of legal protection as part of their scientific and research activities. Qualified intellectual property rights include: patents, utility models, industrial designs, integrated circuits, medicinal products, veterinary products, plant varieties, copyright in a computer program.

Obtaining legal protection requires registration with the Patent Office. Excluded from this obligation are the creators of an author's computer program, whose intellectual property rights are confirmed by the content of the contract between the author and the purchaser. Income earned in Poland from license fees, from the sale of intellectual property rights, from compensation for infringement of protective rights is subject to taxation at the preferential IP BOX rate.

The tax base is the sum of income from qualified intellectual property rights earned in the tax year, converted using the nexus rate. The tax rate is 5%. Determination of the tax liability requires delineation of the activities and costs incurred in the creation of intellectual property.

Since the beginning of the introduction of IP BOX, the privilege has generated great interest among taxpayers, as reflected in the dynamics of the number of users (Table 1). Entrepreneurs taxed on PIT, have the right in Poland to choose the method of taxing income according to the tax scale (tax threshold rates of 12%, 32%) or a uniform rate of 19%. The method of taxation does not limit access to the possibility of using IP BOX (PIT IP).

Table 1. Taxpayers using IP BOX and tax due on income from intellectual property rights in PLN million in Poland

Form of taxation	2019		2020		2021		2022		2023	
	number of taxpayers	tax	number of taxpayers	tax	number of taxpayers	tax	number of taxpayers	tax	number of taxpayers	tax
CIT	65	24.2	104	55.4	158	73.7	181	117	178	107.5
PIT according to the scale	338	1.7	588	2.9	931	7.6	903	605	805	6.9
Linear PIT	1521	20.0	3932	51.0	6401	94.0	5290	88.0	6552	109
sum	1924	45.9	4624	109.3	7490	175.3	6374	211.5	7535	223.4

Source: Author's calculation based on: *Informacja...osób fizycznych, 2019-2023, Informacja ... osób prawnych, 2019-2023.*

After the introduction of the preferential tax rate, the number of taxpayers benefiting from this privilege quadrupled in five years, and the tax from this title increased fivefold. CIT taxpayers in 2023 constitute only 2% of the total number benefiting from the IP BOX. The remaining 98% are individuals, 87% of whom are taxed at the flat rate. PIT taxpayers typically fall into the small and medium-sized enterprise class.

Uniform-rate taxpayers are generally entrepreneurs with income that alternatively places them in the second tax bracket. Tax on income from intellectual property rights of legal entities constitutes 48% of the total tax due, similarly taxed at the single rate (49%). The share of individuals taxed progressively is negligible (3%).

The structure of those conducting R&D activities is similar, numerically it is dominated by SMEs (82%), and in the amount of expenditures it is dominated by large enterprises, with a share of 73% (*Informacja ... osób fizycznych, Informacja ... osób prawnych, GUS, Działalność...*).

5. Effects of Supporting Enterprise Innovation

Enterprises' R&D expenditures have been continuously increasing since 2016, when an income tax credit for this purpose was introduced.

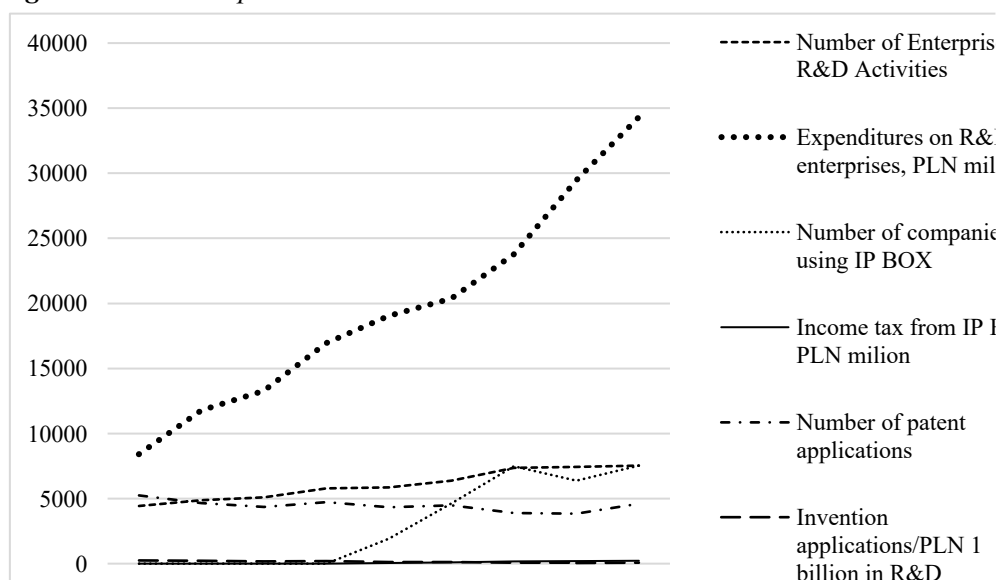
During the period under review, R&D expenditures quadrupled, and the number of enterprises engaged in R&D activities approximately doubled (Table 2, Figure 1).

Table 2. Research, development and patent activity of enterprises in Poland

specification	2015	2016	2017	2018	2019	2020	2021	2022	2023
Number of Enterprises in R&D Activities	4427	4871	5102	5779	5863	6381	7370	7431	7549
Expenditures on R&D of enterprises, PLN million	8411	11782	13272	16951	19031	20359	23769	29455	34289
Number of companies using IP BOX	x	x	x	x	1924	4624	7490	6374	7535
Income tax from IP BOX, PLN milion	x	x	x	x	45.9	109.3	175.3	211.5	223.4
Number of patent applications	5245	4654	4370	4726	4350	4488	3899	3855	4617
Invention applications/PLN 1 billion in R&D expenditure	258.9	237.5	190.7	204.4	128.3	123.8	89.6	72.5	74.3

Source: Author's calculations based on: GUS, *Nauka...*, 2019-2024, GUS, *Działalność...*, 2019-2023, GUS, *Mały...*, 2024.

Figure 1. R&D and patent activities in Poland



Source: Authors calculations based on Table 2.

An analysis of the dynamics of R&D expenditures, the number of enterprises engaged in R&D activities, the number of taxpayers using the IP BOX and the tax due thereon indicate that the privileges of the R&D tax credit and the IP BOX are having an effective effect on entrepreneurs. The number of patent applications is

variable over time and shows a decreasing trend, and the gap between R&D expenditures and the number of patent applications is widening. The dynamic growth of the tax on IPR income shows that research activities result in intangible assets, but do not result in an increase in patent applications.

This lack of correlation may be the result of legal solutions regarding the scope of IP BOX, which in Poland covers computer software that is not subject to the patent procedure. It is difficult to determine the scale of transfer of the effects of research work to other countries.

6. Conclusions

Analysis of data on the use of tax privileges in Poland to support innovation, indicates that they strongly influence the decisions of entrepreneurs. The effect of the policy of supporting innovation in Poland, is a steady growing trend in expenditures on R&D activity, with a low level in relation to GDP.

Preferential taxation of income from intellectual property rights is not reflected in patent activity, which is partly related to the use of this instrument by programmers, who are not required to file a patent application. The positive effect of privileges is the diffusion of knowledge.

The dynamically growing number of taxpayers using the IP BOX and R&D expenditures, does not translate into results of Poland's innovation level. In WIPO's international ranking for 2024, Poland's economy was ranked 40th out of 133 countries (Global, 2024). The poor result of the ranking was mainly due to a low assessment of the institutional order in Poland, in particular the stability of the conditions for doing business.

In light of the assessment of the innovativeness of European countries, Poland ranks among the Emerging Innovators, with an innovation index of 65.9% of the European average (European, 2024). A diagnosis of the constraints on the innovative capacity of the Polish economy points to low R&D expenditures, weak cooperation between science and business, a low share of investment in intangible assets, weak state activity in the field of public contracts for innovation, and weak innovative activity of the largest enterprises.

The SME sector responds strongly to tax incentives taking into account the number of companies taking advantage of the privileges, but the level of R&D expenditures is low and limits the ability to finance large and cost-intensive projects.

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