

# The Portuguese intellectual property box: issues in designing investment incentives

## Abstract

**Purpose** – The purpose of this paper is to discuss tax and accounting issues related to the evolution of the intellectual property box in Portugal and present a preliminary view of its impact. In 2014, Portugal adopted an Intellectual Property (IP) box, exempting from corporate taxation half of the gross revenue obtained from selling IP rights. In 2016, the country adopted a new IP regime, in line with BEPS' recommendations, with stricter rules for exempting income. The “modified nexus approach”, recommended by the OECD, was the cornerstone of legal changes. The research questions addressed in this paper are as follows: was the Portuguese IP box, set up in 2014, internationally competitive in terms of the scope of qualifying assets and the tax rate when compared to other EU countries? Could its legal design induce potential corporate tax avoidance? Does the new IP box framework reduce avoidance opportunities and does it increase tax and accounting complexity for companies and tax auditors?

**Design/methodology/approach** – The methodology used in this paper is based on the legal research method combined with a case study analysis of the IP box in Portugal. The economic motivation for legal changes, the interaction between the tax authorities and the policy makers in the wake of BEPS' recommendations, and the economic crisis that Portugal faced, influenced legislative options. A multidisciplinary approach is required to analyse the IP box modifications, and the methodology follows this line of enquiry.

**Findings** – The author concludes that the 2014 IP box was not competitive in terms of the scope of qualifying assets and the tax rate. However, it could be a potential tool for tax avoidance, mainly linked to transfer pricing strategies. Legal changes, introduced in 2016, by enacting stricter rules for granting tax benefits, fit a worldwide trend of restraining profit shifting opportunities linked to intangibles. The new framework clearly impacts tax and accounting complexity, for companies and tax auditors. Preliminary data, for 2014 and 2015, show a negligible impact of the IP box on corporate taxation.

**Practical implications** – The “modified nexus approach” is not a definitive panacea for fighting tax avoidance. Multinationals may move resources (e.g. highly specialized persons) to entities that are developing IP, curtailing the restriction associated with acquiring services from related parties. Tax authorities may fight these schemes, but face a challenging task. The grandfathering option and new accounting choices related to expense allocation are delicate issues. Not all countries adopted BEPS' recommendations at the same time, which may impact international profit shifting activities and increase tax authorities' costs to control them. The paper also provides preliminary and exploratory evidence that IP boxes, per se, do not suddenly raise the R&D activity of firms.

**Originality/value** – The analysis highlights legal, accounting and economic issues in dealing with changes in investment incentives and can or may be a useful remainder for countries in the process of setting up, or amending, IP boxes.

**Keywords** Investment, Intangibles, Portugal, Intellectual property box, Tax incentives

**Paper type** Research paper



## 1. Introduction

Intellectual Property (IP) box tax regimes should cover a wide range of income, encourage innovation and be easy to administer (McAlister, 2011). Investment in intangibles, seen as crucial to economic growth, is the main focus of IP boxes. A desirable IP box should attract real and substantial innovative activity and minimize tax avoidance opportunities (Evers *et al.*, 2015).

In 2014, Portugal adopted an IP box, exempting from corporate taxation half of the gross revenue booked from selling IP rights. The purpose of the IP regime was to create a favourable taxation for IP-related income, aiming at fostering innovation[1]. The Portuguese regime was potentially prone to tax avoidance, by allowing intercompany related transactions as a profit shifting strategy. The OECD (2013) developed the Base Erosion and Profit Shifting (BEPS) project and paid special attention to intangibles held by multinationals. Much of their profit shifting is linked to IP transactions (Kleinbard, 2012).

The BEPS project addressed IP boxes and recommended preferential treatment only to income derived from *substantial innovative activities effectively carried out by taxpayers*. An European Union Directive[2] – laying down rules against tax avoidance practices affecting the functioning of the internal market – also addressed the issue of fighting tax avoidance related to IP boxes. This is supposedly achieved through the adoption of the “modified nexus approach”, which assesses whether there is substantial research and development (R&D) activity effectively carried out by companies benefiting from IP boxes. In 2016, Portugal adopted a new regime, in line with BEPS’ recommendations, with stricter rules for qualifying IP income (Ernst and Young, 2016).

The research questions addressed in this paper are as follows: was the Portuguese IP box, set up in 2014, internationally competitive in terms of the scope of qualifying assets and the tax rate when compared to other EU countries? Could its legal design induce potential corporate tax avoidance? Does the new IP box framework reduce avoidance opportunities and does it increase tax and accounting complexity, for companies and tax auditors?

Legal changes enacted in 2016, establishing stricter rules for granting tax benefits, fit a worldwide trend of restraining profit shifting opportunities linked to the use of intangible income. The new framework also presents additional sources of accounting and tax complexity for companies and tax auditors. Preliminary data show a negligible use of IP’s tax benefits, in 2014 and 2015.

The “modified nexus approach” is not a definitive panacea for fighting tax avoidance. Multinationals may move resources (e.g. highly specialized persons) to associated entities that are developing IP, curtailing the restriction linked to the acquisition of services from related parties. Tax authorities may audit these schemes, but face a challenging task. Accounting issues, emerging from the computation of intangibles’ net income and expense allocation, are now of greater relevance, as explained later when dealing with the new (2016) Portuguese IP box. Not all countries adopted BEPS’ recommendations at the same time, which may impact international profit shifting activities and increase tax auditing costs (Herzfeld, 2017). The new IP box has a grandfathering clause, allowing the previous (2014) system to be applied until 2021. It is not difficult to anticipate corporate accounting policies being used to make imputations to old IP projects (more favourably taxed). Tax authorities may fight accounting/tax manipulation schemes, but litigation will probably follow. The paper also provides preliminary and indirect evidence that IP boxes, *per se*, do not suddenly increase the R&D activity of firms. In 2015, only three Portuguese firms benefited from the old regime, and 2m euro (a negligible amount in the context of corporate income tax data) were deducted to the total tax base.

Literature about IP boxes has been mainly addressing their impact on investment location (Dischinger and Riedel, 2011), avoidance strategies (OECD, 2013), impact on

fostering investment in intangibles (Romero-Jordán *et al.*, 2014) and tax competition and its effects (Dietsch and Rixen, 2014). The legal framework of IP boxes and potential sources of accounting complexity are not often analysed and will be the focus of our study.

The paper is organized as follows: Section 2 presents a literature review; Section 3 deals with methodology; Section 4 analyses the Portuguese IP box before and after the 2016 legal change; Section 5 highlights international trends regarding IP boxes; Section 6 concludes.

## 2. Literature review

### 2.1 Tax incentives and investment in intangibles

Technological innovation is a risky, resource-consuming activity and exhibits high failure rates. Firms investing in R&D protect inventions through patents, which may originate technologically advanced products that influence economic growth (Gao *et al.*, 2016; Sakar, 2015). Intangibles are increasingly seen as critical to growth and development (Corrado *et al.*, 2006).

Given the importance of innovative investment, countries have used fiscal policy to promote innovation and growth. Policy tools include tax credits, accelerated amortization and IP boxes (e.g. lower tax rates for IP income). Additionally, subsidizing R&D has been used as a financial incentive to promote innovative projects. According to McAlister (2011), the main goal of an IP box is to encourage innovative investments. An increase in new patents, trademarks, industrial designs and similar intangibles should follow from such a policy tool. Bradley *et al.* (2015) state that the primary objectives of an IP regime are stimulating domestic innovation and retaining mobile patent income to limit the erosion of the tax base. Given the expected economic outcomes of IP boxes, they can be empirically analysed.

The empirical literature analysing if corporate investment in innovative intangibles is influenced by tax incentives is large. Its conclusions are diverse. Some authors found a negative relationship between the level of the corporate income tax rate and the amount of intangible assets (such as patents, licences or trademarks) held by corporations (Dischinger and Riedel, 2011; Ernst and Spengel, 2011; Karkinsky and Riedel, 2012; Ernst *et al.*, 2014; Griffith *et al.*, 2014). A positive relationship between the valuation of a company's shares, the intensity of R&D and the productivity of patents was documented by Hall *et al.* (2005) and Chiang and Mensah (2004).

Other studies question the effectiveness of tax incentives related to R&D. Bergstrom and Sodersten (1984) investigated the Swedish case. They concluded that tax incentives increased profits from investment projects that would have been implemented in the absence of them. Weiner (2009) analysed empirical studies conducted in the USA (New England). The author points out that some investments would have occurred anyway; and tax credits, rather than increasing the overall level of capital formation, often influenced its distribution among the six New England states.

Romero-Jordán *et al.* (2014, p. 961) studied the impact of the Spanish tax incentives to R&D. They conclude:

Tax credits have a positive and significant contribution (although weak) to private R&D investments only for large firms. On the other hand, public grants are used by the SMEs firms to provide a positive signal about their projects to private investors and banks. In this way, public grants contribute to R&D investment by alleviating their financial constraints as it results in better access to external debt and in an additional source of funds.

Empirical studies about the impact of tax benefits in intangible investment do not offer a conclusive answer. However, if a certain country provides investors with a range of tax incentives, other states that compete to attract investment are led to offer similar inducements.

## 2.2 Tax competition and intellectual property boxes

[Graetz \(2013\)](#) highlights that international tax competitiveness – in the area of R&D investments – offers to globalized firms a favourable treatment of certain activities or assets. This can be achieved through investment tax credits, reduced rates for specific income or by exempting income derived from the transaction of intangibles' rights. However, these competitive strategies often come with a price. [Griffith et al. \(2014\)](#) note that profit shifting strategies linked to international tax avoidance are often related to IP boxes. Attracting paper profits and not real innovative activities can be unintended consequences of IP boxes. [Rixen \(2011\)](#) argues for greater international coordination to increase fairness on the domain of multinationals' taxation. In recent years, a significant number of countries have introduced "IP Boxes" (also known as Patent Box regimes) that reduce corporate taxation on income derived from patents and other intangible assets. An IP regime was initially implemented by Ireland (1973). Afterwards, other countries introduced IP boxes: France (2000); Hungary (2003); Belgium and The Netherlands (2007); Spain, Luxembourg and China (2008); Malta (2010); Liechtenstein (2011); England (2013); and Portugal, Italy and Turkey (2014).

Countries apply IP boxes according to three legal designs:

- (1) partial exemption for IP related profits;
- (2) reduced rate for IP yield; or
- (3) exemption applying to a percentage of IP gross revenue ([Graetz, 2013](#)).

An important difference between typical tax incentives to R&D activity<sup>[3]</sup> and the IP box is that the former are attributed when expenditures are incurred, i.e. at the onset of the innovation process ([Ciftci and Zhou, 2016](#)). The IP box awards benefits at the outset, when income is obtained. Revenue qualifies for IP box inclusion when companies make profits on patents, or other IP, produced by research and development activity ([Gao et al., 2016](#)).

Countries using IP boxes for international tax competition may fall short of achieving the stated objectives. These regimes may not attract substantial innovative activity; being primarily used as profit shifting devices to minimize effective tax rates within a group ([Gao et al., 2016](#)).

The location of assets determines where income is taxed, and it is recognized that intangibles embody a highly mobile source of income ([Grubert, 2003](#); [Kleinbard, 2012](#)). [Weiner \(2009\)](#) and [Gao et al. \(2016\)](#) show that tax incentives to R&D influence the location of assets. [Dischinger and Riedel \(2011\)](#) found that European companies' intangible assets are more likely to remain in subsidiaries facing advantageous tax regimes, signalling profit shifting strategies.

IP boxes may distort firms' location decisions and impact public revenues ([Huizinga and Laeven, 2008](#)). According to [Griffith et al. \(2014\)](#), which looked into IP revenue declaration across Europe, companies tend to seek countries with attractive regimes, generating a sort of "IP box shopping". As IP boxes are a recent phenomenon, there is less evidence about their effectiveness, when compared with other R&D incentives ([Gao et al., 2016](#)).

A critical view of IP boxes can be found in [Herzfeld \(2017\)](#). Drawing on previous literature, the author highlights the overuse of tax incentives with no solid evidence of positive impact on investment. He notes the flawed economic design of some regimes, which may grant tax advantages to activities that would take place without them. The empirical literature cast some doubts on the effectiveness of IP boxes as innovation enhancing tax tools.

[Rixen \(2011\)](#) focuses on international competition in business taxation and how it leads to inequalities and distributive injustice. Governments design tax systems to attract investments and tax revenue from other jurisdictions. The author points to transfer pricing and financing structures as common tools for profit shifting, given opportunities offered to

multinationals by international tax competition. Global tax governance mechanisms and formula apportionment in multinationals' taxation are seen as essential to reduce inequalities. [Dietsch and Rixen \(2014\)](#) address the same issue and argue that competition increases social inequalities within countries and across jurisdictions. Redistributive policies are proposed as a corrective measure. They favour global tax governance to curtail unjust outcomes linked to international tax competition.

The focus on the negative effects of international competition led to an increased scrutiny of tax incentives, such as IP boxes.

### *2.3 Intellectual property boxes, tax avoidance and the “base erosion and profit shifting” project*

The reduction in the statutory corporate tax rates observed since the 1980s was not uniform. For example, in 2016, these rates were 12.5 per cent in Ireland, 20 per cent in the UK and Finland and 39 per cent in the USA. Tax competitiveness (not only in terms of rates but also by setting up preferential regimes for certain activities) was used by many countries to attract investment. Numerous opportunities for “base erosion and profit shifting” were available. Business activity is developed in a certain country, but the tax base is shifted to low tax jurisdictions.

[Graetz \(2013\)](#) describes how American multinationals use IP income in profit shifting. Income can be shifted by concentrating certain functions, or asset ownership, in a related party, in a low tax jurisdiction. Using intercompany transfer pricing, a parent company may allocate a large share of profits to the related entity. Transferring or licencing IP rights to low-taxed affiliates, or entering in cost sharing agreements to develop intangible assets, are acknowledged as common tax avoidance mechanisms.

[Dharmapala \(2014\)](#) presents a review of the empirical literature on BEPS, linking it with transfer pricing within international groups and the location, in low tax territories, of intangible assets that may generate income. [Clausing \(2016\)](#) analyses the consequences of BEPS for American multinationals and finds that the real activity of these entities, outside the USA, is mainly developed, as expected, in China, UK, Canada and Mexico. Surprisingly (or not), US multinationals mostly declared income in The Netherlands, Ireland, Luxembourg and Bermuda.

In this context, several countries have enacted general (and specific) anti-abusive clauses to fight tax operations that, while being formally legal, are in violation of the spirit of the law or the legislative purpose. The practical application of these clauses, by tax authorities and courts, has centred on many doctrines, such as the “business purpose”, “sham transaction” and “economic substance” ([Givner, 2010](#)). The critical point is that (non-abusive) tax planning must produce transactions having a substantial (non-tax) impact in taxpayers' economic position, and that a business goal is connected to transactions ([Flesher and Quinn, 2014](#))[4]. The proliferation of abusive operations was the main motivation for the “BEPS project”, which recommended a set of measures that, if incorporated into domestic legislation, may be used as anti-avoidance clauses. (Proposed actions in the BEPS project) summarizes OECD's proposals:

- Action 1 – Address the Tax Challenges of the Digital Economy;
- Action 2 – Neutralize the Effects of Hybrid Mismatch Arrangements;
- Action 3 – Strengthen CFC Rules;
- Action 4 – Limit Base Erosion via Interest Deductions and Other Financial Payments;
- Action 5 – Counter Harmful Tax Practices More Effectively, Taking into Account Transparency and Substance;

- Action 6 – Prevent Treaty Abuse;
- Action 7 – Prevent the Artificial Avoidance of PE Status;
- Actions 8-10 – Assure that Transfer Pricing Outcomes are in Line with Value Creation;
- Action 11 – Measuring and Monitoring BEPS;
- Action 12 – Require Taxpayers to Disclose their Aggressive Tax Planning Arrangements;
- Action 13 – Re-examine Transfer Pricing Documentation; and
- Action 14 – Make Dispute Resolution Mechanisms More Effective.

Source: [OECD \(2013\)](#)

Action 5 – “Counter harmful tax practices more effectively, taking into account transparency and substance” is the main analytical support for revising IP boxes. The BEPS Report states that not all patent boxes are harmful. Fostering innovation can be an important factor in growth strategies, because intangibles have become a key driver of corporate business models. A preferential tax regime may be useful in supporting growth and innovation in a country if it attracts real activity. However, if a regime merely encourages companies to shift profits from the location where value was created to another where IP income is taxed at a lower rate, it is considered harmful.

The European Union, through the Directive 2016/1164, established rules against tax avoidance strategies that have a direct impact on the functioning of the internal market. Member States must adopt these rules no later than 2019. The modification of the IP boxes, by introducing the so-called “modified nexus approach”, leads to a stronger link between the lower taxation of income from certain intangibles and their effective development by the entity benefiting from the tax incentive.

Literature about IP boxes and business taxation has been addressing the impact on investment location ([Dischinger and Riedel, 2011](#); [Kleinbard, 2012](#)), avoidance strategies ([Rixen, 2011](#); [Griffith et al., 2014](#); [OECD, 2013](#); [Dharmapala, 2014](#)), fostering investment in intangibles ([Romero-Jordán et al., 2014](#); [Gao et al., 2016](#)), tax competition and its harmful effects ([OECD, 2013](#); [Graetz, 2013](#); [Dietsch and Rixen, 2014](#)). [Slemrod and Bakija \(2008\)](#) highlight the impact of fiscal benefits on tax neutrality.

The juridical framework of IP boxes, and legal and accounting complexities emerging from their implementation, is not often addressed in the literature[5].

### 3. Methodology

The methodology used in this paper is based on the legal research method combined with a case study analysis of the Portuguese IP box. Answering research questions on the tax and accounting implications of the initial (and revised) Portuguese IP box regimes requires an interpretative approach, combined with numerical examples, illustrating these issues. It is an adequate basis for reaching conclusions on what is an essentially conceptual analysis of tax/accounting features of an IP box enacted by an EU member state. Additionally, the methodology sheds light on the trade-off between reducing avoidance opportunities, using the modified nexus approach, and the increase in complexity in the practical application of the revised IP regime. The impact of legal changes and numerical illustrations of new hypothetical sources of accounting and tax complexity, for the Portuguese case, is presented and discussed.

Besides the *interpretative* angle of the legal research method, the paper also applies the *comparative* side, when presenting international trends in amending IP boxes in the wake of the BEPS project.

Beaulac and Bérard (2014) state that the methodology of legal interpretation focuses on how to determine the content of juridical norms. They argue that social and economic conditions are key elements to understand the legislative process. Perceptions and evidence of international tax avoidance created the proper ground for BEPS recommendations (OECD, 2013), and international pressure (mainly at the EU level) found its way into the Portuguese legislative IP amendments. The economic environment the interaction between the tax authorities and policymakers in the wake of BEPS' recommendations and the economic and social crisis that Portugal faced in the context of a bail out, influenced legislative options.

According to Freedman (2005), the legal research method has a long tradition in analysing tax policy. Tax legislation can be properly understood only by taking into consideration economic, political and social objectives shaping it. As stated by Thompson (1992), tax law does not have an autonomous existence and is influenced by economic policy, lobbying efforts, taxpayers, tax authorities and other stakeholders. Multiple actors may contribute to a complex law making process. The IP box fits this pattern.

Case studies are an established research tool (Yin, 2010). The Portuguese IP box reform is an illustrative case of economic, social and political motives to amend a fiscal benefit that was perceived as a potential vehicle for tax avoidance. Case studies highlight lessons learned from observation. The paper discusses the government's purpose when launching, in 2014, the IP box, and places it in the economic and political context of a country that was hard pressed to balance its budget and, at the same time, put in place investment friendly tax policies. Then, the trade-off between fighting avoidance and the legal/accounting consequences of a stricter (2016) incentive is underlined.

Other normative approaches to IP boxes can be found in McAlister (2011); Brown (2012) and Merrill (2016).

#### 4. The intellectual property box in Portugal

In the aftermath of the financial crisis that began in 2008, the Portuguese economy underwent a major downturn that resulted in a bail out[6], led by the European Central Bank, the International Monetary Fund and the European Commission (a.k.a. the Troika). Table I exhibits data for the Portuguese economy, in 2012 and 2013, during the adjustment programme, showing that capital formation, essential to economic growth, was in a free fall. Tax policies were devised to promote corporate investment. A generous tax credit was enacted in 2013[7], and a major corporate tax reform was implemented in 2014.

The corporate tax reform, whose preparatory works were carried out in 2013, introduced significant changes in corporate taxation aimed at promoting investment. A statutory rate reduction, the introduction of a participation exemption regime for dividends and capital gains, the extension of the loss carry over period from 5 to 12 years, the amortization of certain intangibles with indefinite lives (like goodwill and trademarks) and an IP box, were some of the measures approved by the Parliament.

##### 4.1 The Portuguese intellectual property box between 2014 and 2016

With the purpose of increasing the attractiveness of the tax system for R&D activities, an IP box was implemented in Portugal, in 2014. Article 50-A of the reformed Corporate Income Tax Code (CITC) established that gross revenue from the sale, or temporary assignment, of patents and industrial designs, would be considered by 50 per cent of its amount in the computation of taxable income. In 2014, the statutory corporate tax rate was 21 per cent[8].

The sold (or assigned) IP rights should be linked to assets emerging from R&D activities carried out, or contracted, by the taxpayer. Contracted activities do develop IP could involve related parties. The buyer (or the temporary user) of IP rights should use them in industrial, agricultural or commercial operations. Additionally, the buyer (or temporary user) should not be a located in a tax heaven. Ancillary services related to IP transactions did not benefit from this special tax regime.

Was the Portuguese IP box set up in 2014 internationally competitive, in terms of the scope of qualifying assets and the tax rate, when compared to other EU countries? As shown in the literature (OECD, 2013; Brown, 2012), an IP box attractiveness is usually evaluated by the specific tax rate, the scope of incentivized assets and the type of IP income getting preferential treatment.

Evers *et al.* (2015) show that Portugal was a latecomer in adopting an IP box. The Netherlands (2007), Luxembourg (2008), Spain (2008) and others had established IP regimes earlier. Moreover, IP specific tax rates in countries such as The Netherlands (5 per cent), Luxembourg (5,84 per cent) and the UK (10 per cent) were substantially below the Portuguese equivalent rate of 14.25 per cent[9]. The scope of the IP, in terms of qualifying assets, did not present the Portuguese regime in a favourable light. Countries like The Netherlands, Spain, Luxembourg and the UK had a more extensive range of tax favoured assets. For example, software, trademarks, secret formulas and processes and know how, were covered by the Spanish box, and absent from the Portuguese one. Thus, considering the legal design of the IP box, it was questionable as a catalyst for R&D and did not match other available IP boxes.

Additionally – and beyond tax incentives to innovation – the international perspective about the Portuguese overall level of competitiveness was low. Table II shows the Portuguese ranking in the well-known “Global Competitiveness Report”, where Portugal, in 2016, ranked 46th out of 138 countries (The higher values in Table II mean unfavourable views by international investors).

As seen in Table II, “tax rates”, “inefficient government bureaucracy” and “policy instability” were seen as major obstacles to the Portuguese level of competitiveness. In this context, multinational groups would hardly place IP generating activity in Portugal, when other major EU economies had better competitive rankings and also more attractive IP tax regimes.

As previously mentioned, IP boxes were a major issue in the BEPS project, concerning their potential for tax avoidance. Could the Portuguese IP box legal design raise opportunities for tax avoidance?

Despite its provisions regarding asset scope and income treatment, the Portuguese IP box could be a potential tool for tax avoidance. To illustrate the issue, suppose a Portuguese-based group developing R&D activities that were granted IP box benefits. Table III presents an example of how profit shifting could take place.

Company A, resident in Country 1 (Portugal) faces an “all in” CIT rate of 25 per cent, and develops an IP asset whose total cost amounts to 2,600 (300 + 1,500 + 800). Afterwards, the

Variables	2012	2013
Real GDP growth (%)	-3.2	-1.8
Government deficit (%GDP)	-5.0	-5.9
Public debt (%GDP)	120	127.8
Fixed capital formation (% change)	-14.5	-7.8

Source: Portuguese Central Bank

**Table I.**  
The Portuguese economy in 2012 and 2013



JITLP  
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**Table II.**  
Portuguese standing  
in the global  
competitiveness  
report 2016-2017

Variable	Value
Tax rates	18.2
Inefficient government bureaucracy	15.3
Policy instability	14.3
Restrictive labour regulations	13.3
Tax regulations	11.1
Access to financing	9.7
Inadequately educated workforce	5.5
Insufficient capacity to innovate	4.1
Corruption	4
Government instability	1.6
Inadequate supply of infrastructure	1.1
Poor work ethic in national labour force	1.1
Inflation	0.4
Poor public health	0.3
Foreign currency regulations	0
Crime and theft	0

**Source:** World Economic Forum (2016, p. 300)

asset is sold for 4,000. The example shows that firm A has a marginal contribution to the asset, acquiring most of the necessary inputs from a related party (B, hypothetically located in a low tax territory).

Company A, the parent of B, can use transfer prices related to the mentioned inputs (1,500) to shift profits to Country 2. Additionally, as also shown in [Table III](#), A benefits from the IP box tax reduction in Portugal (2,000 of exempted gross income)[10].

BEPS' recommendation of granting tax benefits to R&D *effectively carried out* by beneficiary entities is aimed at countering the harmful tax effects from transactions taking place between related parties. Tax authorities can use transfer pricing rules to fight profit shifting strategies. However, the application of such rules to intangibles that, most of times, have unique underlying traits or pricing models is not easy (Johnson, 2006; OECD, 2010). The issue of comparability, central to transfer pricing, is especially acute in intangibles. For tax auditors, the uniqueness of intangibles being traded and its impact on pricing strategies are intricate issues, and difficulties in auditing cost allocation keys within a multinational group are significant.

The Portuguese IP box, implemented in 2014, was not particularly competitive with other similar regimes existent in the EU. Moreover, the international standing of Portugal, in terms of innovative ability and the tax system, was not favourable. The regime was potentially prone to profit shifting strategies.

**Table III.**  
IP box and potential  
tax avoidance

Country and CIT rate	Firms	Input value to IP	Sale price of IP	Tax benefit in 2014 IP regime
Country 1 – Portugal – CIT rate 25%	A (Parent)	300	4000	50% *4000 = 2000 of exempted gross revenue
Country 2 – CIT rate 10%	B (Related party)	1500		
Country 3 – CIT rate 25%	C (Independent)	800		

It must be underlined that these conclusions are based on the hypothetical workings of the IP box as they follow from its legal design, and not and not from a substantial amount of data – unavailable in Portugal – on how firms used IP box[11].

In 2016, the regime was amended according to the “modified nexus approach”.

#### 4.2 BEPS and the new intellectual property box

Article 50-A of the CITC underwent substantial changes, taking effect after July 2016, to comply with the “modified nexus approach”. In the 2014 version, this article had five paragraphs, while the new one has nine.

In §6, it is established that income derived from IP contracts shall be considered as the net amount (i.e. the difference between revenues and expenses) earned by the taxable entity owning the IP rights to which the income is attributable. In comparison with the previous regime, where gross revenue was the basis for the IP tax benefit, a net income approach was now adopted.

The tax benefit is applied to the net gain, for each IP asset, that in a certain taxable period exceeds accumulated net losses on the same asset (§7). (An example, in [Table V](#), *infra*, illustrates this new rule).

In §8, it is stated that exempted income cannot exceed the amount resulting from the following formula:

$$DQ/DT \times RT \times 50\%$$

where:

DQ = Qualifying expenses incurred to develop the IP asset, which are expenses incurred by the taxable entity with R&D activities that it has performed, plus expenses from contracting R&D with any other entity *with which it is not* in a situation of special relations. This legal change seeks to eliminate the use of transfer pricing in avoidance schemes, as illustrated in [Table III](#);

DT = Total expenses incurred to develop the IP, including the ones emerging from related party transactions; and

RT = Net taxable income derived from the IP.

The total amount of DQ is increased by 30 per cent, with an upper limit of DT, as stated in §9. A transitional regime is applicable to IP already covered by the old regime, which shall be granted until 30 June 2021. IP box beneficiaries must keep accounting records allowing computation and control of income attributable to IP rights under the transitional (grandfathering) rule.

[Table IV](#) illustrates the application of the new IP rules to the example presented in [Table III](#), highlighting differences in the computation of tax benefits.

As seen in [Table IV](#), the tax benefit amounts to 3,874 of exempted income, which compares with an exempted amount of 2,000 in the previous regime. The new result is heavily dependent on the fact that company A has a marginal economic connection (nexus) with the IP development because expenses were mostly incurred by B and C.

As the largest part (57.69 per cent) of such expenses are transactions with a related party (B), a significant reduction of tax benefits follows from this arrangement. This is a key consequence of introducing the “nexus approach” to reduce tax avoidance linked to transfer pricing. Moreover, article 50-A, §7, will lead to the annual imputation of IP income as exemplified in [Table V](#). Suppose, an entity initiates the development of an IP project (IP1) in Year 1 and finishes it in Year 2. As shown in [Table V](#), only in Year 3, a positive net gain (and tax benefit) emerges, given the obligation, for each IP asset, to balance yearly revenues with previously losses.

This rule restricts the benefit in a considerable way. If the fiscal advantage, in the example of Table V, was calculated only by rules stated in §6 (the annual difference between revenues and expenses) then, in year 2, a tax benefit could be applied to a net income of 200 (500-300). However, as §7 mandates, the previous accumulated losses must be taken into consideration. Thus, only in Year 3, a net income (600-200) arises and a tax benefit applies under the new IP box. If DQ/DT equals 1, then 200 (400 \* 50 per cent) is exempted net income under the new IP box.

*4.3 Fighting avoidance and legal/accounting complexity: the new Portuguese intellectual property*

Did the IP box modification, enacted in 2016, improved its framework and reduced avoidance opportunities? A tax system that is equitable, neutral, simple to apply, internationally competitive in attracting investment and generating the necessary revenue to sustain public expenditure is not commonly found (Basto, 2004). The preference for a certain objective is usually in conflict with others (Slemrod and Bakija, 2008). The new IP box, aimed at a more neutral and anti-avoidance regime, did not escape some usual dilemmas of tax policy.

The revised IP regime significantly contributed to reduce avoidance opportunities, by disallowing related party transactions to influence the tax incentive. The BEPS' recommendations were followed, and a stricter tax regime emerged, curtailing profit shifting strategies linked to the previous IP box. At the same time, new sources of complexity emerged – as shown below – from the new legal design.

Country and CIT rate	Firms and location	Input value to IP	Sale price of IP	Tax benefit in 2014 IP regime
Country 1- Portugal – CIT ate 25%	A (Parent)	300	4000	DQ = (300 + 800) *1.3 = 1430 DT = 2600 RT = (4000 – 2600) = 1400 Tax benefit: (1430/2600) *1400 *0.5 = 387.4 of exempted taxable income
Country 2 – CIT rate 5%	B (Related party)	1500		
Country 3 – CIT rate 25%	C (Independent)	800		

**Table IV.**  
IP box after the 2016 amendments: an illustration of the formulaic approach

Year	Revenues attributable to IP 1	Expenses attributable to IP 1	Annual Net income IP1	IP1 attributable income to compute IP box incentive
1	0	400	-400	0
2	500	300	(200 – 400) = – 200	0
3	600	0	(600 – 200)	400

**Table V.**  
The computation of yearly net income in the new IP box

Shifting the basis of the tax benefit from gross revenue to net income raises the issue of expense allocation. Examples of complexity abound in this area. To name a few, the calculation of imputation keys applied to depreciation of equipment used in several R&D projects is a complex topic. The contribution of specialized human resources to distinct R&D assets is another difficult area, given managerial flexibility in defining expense allocation criteria.

From [Table V](#), it follows that the timing of expense recognition can have a significant impact in the tax benefit granted to each IP asset. By reducing expenses attributable to immediately profitable assets, a higher tax benefit can be obtained. That happens because no accumulated losses emerge, due to expenses' undervaluation.

The problem of transfer pricing, albeit greatly reduced, did not completely disappear. Given the formulaic approach to compute exempted income, and taking into consideration the example presented in [Table IV](#), transactions between A and B (related parties) still influence the variable "DT" – the total expenses incurred to develop an IP asset.

In the new setting, there is an incentive to undervalue related transactions between A and B, to increase the percentage of exempted income. In the same example, company A can dislocate highly specialized human resources from B to A, thereby increasing the proportion of IP development expenses attributable to A. Tax authorities can audit such possible arrangements, but complexity and litigation may follow.

Additionally, the grandfathering option may originate problems for firms and the tax authorities. Suppose a company is developing two similar IP assets, one that began in 2015 and the other in 2017. There is a temptation to impute expenses to the former IP because it will benefit from the previous (and more generous) tax treatment. Accounting imputation keys must be devised, open to a certain degree of manipulation; and creating potential conflicts with the tax authorities.

The new law mandates separate accounting by project. Even if IP development takes place in medium and big firms, management accounting systems may have difficulties to create a truly separate set of records for each IP project.

Finally, given the requirement (§7) of balancing yearly revenue from each IP asset with previously accumulated losses, accounting choices are inescapable. For example, how to allocate financing costs between projects? If a fixed asset used in R&D activity suffers an impairment charge, how to allocate this charge to several projects? To sum up, the anti-avoidance purpose of the new IP box comes with new sources of legal and accounting complexity, illustrating trade-offs that legislators can hardly escape.

A final issue is now addressed: was the Portuguese IP box highly used by firms in 2014 and 2015? The conceptual analysis developed in this paper does not argue for an extensive use. [Table VI](#) exhibits (sparse) publicly available data.

The negligible number of companies benefiting from the Portuguese IP box in 2014 and 2015 raises preliminary doubts about its impact. Two years is not a sufficient time span to fully evaluate the impact of the IP; but rules inserted in the modified (2016) version hardly point out for a future increase in the number of companies benefiting from the amended IP box.

Previous literature also questions the impact of tax incentives in R&D activity ([Weiner, 2009](#); [Merrill, 2016](#); [Herzfeld, 2017](#)). These incentives are probably adopted by countries not to be seen as falling back in the international tax competitiveness league.

At least in the Portuguese case, its practical impact is open to question. The new IP box has a legal framework that makes tax avoidance more difficult, fulfilling BEPS' main purpose. Nonetheless, an increasing level of complexity can be detected in the legal/accounting framework. Issues related to expense allocation, the fact that transfer pricing is not completely eliminated as a source of influencing the new formulaic approach, the grandfathering option and its impact on accounting choices, the separate accounting by

project and rules on annual computation of net gains from IP assets, may originate divergent views between companies and the tax authorities.

If subsequent tax data confirm a negligible use of the IP box in Portugal, a different solution (abandoning the whole regime, given the plethora of financial and tax incentives to investment already in place in Portugal) can be pondered.

### 5. International trends in intellectual property boxes

In the wake of the BEPS report several countries are changing their IP boxes to comply with standards agreed under Action 5. According to [Ernst and Young \(2016\)](#), Luxembourg approved amendments to its IP box to comply with the nexus approach. The country abolished its previous regime, taking effect as of 1 July 2016. The new IP box guarantees a five-year grandfathering period.

The Netherlands also intends to amend the IP box regime. The proposed amendments would take effect in 1 January 2017 and ensure that the Dutch regime is in line with the nexus approach.

Liechtenstein released a report on possible amendments to the current IP box, with a transitional period for the existing regime until the end of 2020. In Switzerland, the Parliament approved the mandatory introduction of a cantonal patent box, in line with the modified nexus approach.

The Hungarian Parliament changed the current IP box. Under the new rules, tax benefits will be available only to qualifying IP income. The UK modified its IP box to comply with the nexus approach. The changes apply from 1 July 2016, with a five year grandfathering period.

However, as noted by [Deloitte \(2017, p. 10\)](#), not all OECD members followed the IP box “modified nexus approach”. South Korea is mentioned as an example of a country still adhering to the previous regime.

The nexus approach was generally adopted by countries that modified IP boxes. It would be relevant to know how investment and tax data in these countries validate (or deny) the real impact of IP boxes in R&D activity[12].

The grandfathering option is generally included in revisions. The tax benefit applies to net income from intangible assets qualifying under the IP scope. Thus, complexities highlighted for the Portuguese case will probably emerge in other places.

### 6. Conclusion

Portugal was a relatively latecomer to the IP box. When, in 2014, it was set up many EU countries had more attractive IP regimes in place. The Portuguese regime was not competitive (in terms of tax rates and scope of qualifying assets and income). However, it could be used as a tax avoidance tool, mainly linked to transfer pricing strategies. Given the

**Table VI.**  
Portuguese firms  
benefiting from the  
IP box, in 2014  
and 2015

Variable	2014	2015
<i>1- IP box</i>		
Number of firms using IP box tax benefit	3	3
IP box deductions to taxable profit (M €)	0.25	2
<i>2- Total number of firms under the CIT</i>		
<i>Total deductions to taxable profit (M€)</i>	51.114	39.817

**Source:** Portuguese Tax Authority

purpose of the BEPS project, could Portugal have adopted an attitude of resisting the introduction of the modified nexus approach?

Sooner or later, the international trend of changing IP boxes, according to OECD recommendations, would trigger a revision of the Portuguese regime. The general purpose of reducing the avoidance potential induced by related party transactions, grandfathering of IP tax rights, having separate accounts for deferent IP developed under distinct tax regimes, would have found their way into the Portuguese tax rules. A significant catalyst for change was the EU Directive 2016/1164, establishing rules against tax avoidance strategies that have a direct impact on the functioning of the internal market, which Member States must adopt no later than 2019. This Directive strongly underlines the issue of granting tax benefits to “substantial” activity and restricting tax avoidance schemes related to profit shifting.

The conclusion regarding the new IP regime is that it significantly curtailed avoidance opportunities, but increased tax/accounting complexity in its practical application. If future tax data confirm a negligible use of IP box in Portugal, a more sensible solution (abandoning the whole regime, given the plethora of financial and tax incentives to investment already in place in Portugal) can be pondered.

This study has limitations. We did not present direct evidence, for an extensive period, of the IP box impact on investment in intangibles. When dealing with international experiences in amending IP regimes no detailed treatment of accounting and legal implications is explored. No survey was carried out to find reasons why the IP box had a negligible impact as a tax benefit in its initial years.

These limitations open avenues for future research, by surveying Portuguese firms on the design and effectiveness of IP boxes and using international tax data to compare the impact of IP boxes in EU with Portuguese case. Potential litigation related to the transitional regime and accounting intricacies in the computation of new IP box incentive are also worthwhile topics.

## Notes

1. See [Comissão para a Reforma do IRC \(2013\)](#).
2. Directive 2016/1164, 12 July 2016.
3. In the Portuguese case, these typical incentives could be the tax credits granted by SIFIDE.
4. A well-known case concerns a Portuguese multinational player in the food distribution sector. In the 1990s, the company planned a large investment in Poland to serve the emerging local consumer market. It set up an affiliate (A1) in Madeira Island (located in its franc zone) which exempted corporate income. The affiliate had no significant operating activity. The parent placed equity in A1. It also set up A2 (owned by A1), in Holland. A1 made loans to A2. Subsequently, A3 was set up in Poland to operate a supermarket chain. A2 made loans to A3, to financially support investments.

In 2000, 2001 and 2002, A3 paid A2 interest. Then, A2 paid interest to A1. Finally, A1 converted interest flows into dividends paid to the Portuguese parent, given the equity capital previously received by A1. Interest income was exempted in Madeira Island, and the Parent –Subsidiary Directive also exempted dividends received by the Parent.

The crux of this operation – in tax planning terms – was to use A1, located in a low tax territory, to transform interest (that would be taxed in the parent) into dividends (that would be tax exempted). The Portuguese tax authorities audited the firm, applying the General Anti-abuse Clause, taxing dividends received by the parent as if they were interest. In case 4255/2010, the appeals court found for the Tax Authorities, ruling that the operation had as its sole, or main, purpose to avoid taxes.

5. Brown (2012), while comparing IP boxes in UK, Holland, Belgium and Luxemburg, focuses on tax rates, the scope of IP assets covered and income subjected to IP preferential treatment. The quantification of the tax incentive is mentioned as complex issue for some countries.
6. The external assistance program lasted from 2011 to 2014.
7. Law n.º 49/2013, 16 July.
8. A state surcharge ranging from 3 to 7 per cent applied to taxable profits over 1.5m euro. An additional local surcharge of 1.5 per cent also applied. The maximum rate could thus be 21% + 7 + 1.5% = 29.5%.
9. The Portuguese rate follows from considering that the maximum “all in” rate was 29.5 per cent and half of revenue was taxed.
10. An advantage of the regime was the simple rule for calculating the tax benefit.
11. Very preliminary (and sparse) data are presented on Table VII, and shows a negligible use of the IP regime.
12. Unfortunately, we do not have these inputs.

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