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## **Patent Boxes: A Brief History, Recent Developments, and Necessary Considerations**

Preferential tax treatment of research and development (R&D) is nothing new in the United States. In fact, some form of tax incentive supporting R&D has been in the U.S. Code for over six decades. These U.S. policies have included “front-end” tax incentives such as an immediate deduction of R&D expenses and an R&D tax credit, which are applied when a firm invests in research and development.

The past 15 years, however, have seen growth of “back-end” tax incentives in countries around the world, especially in Europe. As opposed to front-end incentives that allow R&D credits or deductions when the expense is incurred, these incentives tax the income derived from the development of intellectual property (IP) at rates much lower than the country’s corporate tax rate.

Tax systems that treat IP income preferentially in this way are referred to as “patent boxes” (a.k.a. innovation, license, or knowledge boxes, which indicate a broader class of IP than patents). Their proliferation among the tax codes of America’s competitors has brought the debate to Washington. In fact, members of Congress have already begun to explore, in a bipartisan fashion, how such a regime would work in the United States.

### **U.S. innovation incentives**

Prior to 1954, some research and development expenses were fully deductible in the year of the expense, others had to be amortized and deducted over a number of years, while others were not recoverable until the research project was abandoned.<sup>1</sup> The 1954 Internal Revenue Act created section 174, which allows businesses to fully deduct all R&D expenses in the year they were incurred.

One of the better-known incentives, known informally as the R&D tax credit and more formally as the research and experimentation (R&E) credit, first appeared in the United States in 1981

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<sup>1</sup> Rashkin, Michael D., “Practical Guide to Research and Development Tax Incentives: Federal, State, and Foreign.” 2006, p. 301.

when President Reagan signed the Economic Recovery Tax Act into law.<sup>2</sup> The R&E credit is intended to reward incremental increases in research investment in the United States.

Economists are quick to point out that the creation of IP in the United States generally leads to innovators developing and expanding their businesses domestically rather than headquartering in another country solely for tax reasons. Put simply, the more innovation-driving entrepreneurs in one economy, the better. These persons and the companies they create are part of an integral process known as “creative destruction”—the abrupt disruption of an industry, typically creating positive externalities and making the economic pie bigger for everyone.

While R&D expensing has long been a fixture in the tax code, only recently did the R&D tax credit become permanent. Until December of 2015, it was one of many “tax extenders,” a set of federal tax provisions that generally expire every one or two years and are sometimes renewed retroactively after their expiration.<sup>3</sup> However, the R&E credit finally gained permanent status when the Protecting Americans from Tax Hikes (PATH) Act was signed into law late last year.

The passage of the PATH Act ended years of arguments that cited the R&E credit as a prime example of a tax extender that should be permanent. The main policy reasons for this support were threefold: 1) frequent, short-term renewal of the credit increases uncertainty for businesses that rely on long investment horizons; 2) creating an innovation-friendly economic environment is key to keeping the most successful entrepreneurs and high-quality research jobs in the United States; and 3) the R&E credit cannot encourage increased research expenditures when it is extended late in the year (or even after the year has ended)—after investment decisions have already been made.

### **How different countries provide incentives for innovation through the tax code**

As of 2015, at least 43 major countries boasted tax systems with specific research and development incentives, including both front-end and back-end designs.<sup>4</sup>

In addition to tax credits for research, which many countries offer, another front-end incentive provided by many countries is known as a “super deduction.” Normally, tax deductions are allowed for no more than the expense incurred—that is, if you spend \$1 on qualified expenses, you can deduct \$1 from your taxable income. Super deductions magnify—dramatically in some cases—this generosity by allowing taxpayers to deduct *more than* the \$1 spent on qualifying expenses (sometimes up to a predetermined limit). In China, for example, a firm may deduct

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<sup>2</sup> Assembly Revenue and Taxation Committee and Senate Revenue and Taxation Committee, “The Federal Economic Recovery Tax Act of 1981,” *California Joint Committees*, Paper 118: [http://digitalcommons.law.ggu.edu/caldocs\\_joint\\_committees/118](http://digitalcommons.law.ggu.edu/caldocs_joint_committees/118).

<sup>3</sup> Akabas, Shai and Brian Collins, “What is the Research and Experimentation Tax Credit?” Bipartisan Policy Center, April 24, 2014: <http://bipartisanpolicy.org/blog/what-research-and-experimentation-tax-credit/>.

<sup>4</sup> Ernst & Young, “Summary of Available R&D Incentives,” [http://www.ey.com/Publication/vwLUAssets/EY-worldwide-randd-incentives-reference-guide/\\$FILE/EY-worldwide-randd-incentives-reference-guide.pdf](http://www.ey.com/Publication/vwLUAssets/EY-worldwide-randd-incentives-reference-guide/$FILE/EY-worldwide-randd-incentives-reference-guide.pdf).

150 percent of qualifying R&D expenses from its income before determining its corporate income tax liability.<sup>5</sup> In addition, Latvia recently doubled its super deduction from 150 percent to 300 percent.<sup>6</sup>

Though the idea of a patent box is relatively new to most U.S. lawmakers, the corporate world has been watching patent box regimes for quite some time.<sup>7</sup> In fact, it has been 15 years since the first modern patent box regime was instituted by France in 2001. Other countries followed suit: Hungary in 2003, the Netherlands and Belgium in 2007, Spain and Luxembourg in 2008, Malta in 2010, and the United Kingdom in 2013.<sup>8</sup> Notably, Malta adopted a rate as low as 0 percent.<sup>9</sup>

Of concern to lawmakers, the United Kingdom has begun actively courting U.S. companies with its 10 percent patent box rate.<sup>10</sup> Other European rates range between 5 percent and 15.5 percent. Italy has implemented one of the latest regimes, which will eventually lead to a 13.75 percent effective tax rate on qualified intangible income.<sup>11</sup> In addition, Ireland—with an already low corporate tax rate of 12.5 percent—has announced it will adopt a “knowledge box” with a 6.25 percent rate.<sup>12</sup> Effective tax rates for IP-related income in these systems represent fractions of the average corporate income tax rate (roughly 25 percent) of America’s competitors in the Organization for Economic Cooperation and Development (OECD), not to mention America’s 35 percent corporate tax rate, which is the highest in the developed world.

## Design differences of other countries

Countries with a patent box impose different effective tax rates on IP income, often using a deduction or exemption to achieve the lower rate. In addition, many of these countries have

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<sup>5</sup> PricewaterhouseCoopers China Research & Development Tax Services, “An Opportunity for Tax Savings,” 2015: [http://www.pwccn.com/webmedia/doc/635609875925358816\\_prctax\\_corp\\_research\\_develop.pdf](http://www.pwccn.com/webmedia/doc/635609875925358816_prctax_corp_research_develop.pdf).

<sup>6</sup> Deloitte, “2015 Global Survey of R&D Tax Incentives”, December 2015: <http://www2.deloitte.com/content/dam/Deloitte/us/Documents/Tax/us-tax-2015-global-survey-of-rd-tax-incentives-102015.pdf>

<sup>7</sup> Alexion Pharmaceuticals, Allergan, Biogen Idec, and Onyx Pharmaceuticals, “Letter to the Honorable David Nunes and the Honorable Earl Blumenauer,” April 15, 2013.

<sup>8</sup> Directorate for Science, Technology and Innovation, “The new R&D tax credit and patent box proposed in the Legge di Stabilità 2015,” Organization for Economic Cooperation and Development, March 2015: <http://www.oecd.org/sti/New%20RD%20Tax%20Credit%20and%20Patent%20Box%20-%20Legge%20di%20Stabilit%C3%A0%202015.pdf>.

<sup>9</sup> Grant Thornton, “Malta Launches Patents Exemption,” *Malta tax bulletin*, August 2011: <http://www.grantthornton.com.mt/files/2011%20Malta%20-%20patents%20exemption.pdf>.

<sup>10</sup> Lynn, Matthew, “We need to capitalize on America’s overly hostile business environment,” *The Telegraph*, March 1, 2016: <http://www.telegraph.co.uk/business/2016/02/29/we-need-to-capitalise-on-americas-overly-hostile-business-enviro/>.

<sup>11</sup> EY Global Tax Alert, “Italy Issues Implementing Decree on Patent Box Regime,” August 10, 2015: <http://www.ey.com/GL/en/Services/Tax/International-Tax/Alert--Italy-issues-implementing-decree-on-Patent-Box-regime>.

<sup>12</sup> Deloitte, “Budget Announcement on Double Irish Structure,” Ireland Tax Alert, October 14, 2014: <http://www2.deloitte.com/content/dam/Deloitte/global/Documents/Tax/dttl-tax-alert-ireland-101414.pdf>.

either a research and development tax incentive similar to those of the United States, a super deduction, or both, in addition to the back-end patent box incentive. Countries with all three include Belgium, Malta, Hungary, the Netherlands, Turkey, and the United Kingdom (see appendix table 1). Most of these countries have implemented a patent box regime fairly recently, so while they may have seemingly overlapping incentives, the phenomenon is sometimes due to the phase-out period of previous R&D tax policies.

Regimes also differ in the scope of IP that qualifies for the benefit. Beyond patents, countries may have narrow or broad categories of qualifying IP, including copyrights, trademarks, trade secrets, secret formulas or processes, know-how, and other forms of innovation. In addition, some countries apply the lower rate to gross IP income and others use net income. Others differ on the breadth of items that qualify as “R&D costs” for purposes of determining either front- or back-end incentives (see appendix table 2).

A wide variety of restrictions determine whether and to what extent a company may take advantage of any given patent box system.<sup>13</sup> Bulgaria, China, the Czech Republic, and Israel simply reduce the corporate tax rate of firms that obtain the status of being an R&D or high-technology firm, essentially eliminating the burden on those companies to follow the usual, formulaic approach that other firms must take in order to qualify for a special IP incentive.<sup>14</sup>

Some countries (like Malta with its 0 percent rate) do not require that any underlying R&D activities take place within their borders. Other regimes, however, require some form of nexus, meaning that in order to take the tax break, the research and development or manufacturing that gave rise to the IP must be completed in whole or in part within the host country.

While nexus requirements differ, an action plan outlined by the OECD may force a more unified approach. Under model rules set forth by the OECD’s Base Erosion and Profit Shifting (BEPS) project, “[c]ountries choosing to have IP regimes will need to bring the applicable rules in line with the Modified Nexus Approach...no later than 30 June 2016.”<sup>15</sup> This is causing some concern among U.S. lawmakers who fear that profitable R&D and manufacturing activities will soon flee to jurisdictions with patent boxes.

### **Domestic support for creating a patent box**

Although patent box legislation was introduced in 2012,<sup>16</sup> only recently has the issue received more attention on the Hill. In May 2015, the concept gained bipartisan support from Senators

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<sup>14</sup> European Commission, “A Study on R&D Tax Incentives, Final Report,” *Taxation Papers*, working paper no. 52 – 2014, November 28, 2014.

<sup>15</sup>The Organization for Economic Cooperation and Development, “Action 5: Agreement on Modified Nexus Approach for IP Regimes,” OECD/G20 Base Erosion and Profit Shifting Project, 2015: <http://www.oecd.org/ctp/beps-action-5-agreement-on-modified-nexus-approach-for-ip-regimes.pdf>.

<sup>16</sup> Reps. Allyson Schwartz and Charles Boustany, H.R. 6353, “Manufacturing American Innovation Act of 2012,”: <https://www.congress.gov/bill/112th-congress/house-bill/6353/all-info?resultIndex=2>

Rob Portman (R-OH) and Chuck Schumer (D-NY), the co-chairs of a U.S. Senate Finance Committee working group responsible for examining international tax reform.<sup>17</sup> The senators released an international reform framework in which they urged adoption of an innovation box to prevent other countries from attracting highly mobile income from IP. They mentioned continued work “to determine appropriate eligibility criteria for covered IP, a nexus standard that incentivizes U.S. research, manufacturing, and production, as well as a mechanism for the domestication of currently offshore IP.”<sup>18</sup>

In the House of Representatives, Ways and Means Committee members Charles Boustany (R-LA) and Richard Neal (D-MA) introduced an innovation box discussion draft in July 2015 to “start the conversation.”<sup>19</sup> The draft outlines a plan that would tax domestic IP profits at a 10 percent rate through a 71 percent deduction, while allowing companies to repatriate IP from foreign subsidiaries on a tax-free basis. The draft defines qualified IP broadly and introduces a nexus requirement to ensure the IP is connected to research conducted in the United States. The rule restricts qualifying IP profits to a firm’s total IP profits multiplied by the company’s ratio of U.S. research and development costs to its total costs (see box below).

Under this structure, the greatest tax benefit would go to companies with high IP profits, high domestic R&D costs, and relatively low total costs.

- IP profit that qualifies for the innovation box is a function of the company’s U.S.-based R&D.
- R&D ratio = 
$$\frac{\text{U.S. R\&D costs (5 years)}}{\text{Total Costs (5 years)}}$$
- Excluded from Total Costs:
  - Cost of Goods Sold
  - Interest, taxes, capital losses
- IP profit X R&D ratio = Innovation box profit

Source: Staff of Reps. Boustany and Neal

Since the innovation tax benefit would not be available to individuals, only C corporations could qualify for the benefit, not passthrough businesses that pay taxes at the individual level. If the eventual offset selected for the plan affects a tax preference used by both passthroughs and C corporations, such as R&D expensing, this could cause concern among passthrough businesses, which would get no benefit in exchange for the loss of another tax break. However, discussion drafts are generally used to generate feedback so that final proposals can address concerns that are raised.

<sup>17</sup> McKinnon, John D., “Lawmakers Embrace Patent Tax Breaks,” *The Wall Street Journal*, May 5, 2015: <http://www.wsj.com/articles/lawmakers-embrace-patent-tax-breaks-1430850214?cb=logged0.8936193139533082>.

<sup>18</sup> Senators Portman and Schumer, “Bipartisan Framework for International Tax Reform,” May 2015: [http://www.portman.senate.gov/public/index.cfm/files/serve?File\\_id=146abc53-1763-4a0a-93ee-3d4eecf2a61c](http://www.portman.senate.gov/public/index.cfm/files/serve?File_id=146abc53-1763-4a0a-93ee-3d4eecf2a61c)

<sup>19</sup> Rep. Charles W. Boustany, Jr., “Boustany & Neal Release Innovation Box Discussion Draft,” Press Releases, July 29, 2015: <http://boustany.house.gov/114th-congress/boustany-neal-release-innovation-box-discussion-draft/>.

## Arguments of Proponents and Critics

To be fair, the rapid establishment of patent box regimes does not necessarily mean that patent boxes are ideal tax policy. Arguments in favor of a U.S. patent box include:

- America already has the highest corporate rate in the developed world, and IP income is highly mobile. While the lower overall corporate tax rates of our competitors already provide incentives to shift income overseas, the even greater rate differential in patent box regimes provides an additional incentive for companies to move valuable IP income to other jurisdictions.<sup>20</sup>
- The BEPS project's focus on nexus ensures that, unless the United States acts, companies will have incentives to not only shift IP income overseas, but also the underlying research investments and related technology and manufacturing jobs.<sup>21</sup>
- A patent box would provide an incentive for both U.S. and foreign companies to locate their intangible assets in the United States.
- Back-end incentives reward successful outcomes rather than high front-end costs.
- R&D creates broader "spillover" effects that benefit society, justifying a special incentive.<sup>22</sup>

Common criticisms include:

- By encouraging relocations for tax purposes, countries may face substantial reductions in tax revenue.<sup>23</sup>
- The revenue used to create a patent box might be better directed toward lowering general tax rates to benefit all businesses rather than a select group of businesses engaged in a particular activity.<sup>24</sup>

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<sup>20</sup> PricewaterhouseCoopers, "Is it Time for the United States to Consider the Patent Box?" *Tax Notes*, March 26, 2012: <http://www.pwc.com/us/en/washington-national-tax/assets/merrill0326.pdf>.

<sup>21</sup> Senators Portman and Schumer, "Bipartisan Framework for International Tax Reform," May 2015: [http://www.portman.senate.gov/public/index.cfm/files/serve?File\\_id=146abc53-1763-4a0a-93ee-3d4eef2a61c](http://www.portman.senate.gov/public/index.cfm/files/serve?File_id=146abc53-1763-4a0a-93ee-3d4eef2a61c)

<sup>22</sup> Jaffe, Adam B. and National Bureau of Economic Research, "Economic Analysis of Research Spillovers: Implications for the Advanced Technology Program," 1996, <http://www.atp.nist.gov/eao/gcr708.htm>.

<sup>23</sup> Griffith, Rachel, Helen Miller, and Martin O'Connell, "Ownership of intellectual property and corporate taxation," *Journal of Public Economics*, 112 (2014), pp.12-23: <http://www.sciencedirect.com/science/article/pii/S0047272714000103>.

<sup>24</sup> Dubay, Curtis, "An Innovation Box for the U.S.? Congress Should Focus on Business Tax Reform Instead," Heritage Foundation, August 18, 2015: <http://www.heritage.org/research/reports/2015/08/an-innovation-box-for-the-us-congress-should-focus-on-business-tax-reform-instead>.

- The most successful IP-driven companies already benefit from the R&E tax credit when developing their soon-to-be patented products.<sup>25</sup>
- Tracking income to the corresponding R&D expenses would be difficult and complex, potentially leading to aggressive tax planning and more controversies with IRS auditors.<sup>26</sup>
- While the effectiveness of front-end tax incentives has been studied extensively, research on the effectiveness of patent box regimes is limited.<sup>27</sup>

## Conclusion

The preferential tax treatment of both R&D expenses as well as IP income is common throughout the developed world and beyond. Whether it be the U.S. R&E credit, Chinese R&D super deduction, or any of the many patent box regimes, countries seem to be intent on fostering innovation and keeping the resulting IP—as well as the income derived from it—within their borders. What is less clear is what the ideal design of these policies—especially a patent box—would look like for the United States. Looking to other countries for ideas is useful for benchmarking and considering competitive pressures. However, legislators have a wide range of policy and economic implications to consider before choosing whether and how to implement a patent box.

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<sup>25</sup> Thornton, Alexandra, “Patent Tax Dodge: Why the Patent Box Does Not Answer America’s Need for Tax Reform,” Center for American Progress, June 1, 2015: <https://www.americanprogress.org/issues/economy/news/2015/06/01/114088/patent-tax-dodge-why-the-patent-box-does-not-answer-americas-need-for-tax-reform/>.

<sup>26</sup> Sullivan, Martin, “An Innovation Box Tax Break: Good Intentions Gone Bad,” June 9, 2015: <http://www.forbes.com/sites/taxanalysts/2015/06/09/patent-box-tax-break-good-intentions-gone-bad/>.

<sup>27</sup> Quantria Strategies, “Patent Boxes, Technological Innovation, and Implications for corporate tax reform,” American Action Forum, August 24, 2015: <http://americanactionforum.org/research/patent-boxes-technological-innovation-and-implications-for-corporate>.

## Appendix

Table 1 – R&D Tax Incentives by Country

Country	R&D Credit	R&D Super Deduction	Patent or Innovation Box
Australia	X		
Austria	X		
Belgium	X	X	X
Brazil		X	
Canada	X		
China		X	
Czech Republic		X	
Denmark	X		
France	X		X
Hungary	X	X	X
India		X	
Ireland	X		
Italy	X		X
Japan	X		
Korea	X		
Liechtenstein			X
Lithuania		X	
Luxembourg			X
Malta	X	X	X
Netherlands	X	X	X
Poland		X	
Portugal	X		
Romania		X	
Russia		X	
Singapore		X	
Slovak Republic	X		
South Africa		X	
Spain	X		X
Switzerland			X
Turkey	X	X	X
United Kingdom	X	X	X
United States	X		

Source: PricewaterhouseCoopers, 2015



Table 2 – What Different Countries Include in R&D Costs

Country <sup>a</sup>	Buildings	Machinery equipment	Wages	Overhead	R&D services	Consumables	Depreciation	Outsourced services	Prototypes
Austria	x	x	x	x					
Belgium	x	x	x				x		
Bulgaria	x	x							
Canada		x	x	x					
Croatia	x	x	x	x			x		
Cyprus									
Czech Republic			x				x		
Denmark		x	x		x	x			
Finland	x	x	x						
France			x		x	x	x		x
Greece									
Hungary			x		x	x	x	x	
Ireland	x	x	x	x	x	x	x	x	
Israel	x	x							
Italy		x	x						
Japan	x		x	x			x		
Latvia			x	x				x	
Lithuania			x	x					
Luxembourg									
Malta	x	x	x					x	
Netherlands	x	x	x	x		x			
Norway		x	x		x	x		x	
Poland	x	x	x						
Portugal		x	x		x	x			
Romania			x	x			x		
Slovak Republic									
Slovenia		x			x				
Spain		x	x		x	x			
Sweden			x						
United Kingdom	x	x	x		x	x		x	
United States			x		x	x			

Source: European Commission, 2014