



PRISMA 2020 Checklist

Section and Topic	Item #	Checklist item	Location where item is reported
TITLE			
Title	1	<p>Identify the report as a systematic review.</p> <p>Title line 1: What's happening with the Patent Box regimes? A systematic review.</p> <p>Introduction line 57: aims to execute a systematic review of the Patent Box being a novel tool to encourage R&D activities</p> <p>Conclusion line 383: a comprehensive systematic review of the Patent Box based on the PRISMA scheme</p>	<p>1. Title line 1, 2. Introduction line 57, 3. Conclusion line 390</p>
ABSTRACT			
Abstract	2	<p>See the PRISMA 2020 for Abstracts checklist.</p> <p>Abstract line 15: The authors developed a comprehensive systematic review of the PRISMA scheme.</p> <p>Keywords line 22: Patent Box; enterprises; PRISMA; innovation; taxes, bibliometrix R-package</p> <p>Methodology line 117: adopted the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) statement</p> <p>Line 131: According to the PRISMA scheme</p> <p>Line 143: Figure 1. PRISMA flow diagram about Patent Box systematic review and meta-analysis.</p> <p>Line 155: After the PRISMA scheme, the documents selected</p> <p>Discussion line 341: documents through the PRISMA method to comply</p> <p>Conclusion line 384: review of the Patent Box based on the PRISMA scheme</p>	<p>1. Abstract line 15, 2. Keyword line 22, 3. Methodology lines 117, 131, 143, 155 4. Discussion line 348 5. Conclusion line 391</p>
INTRODUCTION			
Rationale	3	<p>Describe the rationale for the review in the context of existing knowledge.</p> <p>Introduction lines 41 – 47: There are reviews, in the academic literature, about the effects of fiscal incentives on innovation activities that gather empirical evidence and discuss methodological issues, economic effects, and different levels of scope (firm, industry, or country) [6,7]. Similarly, recent meta-analyses contribute to the research with specific studies of certain characteristics of tax incentives, such as direct or indirect government support and tax schemes to explain the heterogeneity in the empirical evidence developed so far. [8–10]. However, this kind of work related to the Patent Box does not exist.</p>	<p>1. Introduction lines 41 – 47</p>
Objectives	4	<p>Provide an explicit statement of the objective(s) or question(s) the review addresses.</p> <p>Introduction lines 62 – 67: For this purpose, this document does a comprehensive systematic review of the Patent Box based on the PRISMA scheme [18]. First, it describes the main characteristics of the scientific production developed in the last ten years using the R tool for bibliometric analysis called "Bibliometrix." It is followed by a detailed analysis of the Patent Box's research development, ending with the data collection and analysis of the characteristics of the Patent Box scheme applied among countries.</p>	<p>1. Introduction lines 62 – 67</p>
METHODS			
Eligibility criteria	5	<p>Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.</p> <p>Methodology lines 131 – 138: 552 potential documents were identified with PATENT BOX keywords from the SCOPUS database. Two hundred thirty-two records were removed after filtering by the pe-riod of analysis selected. Two hundred forty-five records were eliminated due to their subject, only Economics, Accounting, and Social Science were included. In the remain-ing sample, 44 articles were dropped for not being related to Patent Box, and a small group of 5 documents was removed by accessibility; the files were not found on the web. At the end of the process, 26 studies were selected for review and analysis.</p>	<p>1. Methodology lines 131 – 138</p>
Information sources	6	<p>Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.</p> <p>Methodology lines 118 – 120: A systematic search was conducted on Scopus Database to find studies about Patent Box Regimes. The last literature search was on July 31st, 2022, with the keywords PATENT BOX (PB).</p> <p>Conclusion 394: analysis of the documents published in Scopus since 2010.</p>	<p>1. Methodology lines 118 – 120 2. Conclusion line 401</p>



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Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	N/A
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process. Methodology lines 116 – 117: This research has adopted the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) statement [18]	1. Methodology lines 116 – 117
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process. Methodology lines 161 – 164: In the case of the current Patent Box regimes around the world, information was obtained from leading international tax and policy organizations such as the Organization for Economic Co-operation and Development (OECD) and Pricewaterhouse-Coopers (PWC), Ernest and Young (EY), and Tax Foundation.	1. Methodology lines 168 – 171
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect. Methodology line 152: 26 studies were selected for review and analysis.	1. Methodology line 137
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information. Methodology lines 156 – 159: Information about the author, year of publication, title, type of analysis (quantitative or qualitative), main outcomes, research objective, methodologies used, and countries analyzed were listed to show the main similarities and differences between the evidence developed.	1. Methodology lines 156 – 159
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	N/A
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	N/A
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)). Methodology lines 155 – 156: After the PRISMA scheme, the documents selected were analyzed in detail to extract the related contribution to the Patent Box from each one.	1. Methodology lines 155 – 156
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	N/A
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses. Methodology lines 161 – 166: A bibliometric analysis was conducted using the R-package called "Bibliometrix" [33], designed to perform a comprehensive science mapping analysis. This tool allows a quantitative analysis of the variables related to scientific production as author, year, country of publication, and sources. Furthermore, analysis of the bibliographic characteristics, document types, and authors were performed using this tool for the scientific production per year and country.	1. Methodology lines 161 – 166
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	N/A



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	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	N/A
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	N/A
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	N/A
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	N/A
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram. Results lines 143: Figure 1. PRISMA flow diagram about Patent Box systematic review and meta-analysis.	1. Methodology lines 143
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded.	NA
Study characteristics	17	Cite each included study and present its characteristics. Results lines 218: Table 2. Review of papers, methods, and findings	1. Results line 218
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	NA
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots. Results lines 218: Table 2. Review of papers, methods, and findings	1. Results line 218
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	NA
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	N/A
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	N/A
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	N/A
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	N/A
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	N/A
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence. Conclusion lines 392– 394: , the papers analyzed showed that the Patent Box is a tax incentive with mixed effects – like other tax incentives – but with the particular fact that the OECD recommended avoiding harmful practices and tax competition.	1. Conclusion lines 392 – 394
	23b	Discuss any limitations of the evidence included in the review. Conclusion lines 402 – 404: A limitation of this review is the lack of enough empirical data to develop a me-ta-analysis and a deeper	1. Conclusion lines 402 – 404



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		empirical study of the academic literature. In this sense, the Patent Box policy is still being implemented in other countries.	
	23c	Discuss any limitations of the review processes used.	NA
	23d	Discuss implications of the results for practice, policy, and future research. Conclusion lines 413 – 416: This work can guide the future research agenda on a tax incentive for R&D and an update on the Patent Box case. Also, findings in the main research themes of patent activity, location choices, and company/country performance give special attention to the nexus approach scheme and its influence on this relationship with the Patent Box.	1. Conclusion lines 413 – 416
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	N/A
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	N/A
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	N/A
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review. Funding line 424: This research received no external funding.	1. Funding line 424
Competing interests	26	Declare any competing interests of review authors. Conflicts of Interest line 426: The authors declare no conflicts of interest.	1. Conflicts of Interest line 426
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	NA

From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71. doi: 10.1136/bmj.n71
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