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What Is Behind Open Data Country Scores? A Comparative Study of Five International Benchmarks

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Abstract: This paper aims to understand how the current international open data benchmarks are created and whether their methodologies are susceptible to bias. The publication of open data is claimed to be one of the most important indicators of government-citizen collaboration. Nonetheless, there are disparities in the advancement of open data around the world. Although many developed countries receive high scores on it, no consistent leaders emerge throughout global assessments. This article compares the existing benchmarks via the lens of sociology of quantification. A comparative analysis of the official reports is conducted to validate country scores and to provide qualitative insights into the methodologies used to obtain these numbers. As a result, I demonstrate that the current measurement tools continue generating inconsistent results because of their methodological issues. The study's conclusion offers suggestions for improving the benchmarking of open data development, particularly by assessing how this data impacts local communities.

Keywords: Open data, benchmark, country score, methodology, sociology of quantification.

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1. Introduction

The development of open data has gained international attention in recent years. Publishing such data serves as one of the key indicators of how democratic governments collaborate with their constituents (Attard et al., 2015, p. 400). As of 2025, 74 nations and 150 local governments participate in the Open Government Partnership (OGP), a global initiative that aims "to promote transparent, participatory, inclusive and accountable governance" (Open Government Partnership, 2025). One of OGP's main pillars is ensuring that citizens have access to government data, upon which more sophisticated participatory processes can be constructed (Fraundorfer, 2017, p. 614). At the same time, researchers highlight that governments may use OGP's participation to distract attention from the lack of transparency and accountability to their citizens (Fraundorfer, 2017, p. 623). Also, there are global disparities in the advancement of open data (Wessels et al., 2017, p. 54). While its benefits, particularly well-informed citizens and increased citizen engagement on public issues, are recognised, it is mentioned that the varying progress on it might consolidate or exacerbate the existing inequalities (Wessels et al., 2017, p. 54). In light of these challenges, a number of international benchmarks are published to measure the advancement of open data and to provide policy recommendations.

The relevance of comparing different benchmarking instruments is emphasised in the literature. Scholars categorise open data indices by their conceptual similarities and differences (Kawashita, Baptista & Soares, 2020), their thematic focus (Zheng et al., 2020), as well as the frequency of their use for research purposes (Lnenicka, Luterek & Nikiforova, 2022). While a thorough classification of open data indices is presented in the mentioned papers, the consistency of measurement results across different rankings remains understudied. Another key issue is that the available research lacks the application of rigorous theoretical frameworks to explain how open data development is quantified. One groundbreaking study attempts to compare the results of six global ratings that exist since 2020. The authors discovered that mostly developed countries score high on open data (Zuiderwijk, Pirannejad & Susha, 2021, p. 12), which raises the question of which underlying concepts are measured. Even among the developed nations, no consistent leaders are identified across the selected assessments. Only one country, Canada, is present in all top-10 lists[i] of the six analyzed reports (Zuiderwijk, Pirannejad & Susha, 2021, p. 12). As of 2025, five global open data benchmarks remain, and such variety suggests that these instruments may continue measuring different latent concepts. This paper aims to understand better, how the current international open data benchmarks are created, by comparing both country results and the ways they are obtained via the lens of the sociology of quantification. A related research question is whether, and to what extent particular aspects of the indices' methodologies are susceptible to bias.

This article's theoretical framework is focused on studying how numbers are produced and expressed in relation to various social activities (DiazBone & Didier, 2016, p. 8). Recent studies highlight the political aspect of this process: "maximizing quantitative objectives to be achieved through definition, implementation and supervision of policies" (Salais, 2022, p. 379). The critique of composing aggregate numbers for countries is at the core of this approach (Mennicken & Espeland, 2019, p. 232). In this paper, I use the sociology of quantification to examine the five open data reports that are available as of 2025. With the help of the selected theoretical lens, I look at both how the nation

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scores are presented and how they correlate with each other, which helps verify the benchmarks' results. Another essential facet of this theory is scrutinising global performance indicators as the instruments that promote an oversimplified view of the complicated development issues (Ringel, 2023, p. 190). In this article, the key concepts of 'commensuration', 'visualisation', and 'serialisation', created for the purposes of analysing such instruments (Ringel, 2023, pp. 192-193), are applied to the country scores on open data development. To provide a better understanding of these numbers, I look at the organisations that uphold the international benchmarks and the methodologies used by these entities for obtaining national scores. The chosen emphasis allows the revelation of how the existing open data indices are produced. As a result, this study integrates the quantitative and qualitative findings to explain how the development of open data is measured.

The first section, recapitulates the political and academic discussion about open data and its benchmarking. Also, the significance of the issue of quantifying open data development is explained. The evolvement of international ratings is summarised, with particular attention to those that are included into this study. The second section, overviews the selected theoretical approach for analysing open data assessments. The author outlines the main premises of the chosen theory, which is the sociology of quantification. In this part, its key concepts, applied for the research problem at hand, are presented. The third section, covers important methodological considerations for data collection and analysis. The discussion centres on how to scrutinise the current open data benchmarks via a comparative study. Also, the mixed-methods approach's logic of analysis is laid out. In the fourth section, the author presents both quantitative and qualitative findings about the studied indices. The first subsection is focused on comparing country scores for the rankings under scrutiny. The second subsection, provides insights into how these scores are obtained. In the final section, meta-inferences based on the qualitative and quantitative findings are presented, for instance, how to explain inconsistent measurement results. The conclusion includes more general reflections on why the measurement of open data development is problematic and how to improve it, such as studying the use of open data by local communities in depth.

2. Open Data Development and International Benchmarks

The term 'open data' refers to machine readable public sector datasets (Clarke and Frankoli, 2014, p. 256) that can be freely used, modified, and shared by anyone for any purpose (Vetrò et al, 2016, p. 325). According to this conceptualisation, such data can be processed with the help of automated technical tools and is published without paywalls or proprietary licenses. Even though the term primarily means 'data created, collected, held or commissioned by government or government-controlled entities,' it may include data that is produced when public services are outsourced to non-governmental organizations (United Nations Department of Economic and Social Affairs, 2024, p. 1). Researchers list three primary reasons why governments should publish their information: improving citizen control and participation, developing new business services and innovations, and strengthening law enforcement (Huijboom and Van den Broek, 2011, p. 7). More important beneficiaries are academic institutions and scholars, since they need such data for research purposes (Shaharudin et al., 2023, p. 2). The aforementioned actors are frequently referred to as the 'open data

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ecosystem' (Zuiderwijk et al., 2014, p. 22), which highlights their interdependence and suggests that non-governmental entities may also provide open datasets.

Since 2011, when OGP was launched and open data became part of the international agenda, open government data has been institutionalised through a number of global platforms. According to the United Nations (UN) guidance on effective governance for sustainable development, open data is mentioned under the fifth principle of transparency and contributes to achieving accountability of institutions (United Nations Department of Economic and Social Affairs, 2024, p. 1). As can be seen, the focus of the UN is on the transparency and accountability of governments to their citizens, as being one of the main benefits of disclosing data. Another key initiative is the Open Data Charter (ODC), a specific collaboration mechanism introduced under OGP in 2015 that advocates for "working together to make data open and freely available, while protecting the rights of people and communities" (Open Data Charter, 2025). ODC defines six universal principles to which open data should correspond: open by default, timely and comprehensive, accessible and usable, comparable and interoperable, for improved governance and citizen engagement, as well as for inclusive development and innovation. Therefore, ODC's primary focus is on empowering citizens in participatory governance while protecting their communities. In light of these principles, the potential of open data for enhancing governance at the national level seems to extend beyond transparency and accountability. The need to measure the progress made by different countries on open data emerges in order to fulfil its promise.

The initial attempts to address this challenge focus on evaluating open data portals. Specifically, it assesses how users can modify the publicly available datasets and how they can interact with their governments (Sayogo, Pardo & Cook, 2014, p. 1899). During the following years, several assessment methodologies evolve, and alternative international benchmarks are launched on their basis. These benchmarks are defined as indices or standards by which something can be measured or judged (Seng, Ko & Lin, 2009, p. 530) that are used to compare nations' open data progress (Zuiderwijk, Pirannejad & Susha, 2021, p. 2). Importantly, such global ratings are second-order measures that are difficult to trace to original observations since they are created by combining numbers and performing mathematical and statistical operations on them (Power, 2004, p. 771). In the context of open data, creating country indices entails quantifying the publication and utilisation of this data in addition to assembling lists of nations according to established methodologies or a consistent set of rules (Bartl, Papilloud & Terracher-Lipinski, 2019, p. 10). National policy decisions, such as whether or not to release additional government data to citizens, are frequently based on the measurement results that are acquired with the help of such complicated instruments (Power, 2004, p. 774). From this perspective, the production of open data benchmarks has important policy implications.

In the study from 2021, the researchers list nine global ratings in an attempt to compare their results (Zuiderwijk, Pirannejad & Susha, 2021, p. 6). Some of these products, the study finds, include very little information about their methodologies (Zuiderwijk, Pirannejad & Susha, 2021, p. 12). The authors look at the top-10 country lists for six main benchmarks[ii], and different leaders emerge in each assessment. This diversity of results suggests that there are various ways to quantify the impact of open data. In this research, the author includes the five global benchmarks that are present at the beginning of 2025: 1), Global Data Barometer (GDB) by Open Data 4 Development (OD4D) (2022

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edition) (Data 4 Development Network, 2022a), 2), Open Data Maturity Report (ODMR) by the European Union (EU) (2024 edition) (European Data Portal, 2024a), 3), OURdata Index (OURD) by Organisation for Economic Cooperation and Development (OECD) (2023 edition) (Organisation for Economic Cooperation and Development, 2023), 4), Open Government Data Index (OGDI) as part of the UN E-Government Survey (UN) (2024 edition) (United Nations, 2024), and 5), Open Data Inventory (ODIN) by Open Data Watch (ODW) (2022 edition) (Open Data Watch, 2023a). The disappearance of several assessments and the continuation of others in recent years underscores the importance of thoroughly understanding their methodologies. Additionally, the UN offers a new benchmark called OGDI, which should be contrasted with the established ones.

3. Theoretical Framework to Interpret Open Data Benchmarks as Social Practices of Quantification

The measurement of open data progress can be analysed from different perspectives. To name a few disciplines, political studies, computer science, and public administration all seem to be applicable to studying it. Since the goal of this article is to understand how open data benchmarks are created, I adopt the sociology of quantification to scrutinise the results of these assessments. The chosen theoretical approach defines quantification as the production and communication of numbers (Espeland and Stevens, 2008, p. 401). Its scholars recognise the plurality of quantification results, which means that numbers depend on the underlying social processes. In particular, the researchers claim that any quantification process has to be situated (Salais, 2016, p. 132). In other words, its social conventions need to be discussed to understand the output that comes from it. Along with the social processes of numbers' production, their representations, political and social meanings are typically analysed (DiazBone & Didier, 2016, p. 8). When it comes to open data measurement, the numbers to be studied are aggregated country scores that are produced according to the rules of a specific assessment. Both the scores published by the five existing benchmarks and the methodological sections of their reports are included in the analysis to comprehend the plurality of quantifying open data progress.

Within the sociology of quantification, the approaches focusing on transnational governance (Mennicken & Espeland, 2019, p. 227) and datafication (Diaz-Bone, Horvath & Cappel, 2020, p. 319) seem to be most relevant for studying open data. The first one refers to the governance above a country level, and the second one refers to the reliance on quantified indicators for shaping public policies. The mentioned topics are useful for this analysis because different institutions, above a national level, produce increasingly more data globally, and these numbers affect the lives of citizens in specific countries. In this sense, open data development is an exemplary global challenge that emerged in the last decade. Its measurement is managed by international actors, such as OECD and UN, that aim to benchmark the progress made by different nations on this topic. One particular concern with such measurement is that the data about countries may be obtained with varying degrees of rigour and be difficult for the average citizen to verify (Mennicken & Espeland, 2019, p. 239). This means that the results of open data benchmarking should not be taken for granted. To validate these global performance indicators, the correlation analysis of the country scores is conducted in this paper. For the sake of obtaining a better understanding of the underlying mechanisms

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of knowledge production, the methodological discrepancies among the chosen open data assessments are examined as well.

The author's analysis is guided by several fundamental concepts, provided by the sociology of quantification, for studying global performance indicators. The scholars point out that these indicators may obscure complex development issues while measuring them in multiple countries simultaneously (Ringel, 2023, p. 190). The first concept is commensuration, which denotes using a standard metric for comparing several entities (Ringel, 2023, p. 192). In this research, countries are considered to be such entities and open data assessments' scales are analysed. Visualisation, refers to a hierarchical depiction of nation performance via scores and colour maps with the purpose of producing an appealing output (Ringel, 2023, p. 192). This notion is reflected in studying how country lists are organised, particularly looking at top-10 lists and whether nations are rated or ranked. Finally, serialisation, means presenting each country's results as a continuous narrative of improvement or decline (Ringel, 2023, p. 193). This concept is useful for comprehending how nation scores change in comparison with 2020 results and scrutinising the offered assessment methods, for instance, whether expert evaluation or self-assessment is used. With the help of these concepts, I first examine the results of the five open data assessments by scrutinising the obtained nation scores. In order to understand how these results are acquired, the techniques of the reports under discussion are addressed in the second section. Overall, the sociology of quantification allows for posing the research question of how open data progress is measured, and provides key concepts to study whether open data benchmarks serve the purpose of enhancing national governance.

4. Methodology of Data Collection and Analysis

This research project compares the five open data benchmarks that currently exist. The data collection is analogous to a complete survey because all available measurement tools are included in the analysis. Their latest published editions as of the beginning of 2025 are scrutinised. The key variables for comparing them are the country scores and methodological characteristics of each assessment. The chosen design is convergent mixed-methods, which allows the combination of quantitative and qualitative data, as well as primary and secondary data sources, to provide a more thorough understanding of a studied subject (Creswell & Creswell, 2018, p. 341). The author's logic of analysis incorporates unexpected findings from the collected data while being informed by the predefined theoretical concepts, in order to draw well-founded conclusions (Shaw et al., 2023, p. 234). In particular, quantitative methods are used to compare the nations' results and qualitative ones – to scrutinise the benchmarks' methodologies. It should be noted that, as the main objective is to comprehend how international open data ratings produce their scores, the qualitative part is essential. Furthermore, the selected approach prevents me from overly investigating a single assessment or making far-fetched generalisations about several benchmarks. As a result, meta-inferences are generated by integrating the obtained quantitative and qualitative findings (Younas et al., 2023, p. 287). By drawing these inferences, it is possible to validate and expand the discoveries from both parts of the study while also accounting for potential discrepancies between them.

The following methods are used to collect and analyse the data. The initial step is to access the formal reports of the selected open data benchmarks. After that, I consult the country results on the

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websites of these assessments. The gathered quantitative material is processed and organised for comparison. Consequently, an integrated database containing the nations' scores from the five ratings is created for the purposes of statistical analysis. This database is studied with the help of RStudio 2025.05.0 integrated development environment tools (libraries readxl, dplyr, statsr, psych, shiny, ggplot2, and gt)[iii] (Posit, 2025). Coming to the second part, the methodological chapters of the selected reports comprise the qualitative data. These chapters' methodological features are grouped by major themes using reflexive thematic analysis (Morgan, 2022, p. 73). This method entails coding that evolves in the process of analysing the data, in order to disclose hidden meanings by using the researcher's knowledge. The selected texts are studied with the help of MAXQDA 24 qualitative data analysis software[iv] (MAXQDA, 2025). As a final step, I juxtapose the quantitative and qualitative findings for the purpose of drawing meta-inferences and key reflections based on them.

5. Comparative Analysis of Five International Open Data Benchmarks

5.1. Country Scores

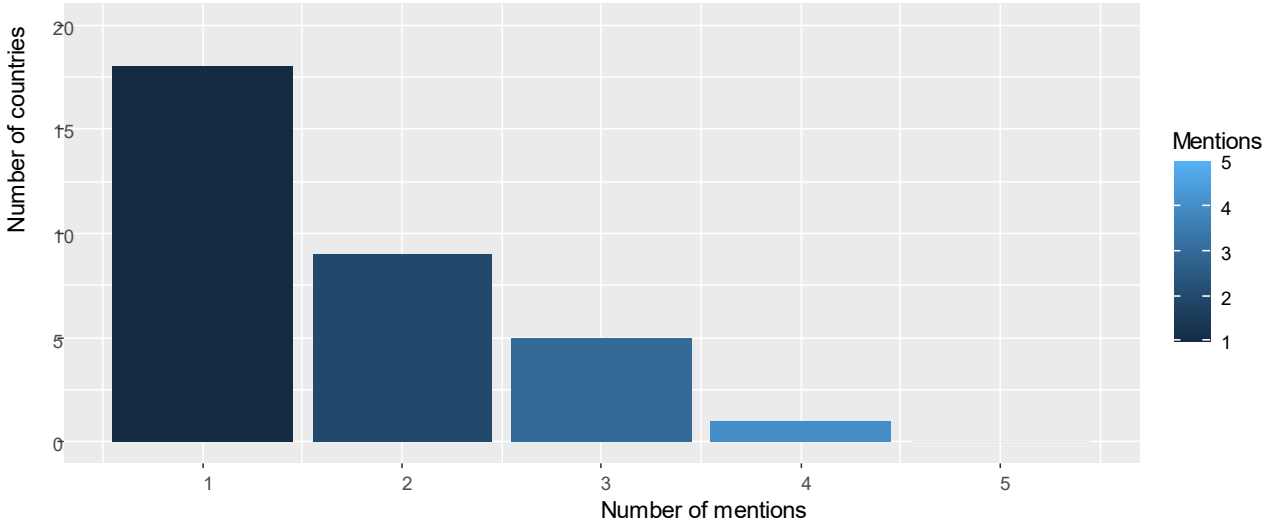
Checking the basic distribution characteristics is the first step for processing the country scores from the five open data assessments. The initial analysis includes the whole lists of rated nations. Aggregated open data development scores are the observations, and countries are the variables. There are 195 data points for ODW ODIN 2022, 109 – for OD4D GDB 2022, 193 – for UN OGDI 2024, 40 – for OECD OURD 2023, and 34 – for EU ODMR 2024. It is observed that ODW ODIN 2022 is the only assessment to use the scale from 0 to 100 and that the scores of the four other benchmarks are displayed on a scale from 0 to 1 For the sake of statistical comparison, the results of this rating are normalised with other ones[v]. Additionally, all benchmarks are examined for consistency and the presence of missing values using general descriptive statistics, such as mean and median (Appendix A). The distribution of each assessment is presented graphically from the lowest to the highest result. After that, ten top-performing countries are highlighted in each list for further examination[vi]. The author adopts this approach from one of the previous studies that looked at top-10 lists, since checking the leaders in correspondence is a feasible starting point that may guide the following steps of the analysis.

There are 55 observations in the five lists of leaders. This number is obtained because two countries ranked 10th and 11th in OD4D GDB 2022 and EU ODMR 2024 have identical scores. Also, 13 nations with the highest possible score of "1" in UN OGDI 2024 are included in the analysis. Considering that the next step is to count their presence in the selected lists, I employ this approach to avoid the unjustified exclusion of some countries. The 55 observations that are being examined are spread across 33 different countries (Appendix A). Only six of them are mentioned three or more times, while the majority are mentioned just once. It is important to note that every leading nation is developed[vii], with the exception of India because its Human Development Index 2023 value is medium. Even among the developed countries, there are no examples of consistent leaders. Thus, no country appears in all five benchmarks, and only one state—Estonia—is listed in four of the top-10 lists. The leading registers seem to be far from uniform, based on this distribution, which is consistent with the findings about open data assessments that were in place in 2020. It is also worth noting that

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Canada, the only country that was previously listed in all top-10 results, appears only twice in the five assessments that exist in 2025. Therefore, open data ratings seem to be rather volatile (see Figure 1).

Figure 1: Frequency of Country Mentions in Top-10 Lists of Five Open Data Benchmarks | Prepared by Author



Sweden, Poland, Denmark, Estonia, France, and Spain are the six nations that are featured in the top-10 lists at least three times. I use this threshold of the number of mentions to distinguish more consistent leaders from the others. When a country has three references, it means that most of the available benchmarks classify it as a leading one. It should be noted that the top nations are all EU member states. I further compare their places by each assessment. It turns out that four countries have varying places within the top-10 registers, and only Poland and France demonstrate more or less consistent results within the top-3 lists. It does not seem possible to make any inferences on the validity of these findings, though, because these countries are absent from two of the five ratings. Furthermore, the analysis shows that OECD OURD 2023 is the single benchmark where all six countries are featured. Surprisingly, it is not EU ODMR 2024, which assesses EU nations. The more thorough research efforts made by OECD countries to evaluate their open data progress may account for this finding. Examining the methodologies of the selected assessments is required to shed light on this matter (see Table 1).

Table 1: Place of Country in Top-10 Lists by Benchmark[viii] | Prepared by Author

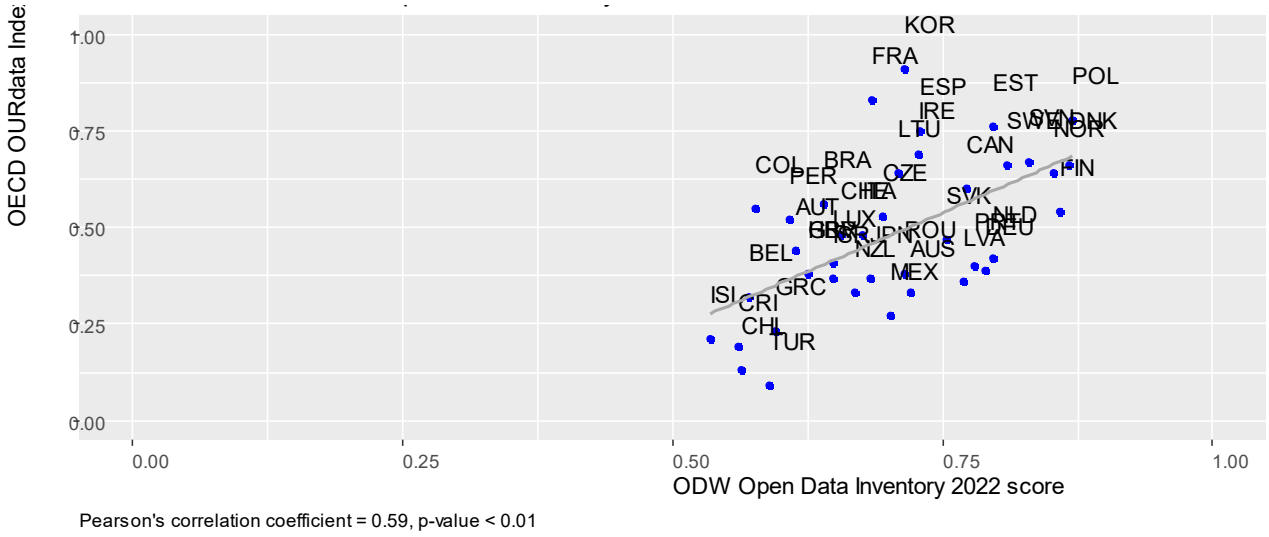
Country	ODW ODIN 2022	OD4D GDB 2022	UN OGDI 2024	OECD OURD 2023	EU ODMR 2024
Sweden	9	N/A	1	9	N/A
Poland	2	N/A	N/A	3	2
Denmark	3	10	N/A	8	N/A

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Estonia	N/A	2	1	4	10
France	N/A	3	N/A	2	1
Spain	N/A	N/A	1	5	6

Based on the previous step, the OECD OURD 2023 benchmark is selected as the basis for statistical validation of the country scores. Additionally, its report contains the concept of such validation (Organisation for Economic Cooperation and Development, 2023, p. 36). Particularly, the document demonstrates the correlation between OECD OURD 2023 and EU ODMR 2022 based on 26 countries that are present in both assessments. The Pearson coefficient value is 0.84, which is interpreted as high correlation (between 0.7 and 0.9). It should be mentioned that, in terms of statistical validation, this sample is quite limited. In this study, I extend the selection to 40 nations in order to correlate OECD OURD 2023 with ODW ODIN 2022 and UN OGDI 2024, 30 shared ones – with OD4D GDB 2022, and 26 ones – with EU ODMR 2022. Given the common countries from the original 40, the aforementioned ratings are also correlated with one another. To prepare for the analysis, the normal probability of each assessment's distribution is verified by plotting the distribution of country scores in relation to theoretical quantiles[ix]. Each pair of benchmarks is then subjected to a Pearson correlation analysis (Appendix A). Only five out of ten couples show significant results (p-value < 0.05). This finding means that certain assessments differ in their country scores to the point of having no statistical relation. OECD OURD 2023 and EU ODMR 2024 have the only high Pearson coefficient value (0.77, p-value < 0.01) among these five pairs. It can be said that this couple is rather an exception to the existing open data benchmarks. The second strongest coefficient is between OECD OURD 2023 and ODW ODIN 2022 (0.59, p-value < 0.01), which signifies a moderate correlation. This result demonstrates that the two ratings are related, but their data points are quite dispersed. All other pairs do not surpass the Pearson coefficient value of 0.5. Even though their connection is sometimes statistically significant, such values are evidence that their country scores are poorly aligned (see Figure 2).

Figure 2: Correlation Plot between the OECD OURD 2023 and ODW ODIN 2022 Assessment Results | Prepared by Author



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The overall goal of the current open data benchmarks is to quantify the performance of every nation via a single figure. Normally, these scores are assigned from 0 to 1. Only OD4D GDB 2022 uses a different scale from 0 to 100, which is commensurate with the standard one. The country results are visualised in a convenient hierarchical order, while the criteria that enable the acquisition of these figures require a significant amount of work and specialised knowledge to comprehend. However, the diversity of countries in the top-10 lists shows that comprehension of these guidelines is essential to understanding the validity of each assessment. The leading countries seem to be united only by their status of developed nations, which raises the question whether open data advancement or other developmental characteristics are being measured. No country ranks in the top-10 registers of all five benchmarks, and Canada, which used to be a consistent leader as of 2020, is represented only twice. Given that UN OGDI 2024 is the sole new rating, the contentious dynamics among the other four benchmarks indicates that the serialisation of country scores may not accurately represent the state of the art in open data development. All six of the more consistent leaders—those that appear on three or more top-10 lists—come from EU nations. The OECD OURD 2023 assessment is the only one in which all of them are listed in the top register, and this finding confirms the disagreement over how to measure the progress in open data. Finally, the country scores are not validated even on a sample of developed nations. Only two pairs of benchmarks correlate strongly or moderately with each other, when a strong correlation would be the norm for measuring the same underlying notion. The existence of several open data benchmarks could be explained by these distinctions.

5.1. Assessment Methodologies

The discussion of quantitative findings leads us to analysing the methodologies of the selected benchmarks in order to explain the observed countries results. First and foremost, each index's creator and funding source should be noted. Three measurement instruments are managed by the international intergovernmental organisations, namely the EU, OECD, and UN. Two of them, OECD OURD and EU ODMR, are present over several years, while UN OGDI is a novel product. The countries in focus are member states of each organisation, and the funding for measuring open data progress comes from them. The UN assessment is the most encompassing one in terms of the number of countries covered, which allows for drawing various comparisons that are not possible for the previous two benchmarks; however, it also means that collecting high-quality data about each nation over time might be problematic for this tool. The ODW ODIN assessment is managed by international non-profit organisation Open Data Watch. Their focus is on improving open data quality for development goals, and the analysed benchmark is supported by the William and Flora Hewlett Foundation. This rating is presented as an independent report by an expert organisation. The OD4D GDB is managed by Data 4 Development Network, which name was Open Data 4 Development at the time of publishing the assessment in focus. This network includes 15 research organisations, and the funding for the report comes from Canada's International Development Research Centre. Their focus is on helping the Global South countries to overcome the development challenges by nurturing their open data ecosystems. It can be said that the ODW ODIN and OD4D GBD reports provide an alternative to the government-led assessments for measuring global open data advancement.

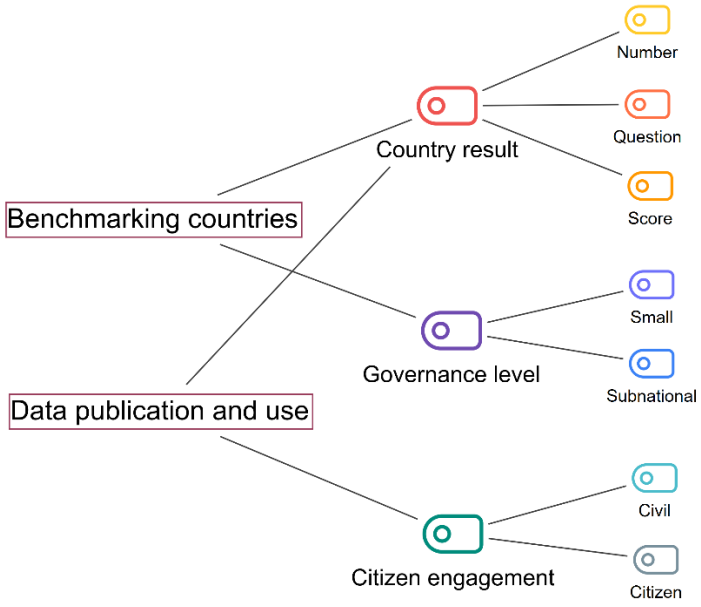
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The methodologies of the discussed reports are presented in different formats. The ODW ODIN 2022 methodological guide is the most comprehensive – 49 pages (Open Data Watch, 2023b). Substantial information about data collection and score calculation is included in the document, including how to verify the results using the source data files. The section on UN OGDI 2024 in the UN E-Government Survey's Technical Appendix on pilot research projects has the most succinct description – 1 page (United Nations, 2024, p. 85). This text provides a general overview of the assessment's production process, paying special attention to how the methodology has changed since the tool's piloting in 2020. The methodological parts of the other three reports are more balanced in terms of their length: OD4D GDB 2022 – 6 pages (Data 4 Development Network, 2022b, p. 14-19), OECD OURD 2023 – 10 pages (Organisation for Economic Cooperation and Development, 2023, p. 26-35), and EU ODMR 2024 – 17 pages (European Data Portal, 2024b). It should be noted that the OECD OURD 2023 assessment refers to the original study that established the foundations for its methodology (Lafortune & Ubaldi, 2018). The aforementioned methodological guidelines are created by various contracted researchers. These parts are either available separately on the benchmarking websites or incorporated into the assessment reports. The main focus of these methodological sections is on providing an overview of the procedures used to collect and analyse data regarding national advancement and to obtain country ratings.

Two categories, country result and citizen engagement, are deductively developed for thematic analysis based on the selected theoretical framework and the existing research about open data. Country result reflects the notions of commensuration and serialisation in the sociology of quantification, since the author aims to capture how the selected methodologies allow producing standardised country numbers and to present these scores as a narrative of country development. The codes, 'number' with 29 mentions, 'question' with 37 mentions, and 'score' with 174 mentions are included in this category. Coming to the second one, citizen engagement is based on the previous studies of open data, which emphasise that publishing such data is expected to make governments more accountable to their constituents. This category serves to understand whether data use in society is assessed, rather than only data publication. The codes in the second category are 'civil' with 17 mentions and 'citizen' with nine mentions. The third category, namely governance level, is inductively created. It stems from the ODW ODIN 2022 methodology, which includes important considerations while evaluating small countries[x]. For example, certain states are assessed differently than others when it comes to data availability at the local or regional level. The idea is to determine whether other assessments consider the variations in governance among nations while evaluating their open data development. 'Subnational' with 21 mentions and 'small' with 25 mentions, are the codes in this category. Two main themes emerge from the defined categories: data publication and use and benchmarking countries. The first theme is obtained by combining country results and governance structure, and the second one – national results and citizen engagement. In sum, because of the identified discrepancies among the assessment results, understanding how the scores are generated is at the core of this analysis. Deductive and inductive reasoning types are combined to achieve this objective (see Figure 3).

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Figure 3: Themes, Categories, and Codes Used for Qualitative Analysis of Open Data Benchmarks' Methodological Sections | Prepared by Author



Benchmarking countries begins with defining an assessment type. The UN OGDI 2024 assessment ranks countries, which means that the composite OGDI score for each Member State is normalised to a range of 0 to 1 using a standardised formula (United Nations, 2024, p. 85). The evaluated states are assigned a number from 0 to 1 in order to arrange them in a hierarchical order on this scale. In contrast, OD4D GDB 2022 adopts an alternative approach: In-line with the design of the Barometer as a rating, rather than ranking instrument, we do not carry out any min-max scaling of results (Data 4 Development Network, 2022b, p. 17). As a result, each nation is assigned a score that reflects its level of development, and this output should be compared only to the ideal performance by each indicator. The other three benchmarks use a combined approach by rating countries while aiming for their comparison. Regarding the evaluation process, ODW ODIN 2022, OD4D GDB 2022, and UN OGDI 2024 all rely on specialists who assess one or more nations. For instance, ODW ODIN 2022 analyses national statistics portals with the help of contracted assessors and internal reviewers (Open Data Watch, 2023b, p. 9). Two measurement instruments, EU ODMR 2024 and OECD OURD 2023, are based on government self-assessment. Particularly, the data for the ODM assessment is collected through a voluntary self-assessment questionnaire sent to national open data representatives (European Data Portal, 2024b, p. 5). Only two methodologies, OD4D GDB 2022 and ODW ODIN 2022, consider country governance levels. EU ODMR 2024 partially does so by asking to report on local and regional open data initiatives, but this tool does not treat small countries differently than others (European Data Portal, 2024b, p. 4). As can be observed, most benchmarks combine rating and ranking approaches. At the same time, they are separated into two groups based on expert evaluations or government self-assessments. Another source of division among the instruments under analysis is whether to consider the subnational level.

When it comes to data publication and use, two methodologies, namely ODW ODIN 2022 and UN OGDI 2024, focus only on the first aspect. For example, the ODW ODIN 2022 approach is ex-

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plained as follows: ODIN does not assess data published for countries on international organisations' websites or private organisations' websites because ODIN is an assessment of the national government's capacity to produce open data (Open Data Watch, 2023b, p. 2). The other three assessments pay attention to the usage of open data. To provide an example, OECD OURD 2023 has the following indicator: Frequency of specific events to support data re-use among businesses and the civil society (Organisation for Economic Cooperation and Development, 2023, p. 33). One surprising finding is that the majority of benchmarks do not evaluate citizen engagement. The OD4D GDB 2022 rating is the only one that prioritises it: the GDB is an innovative measurement tool that offers unique perspectives on the use of data worldwide (Data 4 Development Network, 2022b, p. 18). Specifically, the pillars of this measurement tool assess the private sector and civil society's capabilities, as well as the use and impact of open data (Data 4 Development Network, 2022b, p. 14). In the OECD OURD 2023 methodology, citizen engagement is partially assessed through the pillar on government support for data re-use (Organisation for Economic Cooperation and Development, 2023, p. 33). Therefore, the available benchmarks differ substantially in terms of the measurement of data publication and use. Some ones focus solely on the first aspect. Only one methodology gives a prominent role to citizen engagement (see Table 2).

Table 2: Key Differences between Five Open Data Benchmarks | Prepared by Author

Benchmark Name	Benchmark Type	Assessment Method	Thematic Focus	Citizen Engagement	Subnational Level
OD4D GDB 2022	Rating	Expert	Data publication and use	Assessed	Assessed
UN OGDI 2024	Ranking	Expert	Data publication	Not assessed	Not assessed
ODW ODIN 2022	Rating/ranking	Expert	Data publication	Not assessed	Assessed
OECD OURD 2023	Rating/ranking	Self-assessment	Data publication and use	Partially assessed	Not assessed
EU ODMR 2024	Rating/ranking	Self-assessment	Data publication and use	Not assessed	Partially assessed

In total, the qualitative part shows that there are significant disparities between the international open data benchmarks' methodologies. Most of these instruments are ratings, but UN OGDI 2024 is designed to rank countries. Two measurement tools, namely OECD OURD 2023 and EU ODMR 2024, are created using a government self-assessment. This similarity helps to understand why their country results are highly correlated, which is not the case for other benchmarks. Another important feature is that UN OGDI 2024 and ODW ODIN 2022 focus solely on data publication. Since these two assessments are conducted globally, the necessity to include a large number of countries may

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be the rationale for excluding the data use part. In terms of evaluating citizen engagement, only OD4D GDB 2022 prioritises this dimension in the methodology, while OECD OURD 2023 considers it from the government's perspective. It can be said that there is insufficient evaluation of the social impact of open data. Furthermore, OD4D GDB 2022 and ODW ODIN 2022 take the *size* of a nation into consideration. This feature demonstrates that the ratings created by international non-profit organisations consider certain aspects of open data development more rigorously than the ones led by governments. Overall, the inconsistent country scores appear to be related to these methodological differences. Every analysed tool has advantages and disadvantages, and there is no benchmark that includes all crucial aspects.

6. Discussion

The conducted analysis demonstrates that the existing measurement instruments continue producing divergent country scores, due to their methodological differences. Not only do the top-10 lists of these ratings differ significantly, but also the scores of a wider sample of developed countries. It should be noted that, considering the country lists of OECD OURD 2023 and EU ODMR 2024, this sample is optimal for the comparative statistical analysis of five existing benchmarks. The obtained discrepancies can be explained by the practice of using different measurement methodologies. For instance, there is no agreement whether expert or self-assessment is better and how to combine the two. As a result, even though every benchmark aims to assess the global level of open data development, it is likely that each of them measures various latent concepts. The application of the sociology of quantification reveals that the studied benchmarks are focused on commensuration, serialisation, and visualisation of country scores to produce appealing reports instead of resolving more profound methodological issues. Moreover, it can be said that the scrutinised ratings are biased in certain aspects. For instance, the production of scores for large and small countries without taking into account the subnational level might be misleading. These findings fill in the gap in the existing literature related to comparing open data measurement instruments, namely, that these tools are classified without questioning the validity of their results. The mentioned problem seems to be caused by the lack of applying rigorous theoretical frameworks that would guide a comparative study, and the presented analysis addresses this issue.

With the help of the sociology of quantification, it is shown that the existing benchmarks are intended to reduce the complexity of open data development to a single figure for every nation. The obtained numbers are commensurate with each other in terms of their scale, but they are likely to measure different underlying concepts. The main identified benefit of this approach is that the generated country scores can be visualised. For example, they can be displayed hierarchically in a table. Additionally, it is determined that the assessed countries are easily serialised by contrasting their improvements over time. However, the serialisation of country scores may not reflect accurately each country's open data progress. In terms of the ways to create assessment reports, two primary groups of author organisations are identified: intergovernmental ones and international non-profit ones. The representatives of both groups design elaborate methodologies to evaluate different countries with the help of contracted researchers. The available methodological approaches are found to differ by benchmark type, assessment method, thematic focus, as well as the consideration of citizen

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engagement and subnational level aspects. As a final step, the quantitative and qualitative findings are combined to draw meta-inferences (see Table 3).

Table 3: Meta-Inferences from Analysis of Five Open Data Benchmarks | Prepared by Author

Quantitative Findings	Qualitative Findings	Meta-Inferences
Many countries are featured in top-10 lists only once or twice among five benchmarks	Five methodological chapters are written very differently: from 1-pager to a small book	International open data benchmarks have distinct methodologies
Places of country leaders differ across assessments, sometimes they are out of top 10	Methodologies cover various aspects, such as consideration or not of governance levels in a specific nation	Assessment results continue lacking consistency
Even for a sample of developed nations, country scores are not strongly correlated	Wide country coverage often comes at the expense of assessing data use and citizen engagement	For measurement to be improved, it is needed to understand better how open data is used by local communities

This study has a couple of important limitations that open avenues for future research. First, understanding the dynamics of each assessment's evolution over time is not possible through the analysis of specific reports for a certain year. The statistics part could be elaborated on by discussing long-term variations in national scores in each benchmark. Still, the country results for a single tool are not necessarily comparable over time due to methodological updates and changes in the assessed nations' list. Another issue is that the suggested long-term analysis might exclude new measurement instruments, such as UN OGDI 2024. Therefore, this possibility for enhancing the findings requires further consideration. The second limitation is that this research considers only formal open data assessments. The situation in specific countries is likely to be more nuanced than a single national score no matter how sophisticated the methodology to obtain this number is. It is of critical importance to understand informal aspects of open data development, such as how citizens interact with public data and what they expect from their governments. Studying these elements may not only contribute to better understanding but also generate new ideas for enhancing the benchmarks under scrutiny.

7. Key Reflections and Conclusion

A combination of quantitative and qualitative methods is used in this research to comprehensively understand how open data development is measured by the five assessments that are available as of 2025. Quantitatively, it is found that most countries appear only once or twice in the top-10 lists of the five assessments. The leaders' places fluctuate, and occasionally they fall outside of the top 10. No country is featured on all five lists, and Estonia is the only one included four times. Moreover,

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the results of the discussed benchmarks are not strongly correlated even for a sample of developed nations. Having analysed the correlation among all ten pairs of the available instruments, it is determined that the correlation between the OECD OURD 2023 and EU ODMR 2024 ratings is an exception brought about by a limited sample of countries and similar methodologies oriented on a governmental self-assessment.

Qualitatively, it is discovered that the five methodological chapters are written in a variety of styles: from 1-pager to a small book. The most concise description is provided by UN OGDI 2024, which does not include many important details. The methodologies under study address a number of topics, including whether or not to take into account the levels of governance in a particular nation. According to this aspect, the tools created by global non-profit organisations—OD4D GDB 2022 and ODW ODIN 2022—seem to be less susceptible to bias than those offered by intergovernmental organisations. Crucially, the evaluation of data use and citizen engagement is often sacrificed for extensive country coverage. Both aspects are assessed only by OD4D GDB 2022 and, partially, by OECD OURD 2023.

At the level of meta-inferences, it can be said that the international open data benchmarks have different methodologies, and no assessment incorporates all important aspects. The specifics of each rating, such as the indicators used to measure data publishing and use, must be taken into consideration when comparing the measurement results. Researchers need to develop a better understanding of how citizens benefit from open data in order to improve the measurement of its development.

In conclusion, open data development is obscured rather than clarified by the output of the five existing benchmarks. Corresponding to the previous assessment results, mostly developed nations obtain high scores, but these numbers lack consistency. Only one top-10 list—OECD OURD 2023—includes all six of the nation leaders, and their places vary widely in each list. The methodologies to measure open data progress cover different aspects, and there are significant issues with each assessment that warrant criticism. Regarding the best practices to measure the development of open data, there is hardly more consensus in 2025 compared to 2020. Rather than assisting citizens to hold their governments more accountable, the current assessment tools appear to serve the goal of promoting their creators by presenting easily digestible results. To address the UN sustainable development goals, the measurement of open data progress needs to be improved, especially with regard to assessing the social benefits of data publication. Returning to the citizen as a primary beneficiary through conducting in-depth research on the effects of publishing government data on local communities appears to be a relevant starting point.

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I am a PhD candidate at the International Graduate Centre for the Study of Culture, Justus Liebig University Giessen, Germany. My dissertation topic is How Knowledge About Open Data Is Created: Analysis of Formal International Rankings and Community-Based Practices. In this research project, I aim to demonstrate how knowledge about open data can be constructed more democratically by looking into formal international rankings of open data development and community-based practices of open data use in specific countries from a critical perspective of the social studies of knowledge. My academic background is in science and

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technology studies, e-governance technologies and services, and sociology. My previous experience includes more than eight years in international development projects with the focus on digital initiatives.

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Appendix A

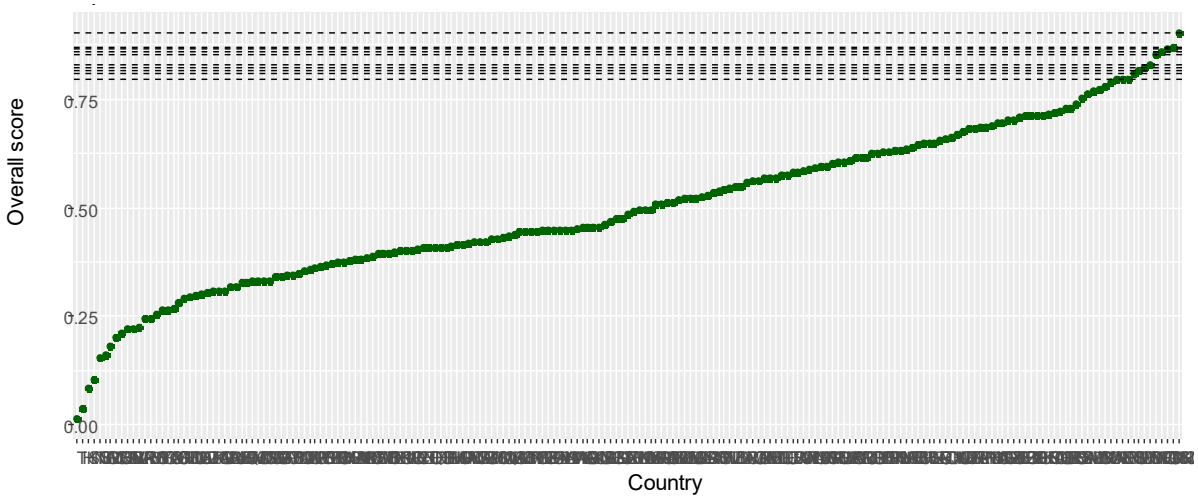


Fig. A.1 ODW ODIN 2022 Assessment Results | Prepared by Author

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
1	195	0.5	0.18	0.48	0.5	0.19	0.01	0.9	0.89	-0.03	-0.44	0.01

Fig. A.2 ODW ODIN 2022 Descriptive Statistics | Prepared by Author

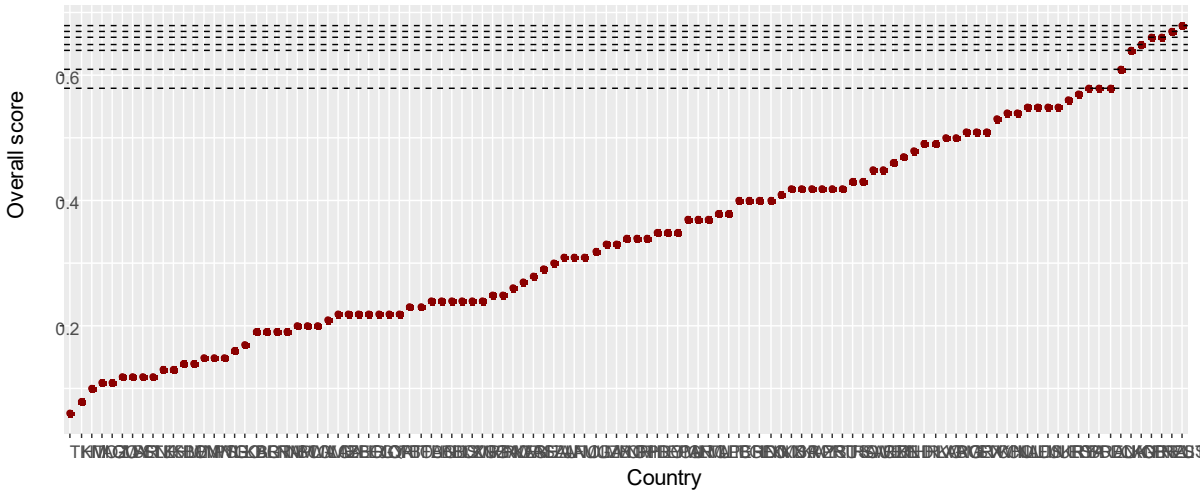


Fig. A.3 OD4D GDB 2022 Assessment Results | Prepared by Author

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vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
1	109	0.34	0.16	0.34	0.34	0.18	0.06	0.68	0.62	0.26	-1	0.02

Fig. A.4 OD4D GDB 2022 Descriptive Statistics | Prepared by Author

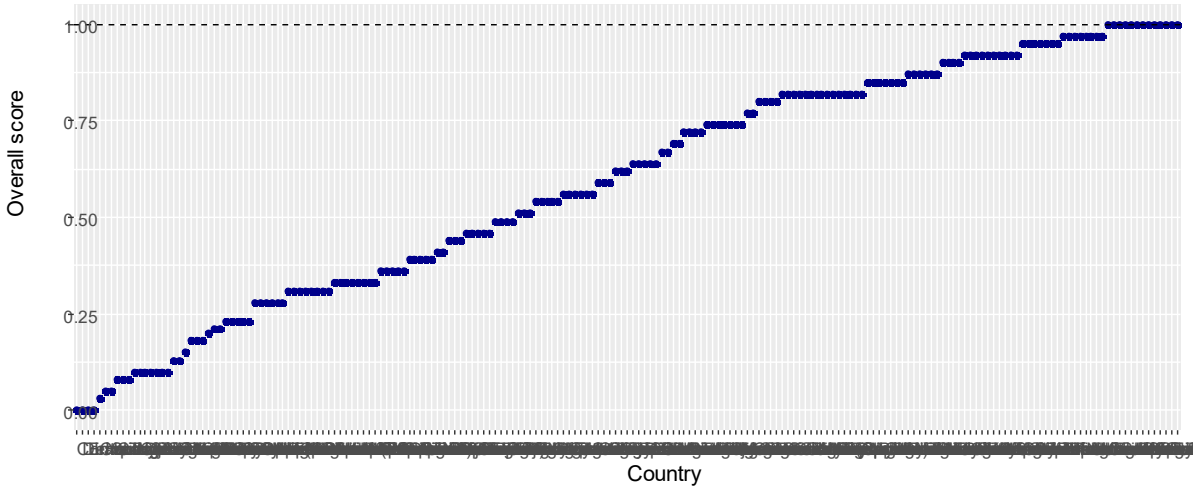


Fig. A.5 UN OGDI 2024 Assessment Results | Prepared by Author

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
1	193	0.59	0.3	0.62	0.61	0.39	0	1	1	-0.29	-1.22	0.02

Fig. A.6 UN OGDI 2024 Assessment Results | Prepared by Author

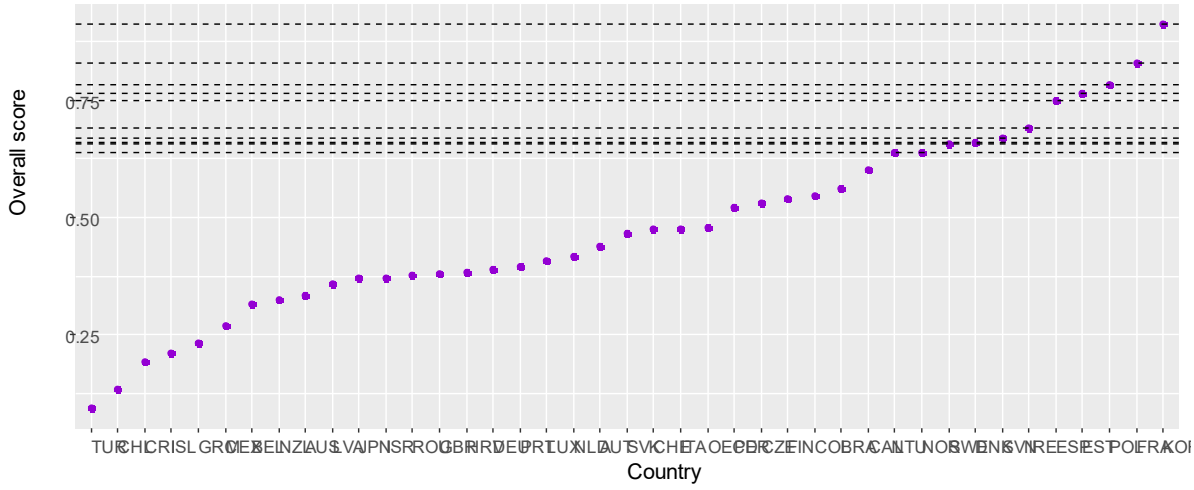


Fig. A.7 OECD OURD 2023 Assessment Results | Prepared by Author

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vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
1	41	0.48	0.19	0.47	0.48	0.2	0.09	0.91	0.82	0.19	-0.6	0.03

Fig. A.8 OECD OURD 2023 Descriptive Statistics | Prepared by Author

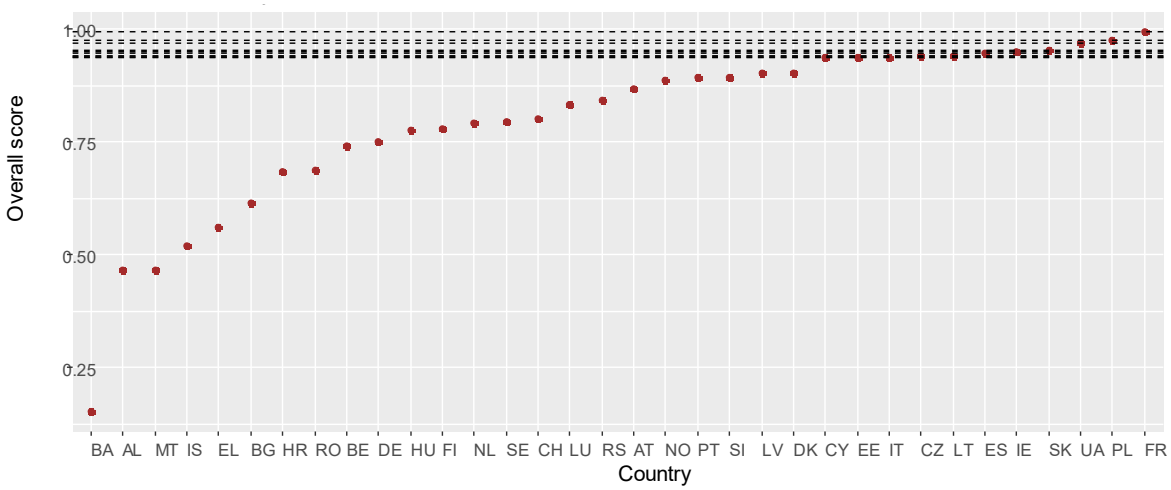


Fig. A.9 EU ODMR 2024 Assessment Results | Prepared by Author

vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
1	34	0.8	0.19	0.86	0.82	0.12	0.15	1	0.85	-1.49	2.11	0.03

Fig. A.10 EU ODMR 2024 Descriptive Statistics | Prepared by Author

```
 [1] "Singapore"           "Poland"              "Denmark"
 [4] "Finland"             "Norway"              "Slovenia"
 [7] "Hong Kong SAR, China" "Mongolia"           "Sweden"
[10] "Netherlands"
```

Fig. A.11 ODW ODIN 2022 Top-10 List | Prepared by Author

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```
 [1] "United States of America"
 [2] "Estonia"
 [3] "France"
 [4] "New Zealand"
 [5] "United Kingdom of Great Britain and Northern Ireland"
 [6] "Republic of Korea"
 [7] "Canada"
 [8] "Brazil"
 [9] "Germany"
[10] "Denmark"
```

Fig. A.12 OD4D GDB 2022 Top-10 List | Prepared by Author

```
 [1] "Canada"       "Estonia"      "Germany"      "India"        "Japan"
 [6] "Peru"         "Saudi Arabia" "Singapore"    "Spain"        "Sweden"
[11] "Switzerland"  "Turkiye"      "Ukraine"
```

Fig. A.13 UN OGDI 2024 Top-10 List | Prepared by Author

```
 [1] "KOR" "FRA" "POL" "EST" "ESP" "IRE" "SVN" "DNK" "SWE" "LTU" "NOR"
```

Fig. A.14 OECD OURD 2023 Top-10 List | Prepared by Author

```
 [1] "France"    "Poland"    "Ukraine"   "Slovakia"  "Ireland"   "Spain"
 [7] "Lithuania" "Czechia"   "Italy"     "Estonia"   "Cyprus"
```

Fig. A.15 EU ODMR 2024 Top-10 List | Prepared by Author

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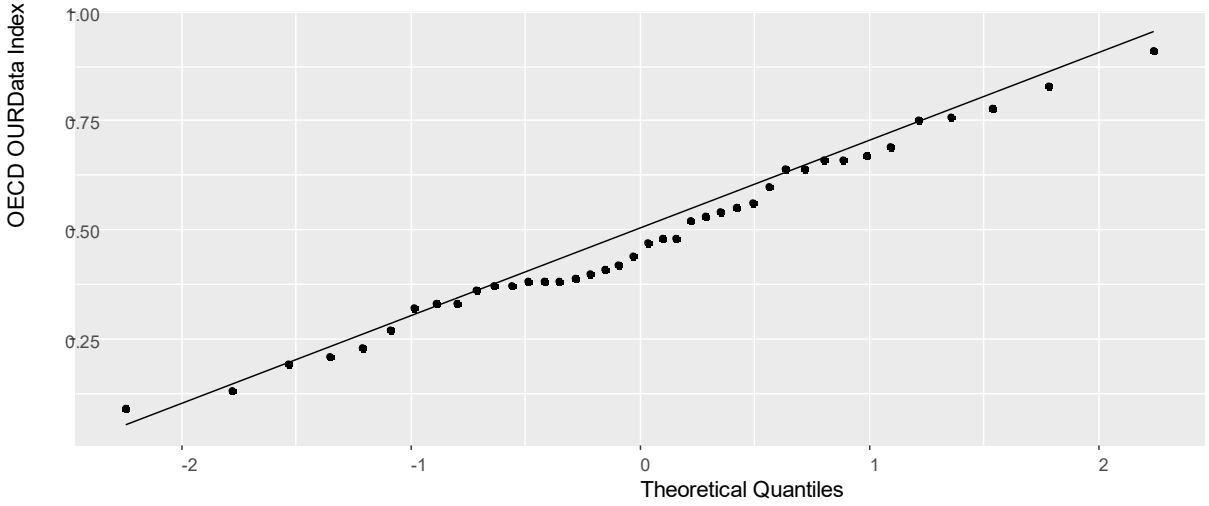


Fig. A.16 OECD OURD 2023 Sample Normal Probability Plot | Prepared by Author

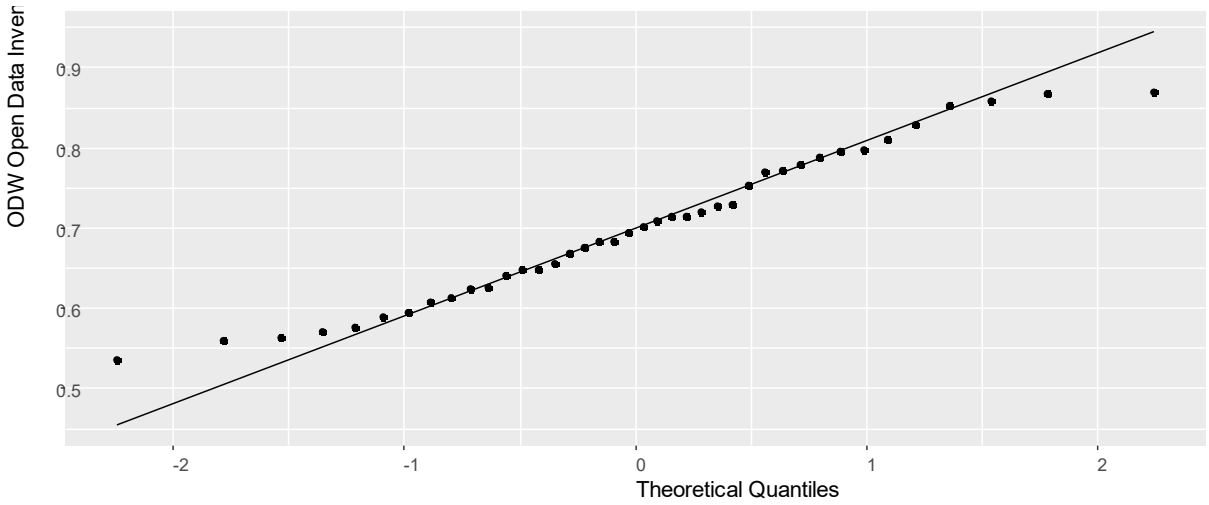


Fig. A.17 ODW ODIN 2022 Sample Normal Probability Plot | Prepared by Author

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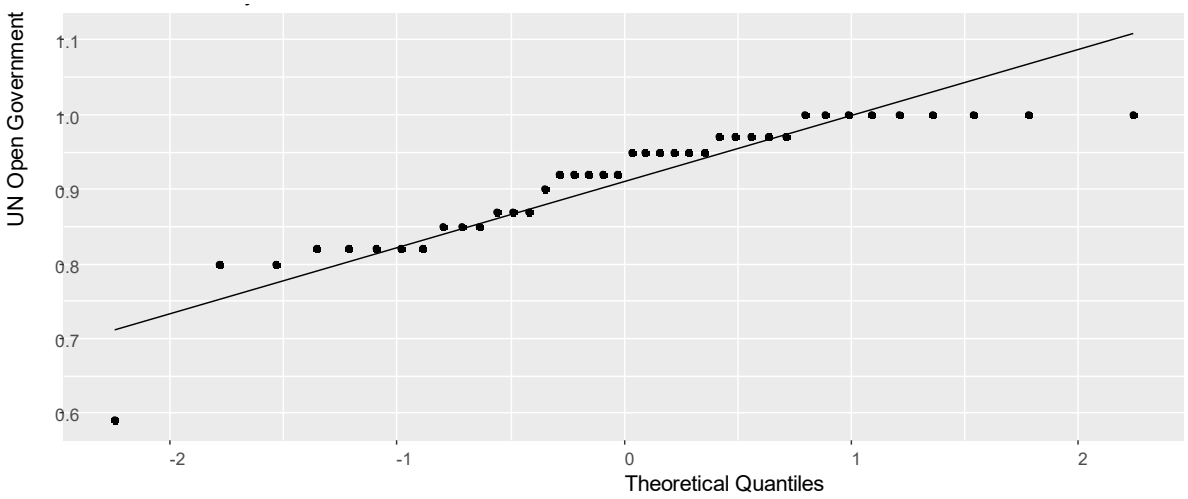


Fig. A.18 UN OGDI 2024 Sample Normal Probability Plot | Prepared by Author

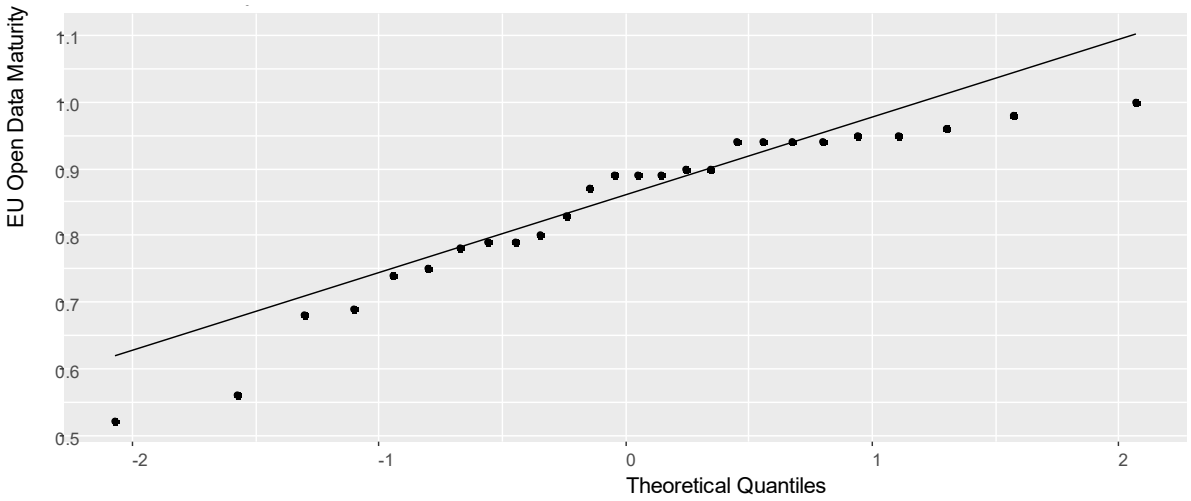


Fig. A.19 EU ODMR 2024 Sample Normal Probability Plot | Prepared by Author

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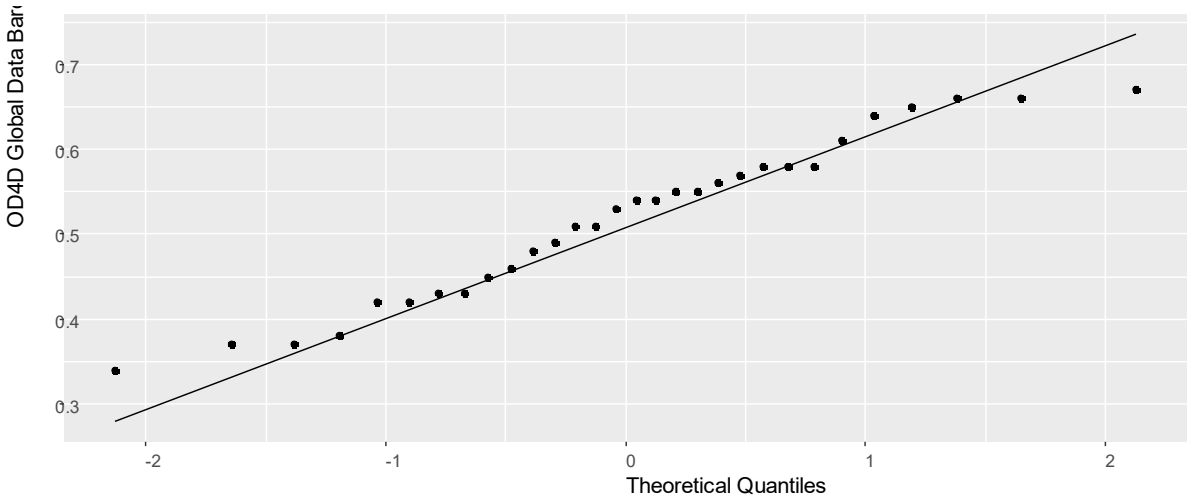
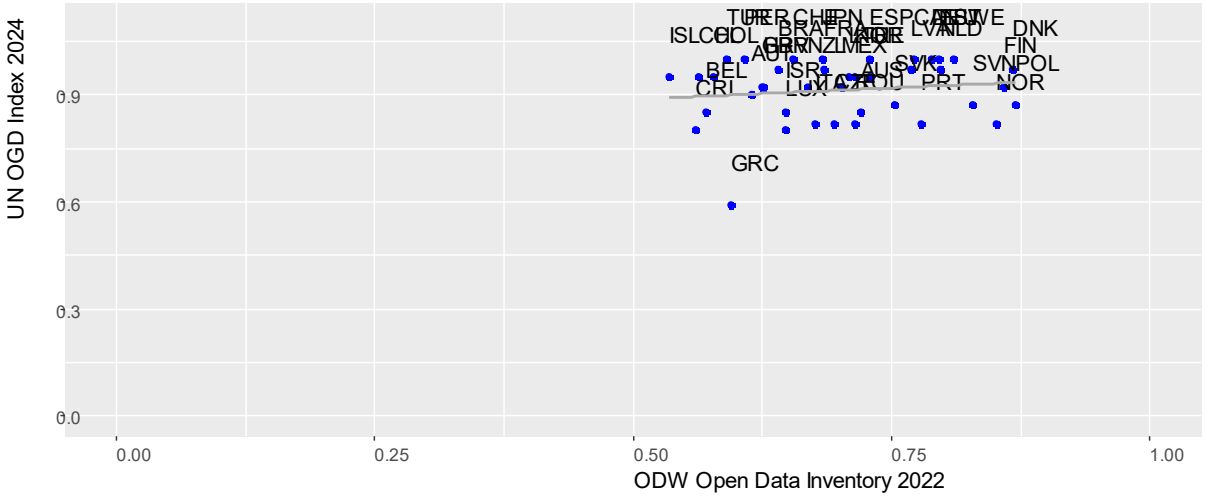


Fig. A.20 OD4D GDB 2022 Sample Normal Probability Plot | Prepared by Author

```
        Pearson's product-moment correlation

data:  cor_rankings$ODIN_num and cor_rankings$OURD_num
t = 4.4467, df = 38, p-value = 7.35e-05
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 0.3344653 0.7583328
sample estimates:
      cor
0.5850218
```

Fig. A.21 Correlation Statistics between the OECD OURD 2023 and ODW ODIN 2022 Assessment Results | Prepared by Author



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Fig. A.22 Correlation Plot between the ODW ODIN 2022 and UN OGDI 2024 Assessment Results | Prepared by Author

```
        Pearson's product-moment correlation

data:  cor_rankings$ODIN_num and cor_rankings$OGDI_num
t = 0.87457, df = 38, p-value = 0.3873
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 -0.1788685  0.4330289
sample estimates:
      cor
0.1404676
```

Fig. A.23 Correlation Statistics between the ODW ODIN 2022 and UN OGDI 2024 Assessment Results | Prepared by Author

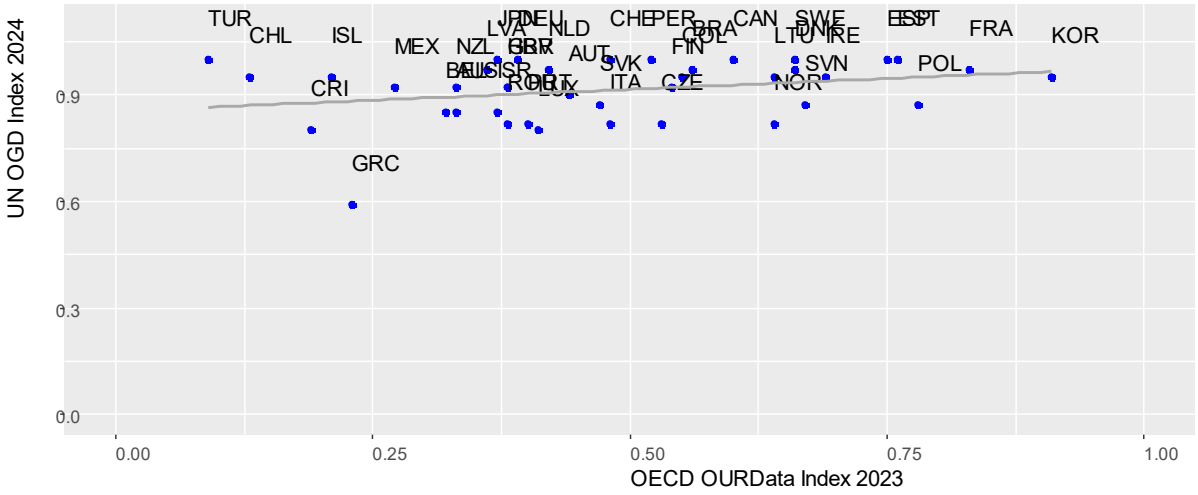


Fig. A.24 Correlation Plot between the OECD OURD 2023 and UN OGDI 2024 Assessment Results | Prepared by Author

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```
        Pearson's product-moment correlation

data:  cor_rankings$OURD_num and cor_rankings$OGDI_num
t = 1.7969, df = 38, p-value = 0.08031
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 -0.03468872  0.54393669
sample estimates:
      cor
0.2798446
```

Fig. A.25 Correlation Statistics between the OECD OURD 2023 and UN OGDI 2024 Assessment Results | Prepared by Author

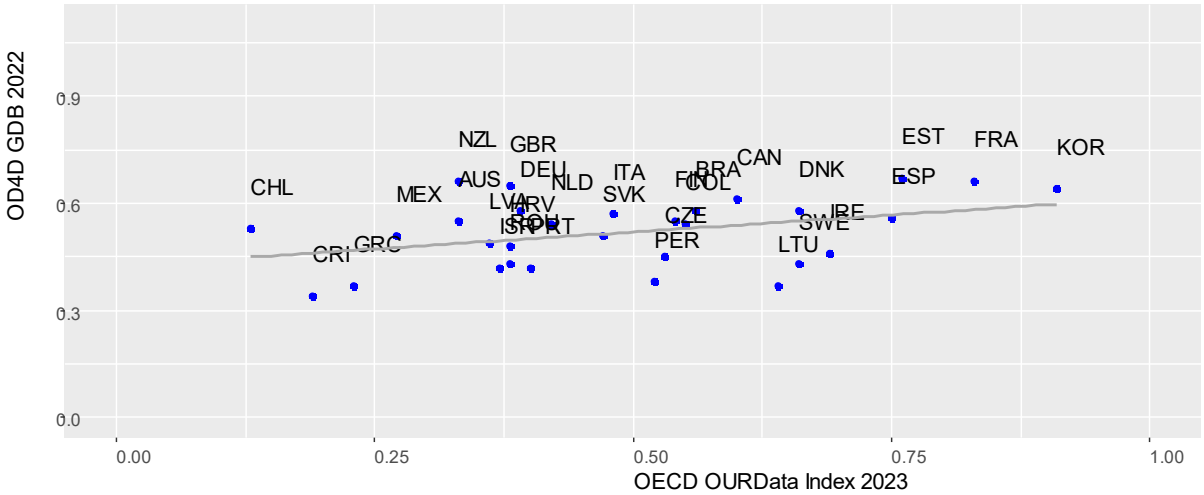


Fig. A.26 Correlation Plot between the OECD OURD 2023 and OD4D GDB 2022 Assessment Results | Prepared by Author

```
        Pearson's product-moment correlation

data:  cor_rankings$OURD_num and cor_rankings$GDB_num
t = 2.1797, df = 28, p-value = 0.03785
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 0.02387972 0.65171534
sample estimates:
      cor
0.3808722
```

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Fig. A.27 Correlation Statistics between the OECD OURD 2023 and OD4D GDB 2022 Assessment Results | Prepared by Author

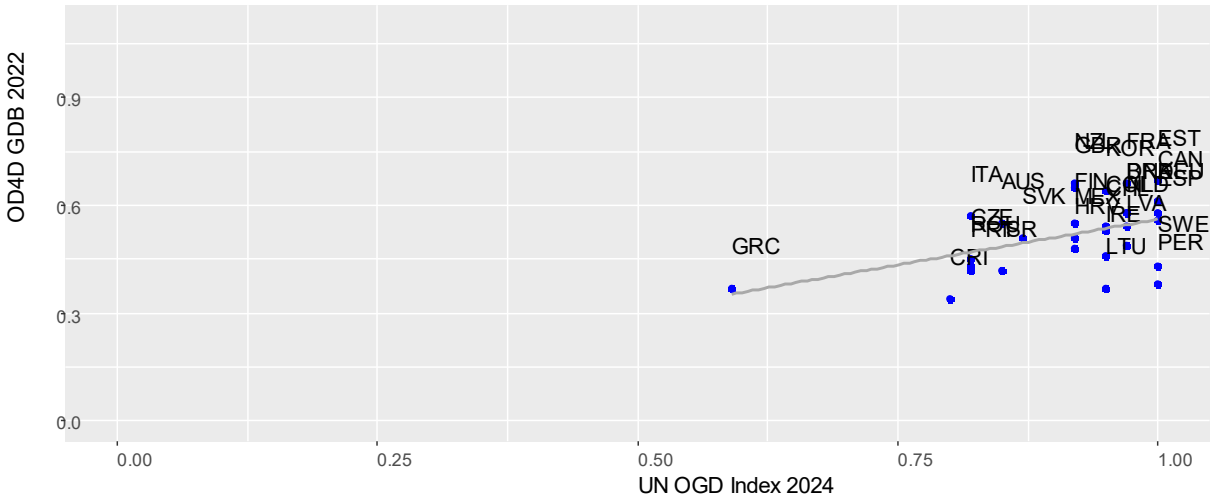


Fig. A.28 Correlation Plot between the UN OGDI 2024 and OD4D GDB 2022 Assessment Results | Prepared by Author

```
        Pearson's product-moment correlation

data:  cor_rankings$OGDI_num and cor_rankings$GDB_num
t = 2.8493, df = 28, p-value = 0.008127
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 0.1372784 0.7126466
sample estimates:
   cor
0.4741
```

Fig. A.29 Correlation Statistics between the UN OGDI 2024 and OD4D GDB 2022 Assessment Results | Prepared by Author

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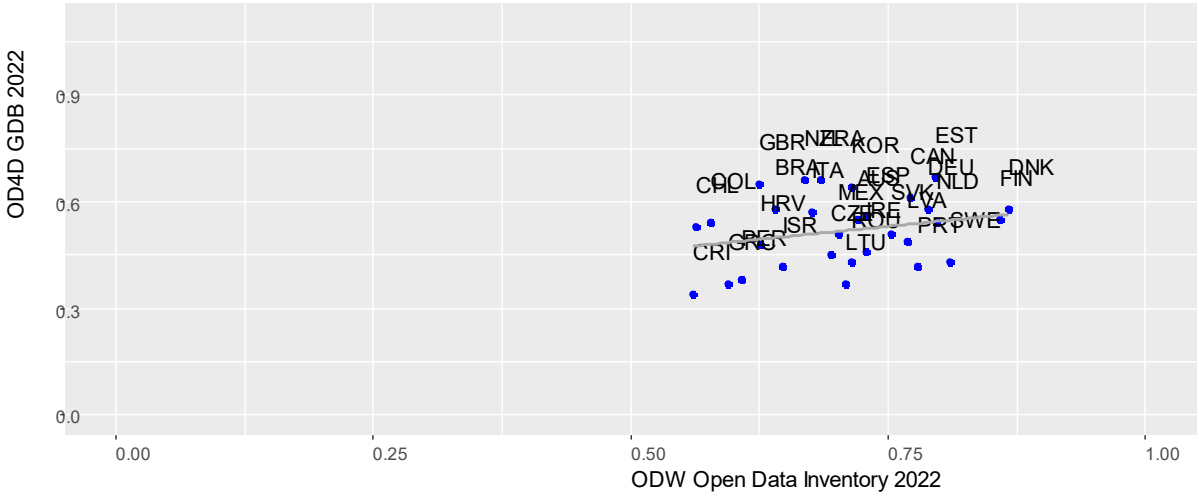
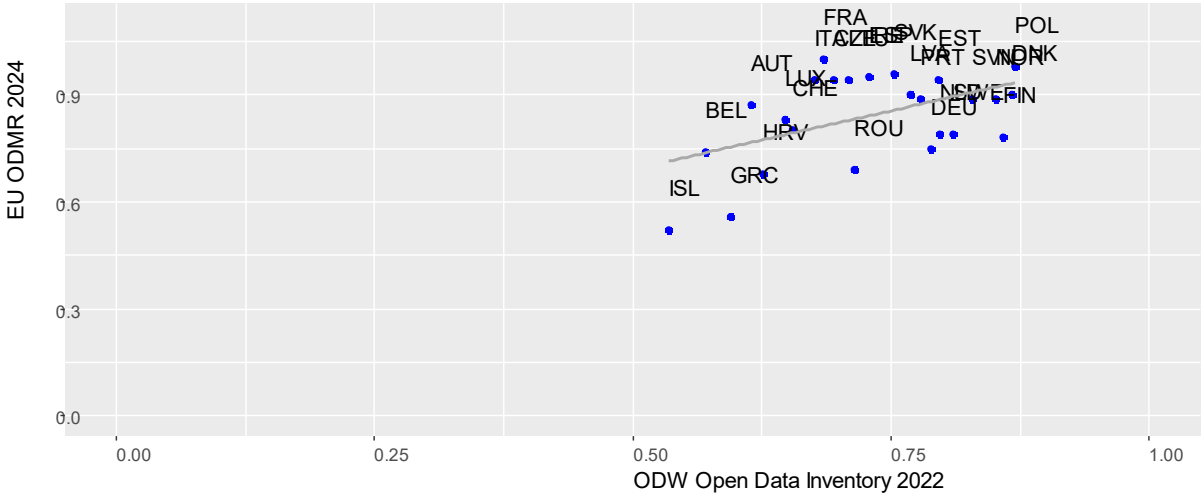


Fig. A.30 Correlation Plot between the ODW ODIN 2022 and OD4D GDB 2022 Assessment Results | Prepared by Author

```
        Pearson's product-moment correlation

data:  cor_rankings$ODIN_num and cor_rankings$GDB_num
t = 1.402, df = 28, p-value = 0.1719
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 -0.1147457  0.5643118
sample estimates:
      cor
0.256111
```

Fig. A.31 Correlation Statistics between the ODW ODIN 2022 and OD4D GDB 2022 Assessment Results | Prepared by Author



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Fig. A.32 Correlation Plot between the ODW ODIN 2022 and EU ODMR 2024 Assessment Results | Prepared by Author

```
        Pearson's product-moment correlation

data:  cor_rankings$ODIN_num and cor_rankings$ODMR_num
t = 2.8059, df = 24, p-value = 0.009794
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 0.1357958 0.7415892
sample estimates:
      cor
0.4970049
```

Fig. A.33 Correlation Statistics between the ODW ODIN 2022 and EU ODMR 2024 Assessment Results | Prepared by Author

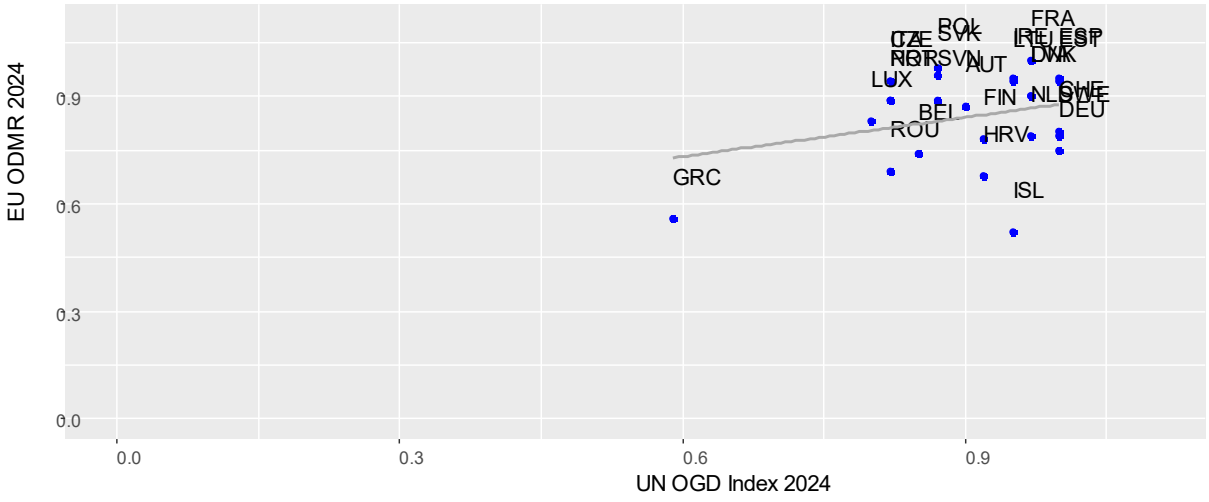


Fig. A.34 Correlation Plot between the UN OGDI 2024 and EU ODMR 2024 Assessment Results | Prepared by Author

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```
        Pearson's product-moment correlation

data:  cor_rankings$OGDI_num and cor_rankings$ODMR_num
t = 1.3868, df = 24, p-value = 0.1783
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 -0.1285434  0.5967619
sample estimates:
      cor
0.2723703
```

Fig. A.35 Correlation Statistics between the UN OGDI 2024 and EU ODMR 2024 Assessment Results | Prepared by Author

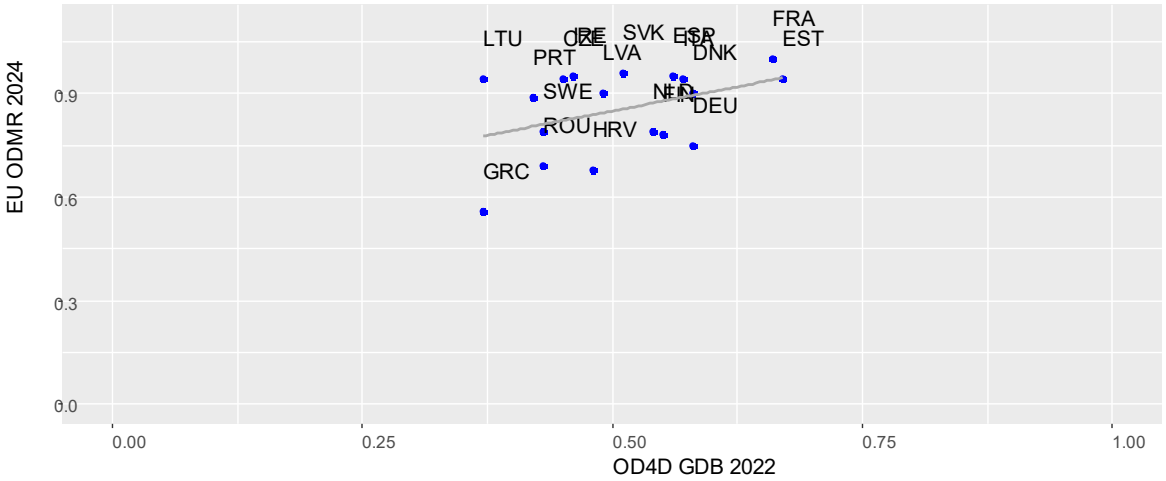


Fig. A.36 Correlation Plot between the OD4D GDB 2022 and EU ODMR 2024 Assessment Results | Prepared by Author

```
        Pearson's product-moment correlation

data:  cor_rankings$GDB_num and cor_rankings$ODMR_num
t = 1.7826, df = 16, p-value = 0.09363
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 -0.07383681  0.73437094
sample estimates:
      cor
0.4070657
```

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Fig. A.37 Correlation Statistics between the OD4D GDB 2022 and EU ODMR 2024 Assessment Results | Prepared by Author

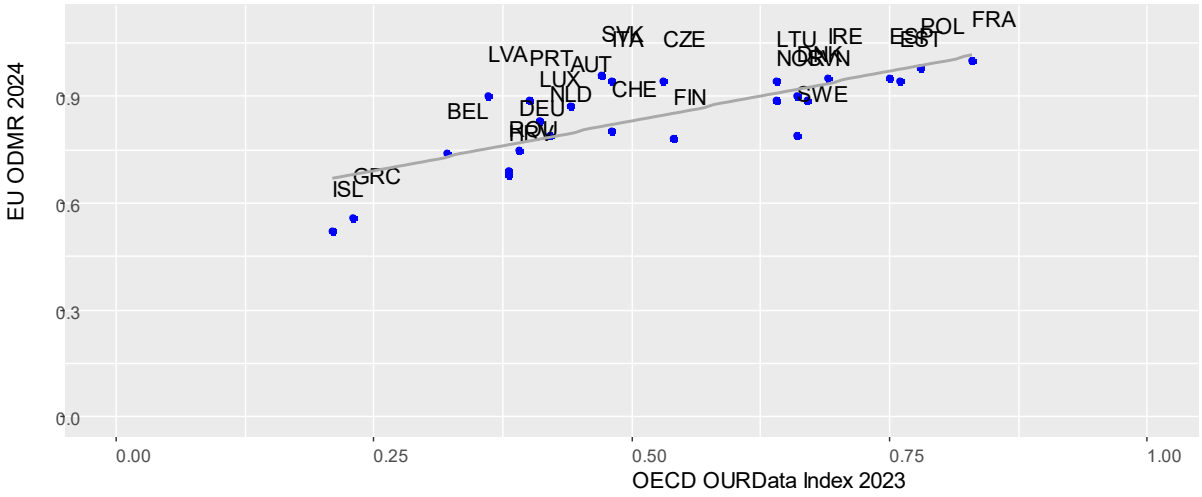


Fig. A.38 Correlation Plot between the OECD OURD 2023 and EU ODMR 2024 Assessment Results | Prepared by Author

```
        Pearson's product-moment correlation

data:  cor_rankings$OURD_num and cor_rankings$ODMR_num
t = 5.8241, df = 24, p-value = 5.259e-06
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 0.5371443 0.8890751
sample estimates:
      cor
0.765271
```

Fig. A.39 Correlation Statistics between the OECD OURD 2023 and EU ODMR 2024 Assessment Results | Prepared by Author

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Endnotes

[i] Canada is present in five out of six open government data benchmarks. One remaining rating, Open Data Maturity (2019), assesses only the EU member states.

[ii] These benchmarks are the following ones: Open Data Barometer by Open Data Institute and World Wide Web Foundation (2019 edition), Global Open Data Index by Open Knowledge Foundation (2016-17 edition), Open Data Maturity by European Data Portal (2019 edition), Open Government Index by the World Justice Project (2020 edition), Open Government Data Report by the Organisation for Economic Cooperation and Development (2020 edition), and Open Data Inventory by Open Data Watch (2020 edition).

[iii] The database and RStudio code are available for verifying the article's findings upon request.

[iv] The analytical file created in MAXQDA can be provided upon request.

[v] This adjustment is done by diving ODIN ODW 2022 country scores by 100.

[vi] OGDI UN EGS 2024 slightly differs in distribution from other assessments. The highest score "1" is assigned to several countries because they all correspond to certain criteria.

[vii] A developed country is defined in this paper as the one with a high or very high score in Human Development Index 2023 by the United Nations Development Programme and upper-middle or high income according to the World Bank Group country classification 2024.

[viii] The table includes the countries that are present in top-10 lists of three and more benchmarks.

[ix] This and other supporting analytical steps are included in the RStudio code.

[x] In the ODIN ODW 2022 methodological guide, small countries comprise Andorra, Anguilla, Antigua and Barbuda, Aruba, Bahrain, Barbados, Dominica, Grenada, Hong Kong, Kiribati, Liechtenstein, Macao, Maldives, Malta, Marshall Islands, Micronesia, Monaco, Nauru, Palau, Sao Tome and Principe, San Marino, Seychelles, Singapore, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Tonga, and Tuvalu.

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