

A rebuttal letter that responds to each point raised by the academic editor and reviewer(s). You should upload this letter as a separate file labeled 'Response to Reviewers'.

Bodo

A marked-up copy of your manuscript that highlights changes made to the original version. You should upload this as a separate file labeled 'Revised Manuscript with Track Changes'.

Bodo

An unmarked version of your revised paper without tracked changes. You should upload this as a separate file labeled 'Manuscript'.

Bodo

1. Please ensure that your manuscript meets PLOS ONE's style requirements, including those for file naming. The PLOS ONE style templates can be found at

<https://journals.plos.org/plosone/s/file?id=wjVg/PLOSTemplateFormattingSampleMainBody.pdf> and

<https://journals.plos.org/plosone/s/file?id=ba62/PLOSTemplateFormattingSampleTitleAuthorAffiliations.pdf>

Bodo

2. Please consider changing the title so as to meet our title format requirement (<https://journals.plos.org/plosone/s/submission-guidelines>). In particular, the title should be "Specific, descriptive, concise, and comprehensible to readers outside the field" and in this case it is not informative and specific about your study's scope and methodology.

Bodo+ALL

We note that one or more of the authors are employed by a commercial company: CEEMID.

DANI independent researcher explain in cover letter

“The funder provided support in the form of salaries for authors [insert relevant initials], but did not have any additional role in the study design, data collection and analysis, decision to publish, or preparation of the manuscript. The specific roles of these authors are articulated in the ‘author contributions’ section.”

If your commercial affiliation did play a role in your study, please state and explain this role within your updated Funding Statement.

3.2. Please also provide an updated Competing Interests Statement declaring this commercial affiliation along with any other relevant declarations relating to employment, consultancy, patents, products in development, or marketed products, etc.

Within your Competing Interests Statement, please confirm that this commercial affiliation does not alter your adherence to all PLOS ONE policies on sharing data and materials by including the following statement: "This does not alter our adherence to PLOS ONE policies on sharing data and materials." (as detailed online in our guide for authors <http://journals.plos.org/plosone/s/competing-interests>) . If this adherence statement is not accurate and there are restrictions on sharing of data and/or materials, please state these. Please note that we cannot proceed with consideration of your article until this information has been declared.

Please include both an updated Funding Statement and Competing Interests Statement in your cover letter. We will change the online submission form on your behalf.

Please know it is PLOS ONE policy for corresponding authors to declare, on behalf of all authors, all potential competing interests for the purposes of transparency. PLOS defines a competing interest as anything that interferes with, or could reasonably be perceived as interfering with, the full and objective presentation, peer review, editorial decision-making, or publication of research or non-research articles submitted to one of the journals. Competing interests can be financial or non-financial, professional, or personal. Competing interests can arise in relationship to an organization or another person. Please follow this link to our website for more details on competing interests: <http://journals.plos.org/plosone/s/competing-interests>

4. We note that you have stated that you will provide repository information for your data at acceptance. Should your manuscript be accepted for publication, we will hold it until you provide the relevant accession numbers or DOIs necessary to access your data. If you wish to make changes to your Data Availability statement, please describe these changes in your cover letter and we will update your Data Availability statement to reflect the information you provide.

BODO

5. We note that Figure 2 and 4 in your submission contain map images which may be copyrighted. All PLOS content is published under the Creative Commons Attribution License (CC BY 4.0), which means that the manuscript, images, and Supporting Information files will be freely available online, and any third party is permitted to access, download, copy, distribute, and use these materials in any way, even commercially, with proper attribution. For these reasons, we cannot publish previously copyrighted maps or satellite images created using proprietary data, such as Google software (Google Maps, Street View, and Earth). For more information, see our copyright guidelines: <http://journals.plos.org/plosone/s/licenses-and-copyright>.

We require you to either (1) present written permission from the copyright holder to publish these figures specifically under the CC BY 4.0 license, or (2) remove the figures from your submission:

5.1. You may seek permission from the original copyright holder of Figure 2 and 4 to publish the content specifically under the CC BY 4.0 license.

We recommend that you contact the original copyright holder with the Content Permission Form (<http://journals.plos.org/plosone/s/file?id=7c09/content-permission-form.pdf>) and the following text:

"I request permission for the open-access journal PLOS ONE to publish XXX under the Creative Commons Attribution License (CCAL) CC BY 4.0 (<http://creativecommons.org/licenses/by/4.0/>). Please be aware that this license allows unrestricted use and distribution, even commercially, by third parties. Please reply and provide explicit written permission to publish XXX under a CC BY license and complete the attached form."

Please upload the completed Content Permission Form or other proof of granted permissions as an "Other" file with your submission.

In the figure caption of the copyrighted figure, please include the following text: "Reprinted from [ref] under a CC BY license, with permission from [name of publisher], original copyright [original copyright year]."

BODO

5.2. If you are unable to obtain permission from the original copyright holder to publish these figures under the CC BY 4.0 license or if the copyright holder's requirements are incompatible with the CC BY 4.0 license, please either i) remove the figure or ii) supply a replacement figure that complies with the CC BY 4.0 license. Please check copyright

information on all replacement figures and update the figure caption with source information. If applicable, please specify in the figure caption text when a figure is similar but not identical to the original image and is therefore for illustrative purposes only.

The following resources for replacing copyrighted map figures may be helpful:

USGS National Map Viewer (public domain): <http://viewer.nationalmap.gov/viewer/>

The Gateway to Astronaut Photography of Earth (public domain):
<http://eol.jsc.nasa.gov/sseop/clickmap/>

Maps at the CIA (public domain): <https://www.cia.gov/library/publications/the-world-factbook/index.html> and <https://www.cia.gov/library/publications/cia-maps-publications/index.html>

NASA Earth Observatory (public domain): <http://earthobservatory.nasa.gov/>

Landsat: <http://landsat.visibleearth.nasa.gov/>

USGS EROS (Earth Resources Observatory and Science (EROS) Center) (public domain):
<http://eros.usgs.gov/#>

Natural Earth (public domain): <http://www.naturalearthdata.com/>

6. Please ensure that you refer to Figures 2, 4 and 5 in your text as, if accepted, production will need this reference to link the reader to the figures.

BODO

7. We note you have included tables to which you do not refer in the text of your manuscript. Please ensure that you refer to Tables 5, 7 and 10 in your text; if accepted, production will need this reference to link the reader to the Tables.

BODO

8. Please include captions for your Supporting Information files at the end of your manuscript, and update any in-text citations to match accordingly. Please see our Supporting Information guidelines for more information: <http://journals.plos.org/plosone/s/supporting-information>.

BODO

[Note: HTML markup is below. Please do not edit.]

5. Review Comments to the Author

Reviewer #1: The paper "Open access is not a panacea, even if it's radical – an empirical study on the role of shadow libraries in closing the inequality of knowledge access" investigates on the economic and social factors behind the usage of shadow libraries, and provides interesting analysis in the global and European models. The publishers' subscription fee increases the financial burden of institutions and researchers. Shadow library was created to deal with complex institutional, political, financial, and other issues. However, academic piracy is worth studying, so this study is indeed a relevant and timely topic. This article is well organized and draws conclusions and arguments on the data analysis. I only have a few minor comments for the authors to consider, as to further improve the article:

1. In the "Data Overview and Descriptive Statistics" section, the author obtained many data sources, which provided the source and explanation of variables for the following model. It is important to show a table with the descriptive statistical information of variables in the model. This table can show the information of variables more intuitively and enhance readability.

ZOLI

2. In the construction of Global/European model, independent variables should use literature to support, especially for the authors to justify their research design (why some indicators were considered, but not the others)

BODO

3. In the Global Model, the authors write " Since our dependent variable is count data, the use of Poisson regression is justified. On the other hand, a negative binomial distribution did not suit this problem, therefore we omitted that approach " When the dependent variable is count data, Poisson regression and negative binomial regression are optional. Although Poisson regression is usually used, it needs explanation why negative binomial distribution is not suitable for this problem. If possible, the author should declare the reason for selecting regression methods, such as the relationship between expectation and variance.

ZOLI

4. There are three identical tables 3. I don't understand why three identical tables should be here.

BODO

5. In the Random forest models, I believe that the random forest model selected by the author has performed well in this study, but other model selection methods should also be considered. If possible, authors can add the comparison between other methods and the random forest model, which can better explain why the random forest method is used instead of others.

DANI BRUTE FORCE

Reviewer #2: This is an illuminating and meaningful study. According to regression analysis in global models and European models, the authors found two significant demand drivers of scholarly piracy: GDP and the size of knowledge intensive sector; and revealed that open access knowledge might have limited usefulness in addressing knowledge access and production inequalities, in case of lacking inadequate or improper knowledge absorption infrastructures, which could be thought-provoking for the global open-access movement.

There are several minor problems that need to be addressed or improved.

1. The names of variables should be addressed clearly, such as “dl_per_pop_round”, “dl_per_pop”, “pop_per_mil”, “eb_is_visit_public_library”, “eb_limited_library_supply”, et al.

BODO

2. What is the statistical meaning of value in parentheses below the coefficient in each model? It doesn't look like the P value since the value doesn't match the significant signal. Please give the necessary illustration.

BODO

3. Table 3 appears three times, and table 6 appears twice. Figure 6 is not shown in the manuscript. Please check the layout and details carefully.

BODO

4. In page 15 and 16, authors claimed the model 7 can “explain ~72% of the variance”, “effect of disposable income is positive and significant at a 95% level” in model 9, and “the download per researcher models have a worse fit than the per capita models”. How statistics support these statements? Could the certifiable statistics be available?

ZOLI+BODO

5. It seems not very clear to understand how the results of Random forest models connect with other models or support the research conclusion. Would the results of Random forest models be available and explained more specifically and clearly?

BODO

6. PLOS authors have the option to publish the peer review history of their article ([what does this mean?](#)). If published, this will include your full peer review and any attached files.

While revising your submission, please upload your figure files to the Preflight Analysis and Conversion Engine (PACE) digital diagnostic tool, <https://pacev2.apexcovantage.com/>. PACE helps ensure that figures meet PLOS requirements. To use PACE, you must first register as a user. Registration is free. Then, login and navigate to the UPLOAD tab, where you will find detailed instructions on how to use the tool. If you encounter any issues or have any questions when using PACE, please email PLOS at figures@plos.org. Please note that Supporting Information files do not need this step.

The paper “Open access is not a panacea, even if it’s radical – an empirical study on the role of shadow libraries in closing the inequality of knowledge access” investigates on the economic and social factors behind the usage of shadow libraries, and provides interesting analysis in the global and European models. The publishers' subscription fee increases the financial burden of institutions and researchers. Shadow library was created to deal with complex institutional, political, financial, and other issues. However, academic piracy is worth studying, so this study is indeed a relevant and timely topic. This article is well organized and draws conclusions and arguments on the data analysis. I only have a few minor comments for the authors to consider, as to further improve the article:

In the “Data Overview and Descriptive Statistics” section, the author obtained many data sources, which provided the source and explanation of variables for the following model. It is important to show a table with the descriptive statistical information of variables in the model. This table can show the information of variables more intuitively and enhance readability.

ZOLI

2. In the construction of Global/European model, independent variables should use literature to support, especially for the authors to justify their research design (why some indicators were considered, but not the others)

Bodo

3. In the Global Model, the authors write " Since our dependent variable is count data, the use of Poisson regression is justified. On the other hand, a negative binomial distribution did not suit this problem, therefore we omitted that approach " When the dependent variable is count data, Poisson regression and negative binomial regression are optional. Although Poisson

regression is usually used, it needs explanation why negative binomial distribution is not suitable for this problem. If possible, the author should declare the reason for selecting regression methods, such as the relationship between expectation and variance.

ZOLI

4. There are three identical tables 3. I don't understand why three identical tables should be here.

BODO

5. In the Random forest models, I believe that the random forest model selected by the author has performed well in this study, but other model selection methods should also be considered. If possible, authors can add the comparison between other methods and the random forest model, which can better explain why the random forest method is used instead of others.

Dani Brute force