



Managing Agricultural Credit Risk in the Face of Natural Disasters: Lessons from Sub-Saharan Africa, Asia and the Americas

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This review verifies the reproducibility of the exhibits included in the paper “*Managing Agricultural Credit Risk in the Face of Natural Disasters: Lessons from Sub-Saharan Africa, Asia and the Americas*”.

Contents in this review:

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Main findings

- **Every exhibit in the paper has been reproduced accurately.**
- The code for Figure 3 was successfully executed on a new computer after:
 1. Opening the R project;
 2. Running the code Figure 3_Reproducibility.
- The rest of the exhibits are produced in Excel, and were verified using the information in the README file.
- The output demonstrates consistent stability across multiple runs. Specifically, executing the code two times consecutively yielded identical results.
- The code takes approximately 2 minutes to run.
- We conducted our reproducibility analysis based on the paper shared by the authors.
- **Verification Process and Data Handling:**
 - The reproducibility package relies on 1 types of data: open data.
 - Open data is included in the public reproducibility package.
 - *data_hash_report.csv* lists the SHA256 hashes of all files in the Data folder to support data integrity checks.
- **Reproducibility Summary:**
 - **Data:** All data sources are publicly available and included in the reproducibility package.

- **Code:** All code files (from cleaning to analysis) are included in the reproducibility package.
- **Outputs:** Some outputs are not generated by code (created manually in Excel, ArcGIS, etc), but instructions for producing these outputs are included in the README file.
- **Dependencies environment:** The reviewers created a new environment using the latest versions of dependencies available at the moment of the review.

List of exhibits and reproducibility status

Results in the Main Section of the Paper

- **Figure 1 Reproduced with manual edits.** Figures are created manually in Excel.
- **Figure 2 Reproduced with manual edits.** Figures are created manually in Excel.
- **Figure 3 Reproduced.** Verified against ag_shares
- **Figure 4 Reproduced with manual edits.** Figures are created manually in Excel.
- **Figure 5 Reproduced with manual edits.** Verified. Data comes from Data for PIVOT rows 40,41, computed as the average of columns K, L, M, O, P, Q.
- **Figure 6 Reproduced with manual edits.** The figure is created manually in Excel, and calculations are in the Excel file.
- **Figure 7 Reproduced with manual edits** Verified. Data from Data for PIVOT cells AO3 to AO38. Computed as a count table in tab Fig 7, the count was performed manually.
- **Figure 8 Reproduced with manual edits.** Verified. Data from Data for PIVOT rows 41,42. Average rank computed as the average of columns AR, AS, AT, AU, AV. Relevance computed in tab Fig 8 as the reciprocal of the average rank.
- **Figure 9 Reproduced with manual edits.** Verified. Data from Data for PIVOT rows 41,42. Average rank for figures computed as the average of values in columns AX, AY, AZ, BA, BC, BD, BE, BF, BG, respectively. Relevance computed as reciprocal of the average rank in tab Fig 9.
- **Figure 10 Reproduced with manual edits** Verified. Data from Data for PIVOT cells BM3 to BM38. The count table was produced manually in Table 10 based on these values.
- **Figure 11 Reproduced with manual edits.** Verified. Data from Data for PIVOT rows 41 and 42. Computed as the average of columns BS, BT, BU, BV, and BX, BY, BZ, CA, CB. Relevant computed in tab Fig 11 as the reciprocal of the average values.
- **Figure 12 Reproduced with manual edits.** Verified. Data from rows 41,42 in Data for PIVOT. Computed as the count of non-empty cells in columns CV, CW, CX, CY, CZ, DA, DB, DC. Percentage values reported in the figure were calculated by dividing count values by 36 in tab Fig 12.
- **Figure 13 Reproduced with manual edits** Verified. Data from Data for PIVOT rows 41,42. Computed as count of non-empty cells in columns DK,DL,DM,DN,DO. Percentage values used in the figure calculated by dividing count values by 36 in tab Fig 13.

- **Table 1** Does not apply Descriptive table.
- **Table 2** Does not apply Descriptive table.
- **Table 3** Reproduced with manual edits. Verified against Table 3_Summary of disaster events per country.xlsx. The table is manually created.
- **Table 4** Reproduced with manual edits. Verified against tables 4(1) and 4(2) in excel. Formatting different, values rounded up for average columns 2 and 3. The pivot table clearly shows where the data comes from.
- **Table 5** Reproduced with manual edits. Verified and README explains how to do calculations.
- **Table 6** Reproduced with manual edits. Verified and README explains how to do calculations.
- **Table 7** Reproduced with manual edits. Verified and README explains how to do calculations.
- **Table 8** Reproduced with manual edits. Verified. The README and Table 8 explain how to do the calculations.
- **Table 9** Reproduced with manual edits. Verified. The README and Table 9 explain how to do the calculations.
- **Table 10** Reproduced with manual edits. README explains how to do calculations.
- **Table 11** Reproduced with manual edits. Verified and clearly explained calculations in README. The pivot table clearly shows where the data comes from.
- **Table 12** Reproduced with manual edits. Calculations are explained in the README and in the pivot table.
- **Table 13** Reproduced with manual edits. Calculations are explained in the README and in the pivot table.
- **Table 14** Reproduced with manual edits. Verified and pivot table clearly explains calculations.
- **Table 15** Reproduced with manual edits. Calculations are explained in the README and in the pivot table.
- **Table 16** Reproduced with manual edits. Verified and pivot table explain calculations.
- **Table 17** Does not apply Descriptive.
- **Table 18** Does not apply Descriptive. Source not mentioned in the report.

Reproduction Environment

Paper exhibits were reproduced on a computer with the following specifications:

- OS: Windows 11 Enterprise
- Processor: Intel(R) Core(TM) i5-1145G7 CPU @ 2.60GHz

- Memory available: 15.7 GB
- Software version: R 4.5.1