Dataverse: Research Transparency through Data Sharing

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Harvard University

Summer Institute
June 2014

BITSS
Berkeley Initiative for Transparency in the Social Sciences

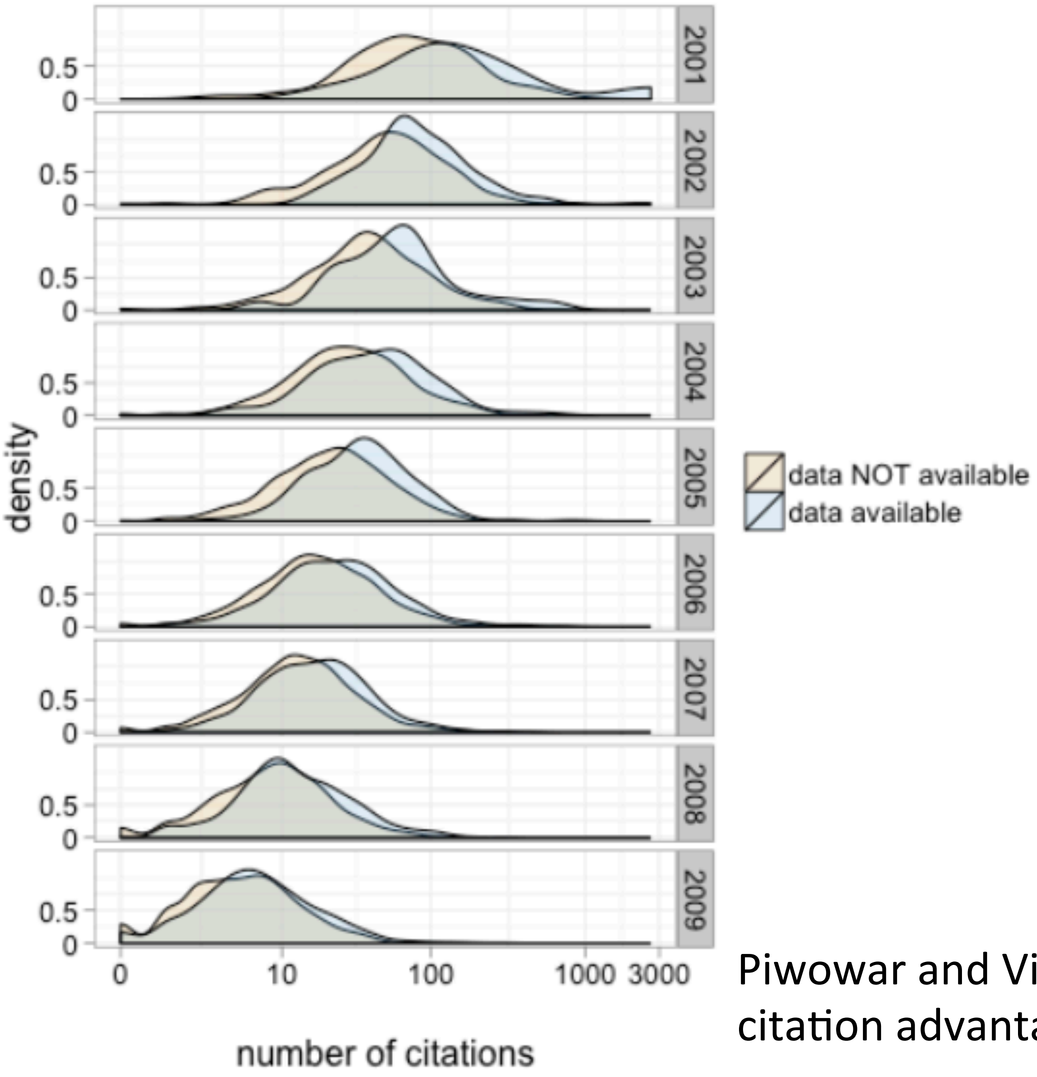
Data sharing is good for science

Making your research data accessible is important:

- To reproduce research
- To make public assets available to the public
- To leverage investments in research data
- To advance research and innovation

Borgman, Oct 2013, “Why you should care about open data” Open Access Week Talk

…and good for you

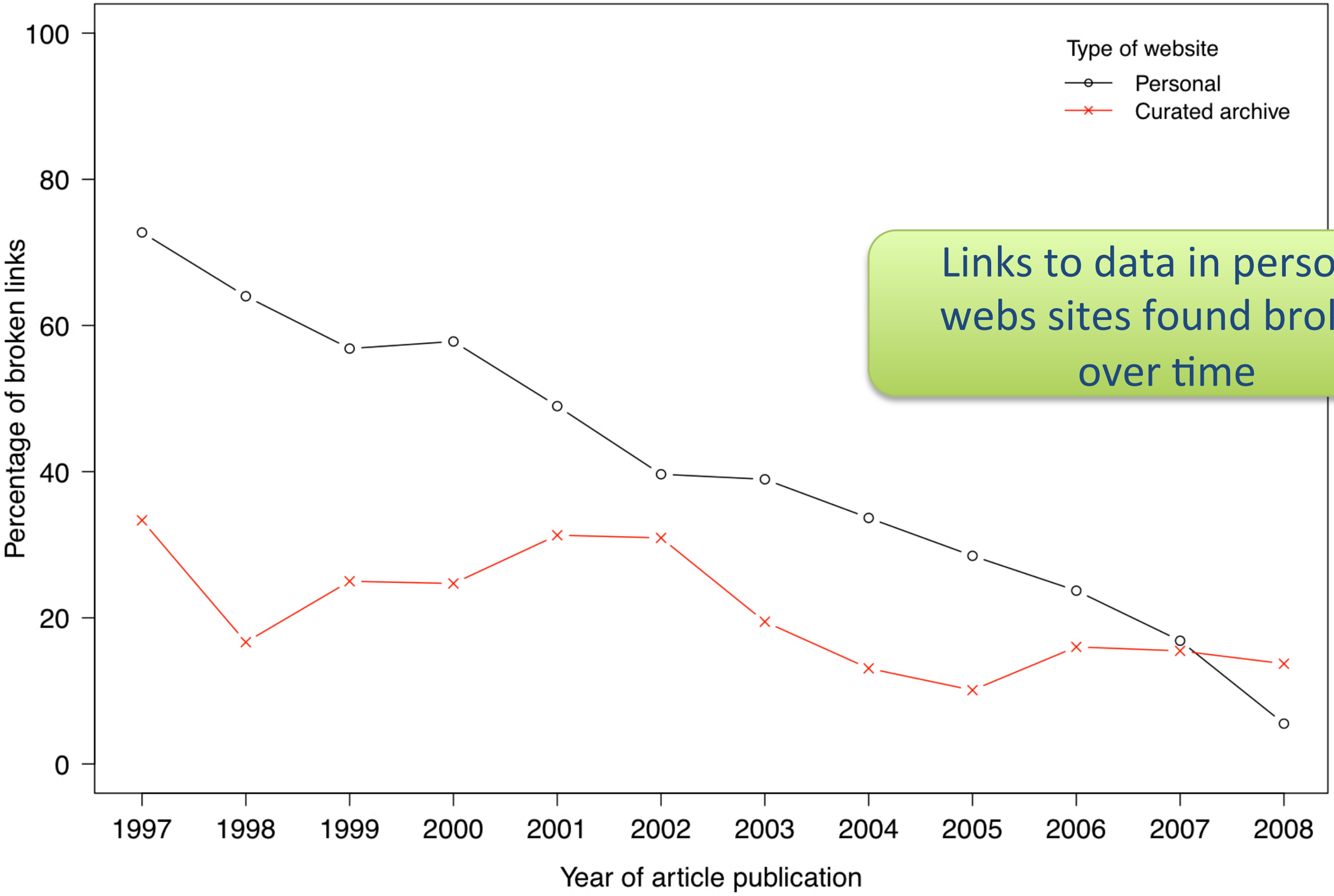


10,555 studies that created gene expression microarray data:

- Studies that share data received 9% **more citations**
- Authors published most papers using their own data within 2 years
- Data reuse papers by third-party investigators continued for 6 years

Piwowar and Vision (2013), Data reuse and the open data citation advantage. PeerJ 1:e175; DOI 10.7717/peerj.175

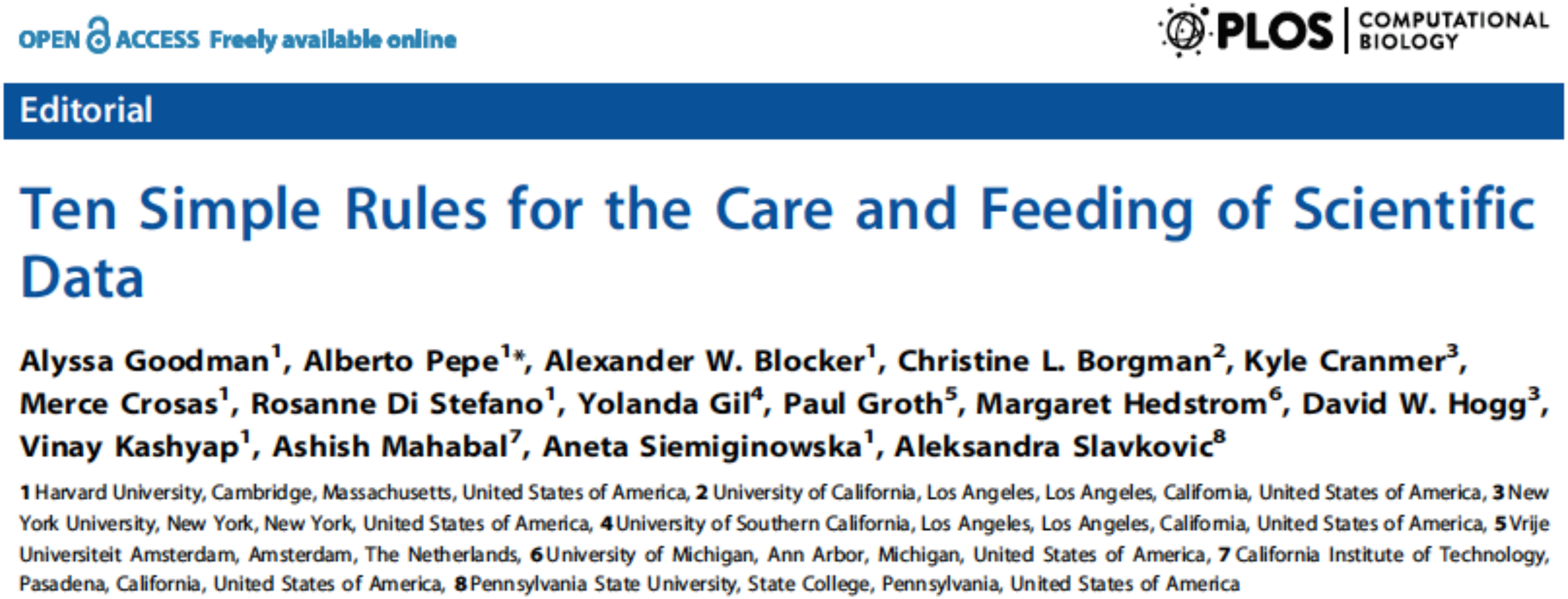
But data sharing must include long-term accessibility



Links to data in personal webs sites found broken over time

Pepe, Goodman, Muench, Crosas, Erdmann, 2014 “Sharing, Archiving and Citing Data in Astronomy” *Forthcoming*

We hosted a workshop at Harvard University to address issues about data sharing and reuse, and the result was: "10 Rules"



OPEN ACCESS Freely available online

PLOS | COMPUTATIONAL BIOLOGY

Editorial

Ten Simple Rules for the Care and Feeding of Scientific Data

Alyssa Goodman[1], Alberto Pepe[1]*, Alexander W. Blocker[1], Christine L. Borgman[2], Kyle Cranmer[3], Merce Crosas[1], Rosanne Di Stefano[1], Yolanda Gil[4], Paul Groth[5], Margaret Hedstrom[6], David W. Hogg[3], Vinay Kashyap[1], Ashish Mahabal[7], Aneta Siemiginowska[1], Aleksandra Slavkovic[8]

1 Harvard University, Cambridge, Massachusetts, United States of America, 2 University of California, Los Angeles, Los Angeles, California, United States of America, 3 New York University, New York, New York, United States of America, 4 University of Southern California, Los Angeles, Los Angeles, California, United States of America, 5 Vrije Universiteit Amsterdam, Amsterdam, The Netherlands, 6 University of Michigan, Ann Arbor, Michigan, United States of America, 7 California Institute of Technology, Pasadena, California, United States of America, 8 Pennsylvania State University, State College, Pennsylvania, United States of America

Rule 1: Love your data, and let others love them too

- If you make your data easily available to others, others are more likely to do the same—eventually.
- Or at least take solace in the fact that you'll be able to find and reuse your own data if you treat them well.

Rule 2: Share your data online, with a permanent identifier

- Your personal web site is unlikely to be a good option for long-term data storage.

- Publish your data in a general or a domain-specific data repository that guarantees long-term access, and assigns a persistent identifier to the data (DOI, HDL, PURL).

Rule 3: Conduct science with data reuse in mind

- The higher the quality of provenance information, the higher the chance of enabling data reuse.
- Keep: 1) data, 2) metadata, and 3) information about the process of generating those data, such as code.

Rule 4: Publish workflow as context

Publish a description of your processing steps to offer essential context for interpreting and re-using data.

Rule 5: Link your data to your publications as early as possible

- Many journals now offer standard ways to contribute data to their archives or trusted data repositories and link it to your paper.
- Use a formal data citation in the publication's reference list.

Rule 6: Publish your code

Same best practices in relation to data and workflow also apply to software materials.

Rule 7: Say how you want to get credit for your data

- Simply describe your expectations on how you would like to be acknowledged.

- You can also release your data under a license, but making it simple for others to reuse it, when possible (Creative Commons, Open Data Commons, COS Open Data Badges).

Rule 8: Foster and use data repositories

Seek help from librarians, archivists or research communities on domain-based repositories and generic repositories available.

Rule 9: Reward colleagues who share their data properly

- Praise those following good practices.
- Follow good scientific practice and give credit to those whose data you use.

Rule 10: Help establish data science and data scientists as vital

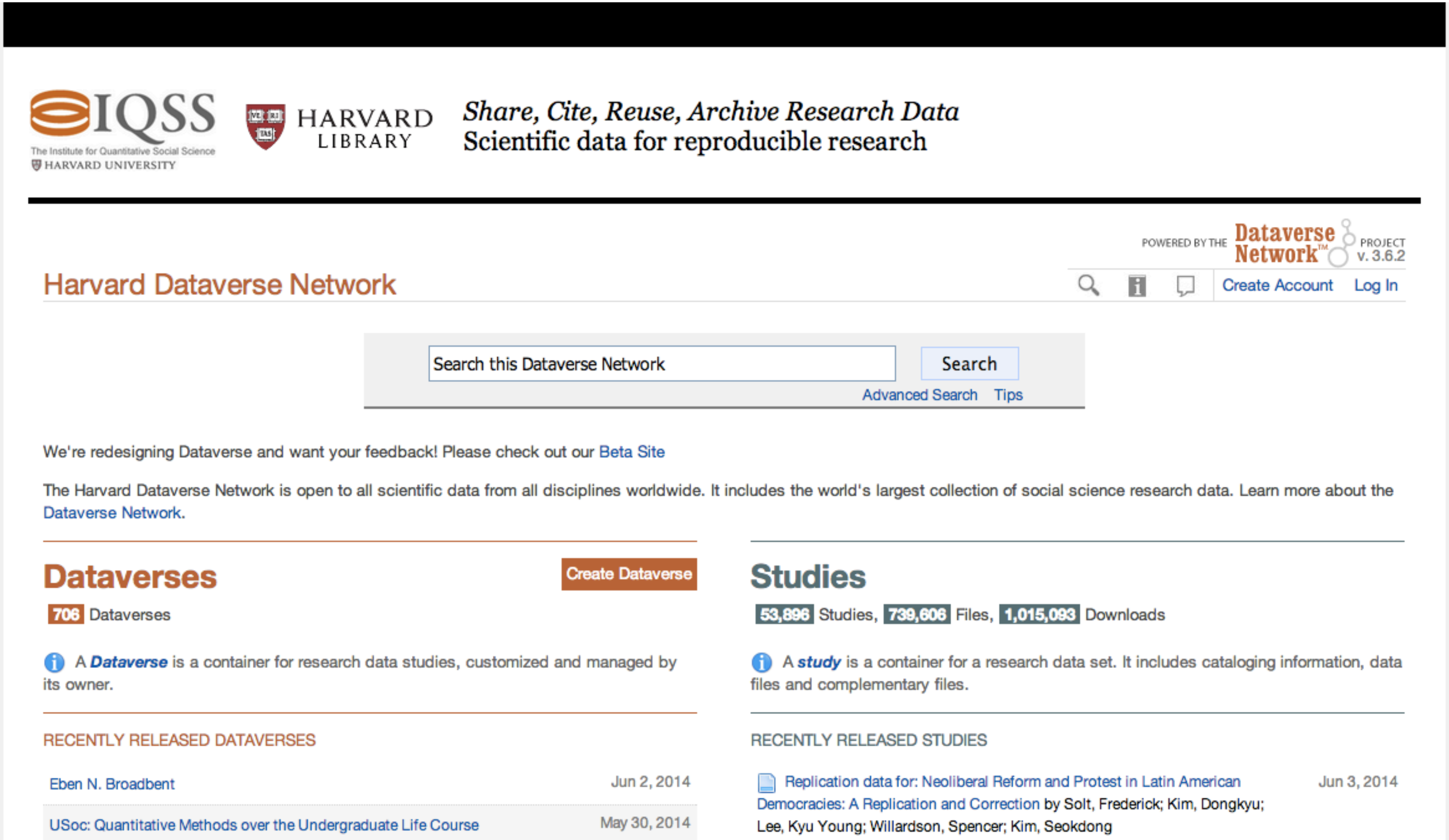
- Advocate for hiring data specialists and for the overall support of institutional programs that improve data sharing.

- Teach whole courses, or mini-courses, related to caring for data and software, or incorporate the ideas into existing courses.

The Dataverse repository as a solution for data sharing

- The Dataverse hosted at Harvard is open and free to all researchers worldwide.
- Serves as a solution to help you follow the 10 Rules.
- Contains already > 53, 000 data sets, the largest general-purpose data repositories in the world.
- The Dataverse open-source software is developed at Harvard's IQSS, by our data science team plus contributors.

Find or publish data at: http://thedata.harvard.edu



IQSS
The Institute for Quantitative Social Science
HARVARD UNIVERSITY
HARVARD LIBRARY

Share, Cite, Reuse, Archive Research Data
Scientific data for reproducible research

POWERED BY THE Dataverse Network™ PROJECT v. 3.6.2

Harvard Dataverse Network

Create Account
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We're redesigning Dataverse and want your feedback! Please check out our Beta Site

The Harvard Dataverse Network is open to all scientific data from all disciplines worldwide. It includes the world's largest collection of social science research data. Learn more about the Dataverse Network.

Dataverses

706 Dataverses

A ***Dataverse*** is a container for research data studies, customized and managed by its owner.

RECENTLY RELEASED DATAVERSES

Eben N. Broadbent	Jun 2, 2014
USoc: Quantitative Methods over the Undergraduate Life Course	May 30, 2014

Studies

53,898 Studies, 739,606 Files, 1,015,093 Downloads

A ***study*** is a container for a research data set. It includes cataloging information, data files and complementary files.

RECENTLY RELEASED STUDIES

Replication data for: Neoliberal Reform and Protest in Latin American Democracies: A Replication and Correction by Solt, Frederick; Kim, Dongkyu; Lee, Kyu Young; Willardson, Spencer; Kim, Seokdong — Jun 3, 2014

Data Publishing Steps

1. Create a **dataverse**: your own virtual data repository
2. Add a **study** (or dataset): the data unit you want to publish
3. Enter study **metadata** (or cataloging fields)
4. Upload **Files**
5. **Release** when everything is ready

Benefits of publishing data with Dataverse

What you contribute

- Sufficient information accompanying the data
- Data files with rich metadata

What Dataverse gives you

- Credit for your data through data citation
- Control on how to share your data
- Data exploration and analysis for tabular data
- Long-term data preservation

Sufficient information with the data

The **replication standard** holds that:

Sufficient information exists with which to understand, evaluate, and build upon a prior work if a third party could replicate the results without any additional information from the author.

King, Gary. 1995. Replication, Replication. PS: Political Science and Politics 28: 443–499.

“sufficient information”?

How were the respondents selected? Who did the interviewing? What was the question order? How did you decide which informants to interview or villages to visit? How long did you spend in each community? Did you speak to people in their language or through an interpreter? Which version of the ICPSR file did you extract information from? How knowledgeable were the coders? How frequently did the coders agree? Exactly what codes were originally generated and what were all the recodes performed? Precisely which measure of unemployment was used? What were the exact rules used for conducting the content analysis? When did the time series begin and end? What countries were included in your study and how were they chosen? What statistical procedures were used? What method of numerical optimization did you choose? Which computer program was used? How did you fill in or delete missing data?

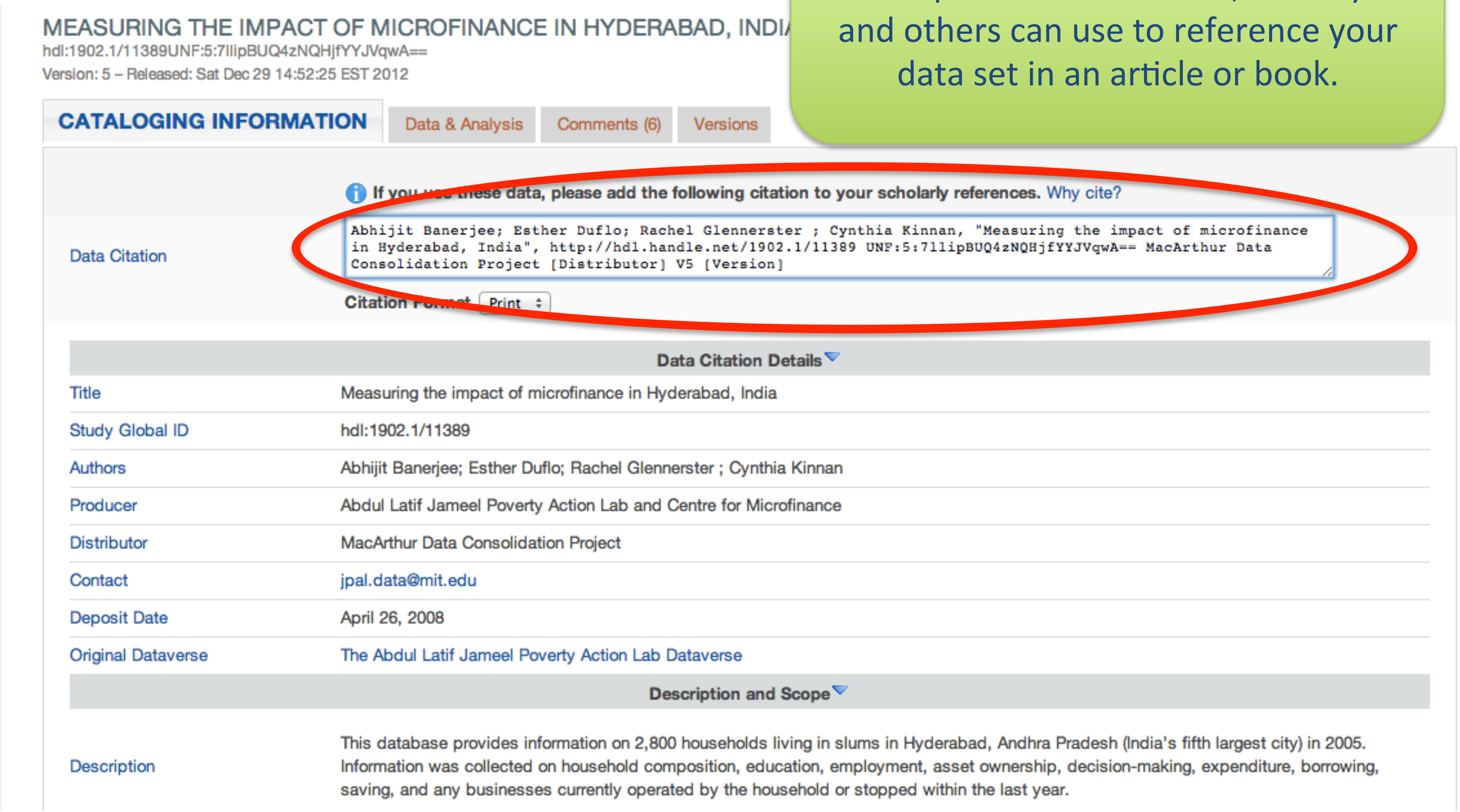
King, Gary. 1995. Replication, Replication. PS: Political Science and Politics 28: 443–499.

Metadata rich data files

Consider using the following files for tabular data sets:

- R Data: R is open-source, with a growing community
- SPSS, STATA: Also commonly used in social sciences
- Add full variable metadata
- Indicate properly missing data

Dataverse generates a **data citation** with a persistent identifier, which you and others can use to reference your data set in an article or book.



MEASURING THE IMPACT OF MICROFINANCE IN HYDERABAD, INDI

hdl:1902.1/11389UNF:5:7IlipBUQ4zNQHjfYYJVqwA==

Version: 5 – Released: Sat Dec 29 14:52:25 EST 2012

If you use these data, please add the following citation to your scholarly references. Why cite?

Data Citation

```
Abhijit Banerjee; Esther Duflo; Rachel Glennerster ; Cynthia Kinnan, "Measuring the impact of microfinance
in Hyderabad, India", http://hdl.handle.net/1902.1/11389 UNF:5:7llipBUQ4zNQHjfYYJVqwA== MacArthur Data
Consolidation Project [Distributor] V5 [Version]
```

Citation Format: Print

Data Citation Details	
Title	Measuring the impact of microfinance in Hyderabad, India
Study Global ID	hdl:1902.1/11389
Authors	Abhijit Banerjee; Esther Duflo; Rachel Glennerster ; Cynthia Kinnan
Producer	Abdul Latif Jameel Poverty Action Lab and Centre for Microfinance
Distributor	MacArthur Data Consolidation Project
Contact	jpal.data@mit.edu
Deposit Date	April 26, 2008
Original Dataverse	The Abdul Latif Jameel Poverty Action Lab Dataverse

Description and Scope	
Description	This database provides information on 2,800 households living in slums in Hyderabad, Andhra Pradesh (India's fifth largest city) in 2005. Information was collected on household composition, education, employment, asset ownership, decision-making, expenditure, borrowing, saving, and any businesses currently operated by the household or stopped within the last year.

Importance of data citation

Dataverse data citation is compliant with the Joint Declaration of Data Citation Principles, which states that:

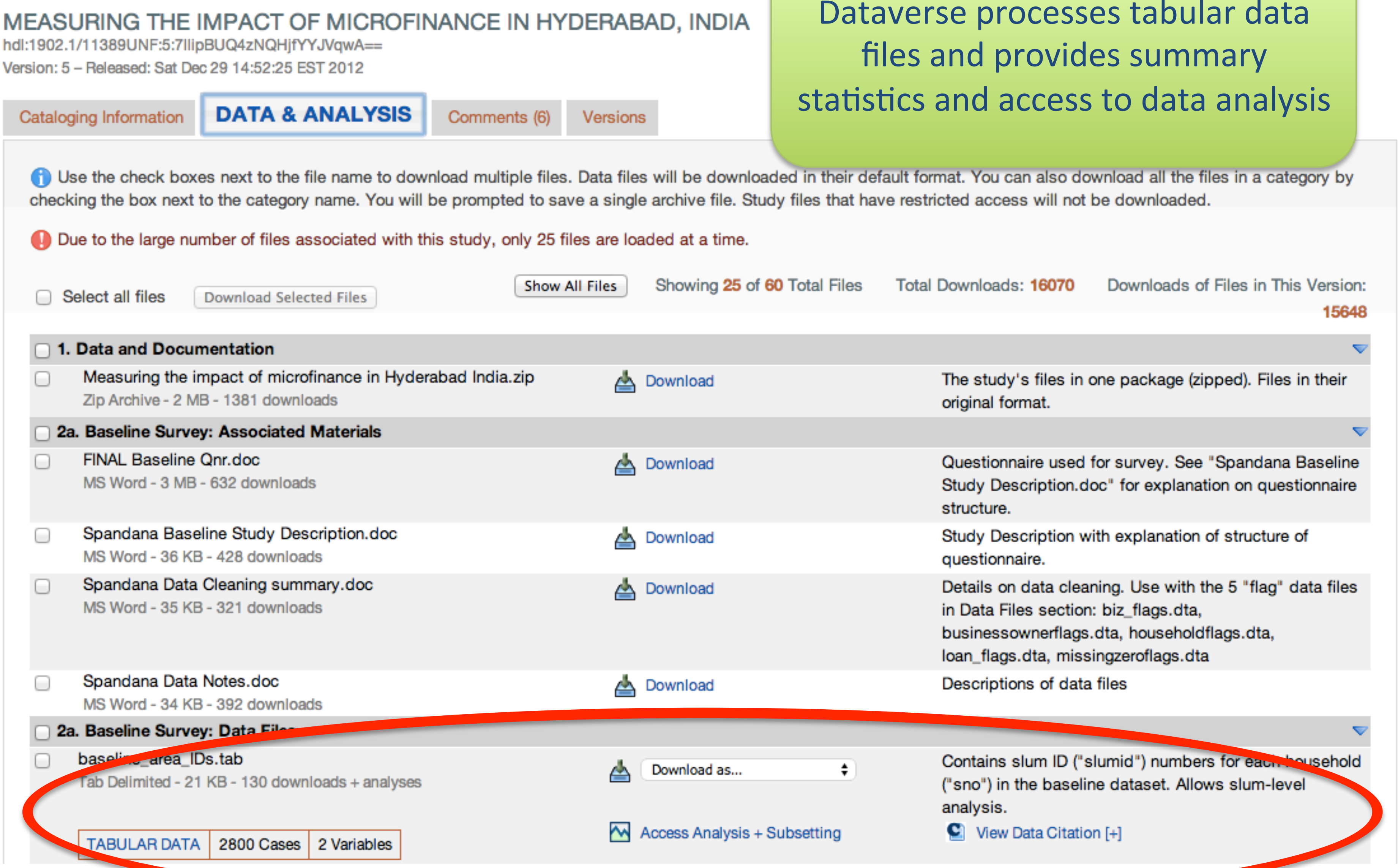
Sound, reproducible scholarship rests upon a foundation of robust, accessible data. For this to be so in practice as well as theory, data must be accorded due importance in the practice of scholarship and in the enduring scholarly record. In other words, data should be considered legitimate, citable products of research. Data citation, like the citation of other evidence and sources, is good research practice and is part of the scholarly ecosystem supporting data reuse.

DC^1

Data Citation Principles

To learn more and endorse the principles:
https://www.force11.org/datacitation

Dataverse processes tabular data files and provides summary statistics and access to data analysis



MEASURING THE IMPACT OF MICROFINANCE IN HYDERABAD, INDIA
hdl:1902.1/11389UNF:5:7llipBUQ4zNQHjfYYJVqwA==
Version: 5 – Released: Sat Dec 29 14:52:25 EST 2012

Use the check boxes next to the file name to download multiple files. Data files will be downloaded in their default format. You can also download all the files in a category by checking the box next to the category name. You will be prompted to save a single archive file. Study files that have restricted access will not be downloaded.

Due to the large number of files associated with this study, only 25 files are loaded at a time.

Showing 25 of 60 Total Files   Total Downloads: 16070   Downloads of Files in This Version: 15648

□ **1. Data and Documentation**

□ Measuring the impact of microfinance in Hyderabad India.zip Zip Archive - 2 MB - 1381 downloads	Download	The study's files in one package (zipped). Files in their original format.

□ **2a. Baseline Survey: Associated Materials**

□ FINAL Baseline Qnr.doc MS Word - 3 MB - 632 downloads	Download	Questionnaire used for survey. See "Spandana Baseline Study Description.doc" for explanation on questionnaire structure.
□ Spandana Baseline Study Description.doc MS Word - 36 KB - 428 downloads	Download	Study Description with explanation of structure of questionnaire.
□ Spandana Data Cleaning summary.doc MS Word - 35 KB - 321 downloads	Download	Details on data cleaning. Use with the 5 "flag" data files in Data Files section: biz_flags.dta, businessownerflags.dta, householdflags.dta, loan_flags.dta, missingzeroflags.dta
□ Spandana Data Notes.doc MS Word - 34 KB - 392 downloads	Download	Descriptions of data files

□ **2a. Baseline Survey: Data Files**

□ baseline_area_IDs.tab Tab Delimited - 21 KB - 130 downloads + analyses TABULAR DATA · 2800 Cases · 2 Variables	Download as... Access Analysis + Subsetting	Contains slum ID ("slumid") numbers for each household ("sno") in the baseline dataset. Allows slum-level analysis. View Data Citation [+]

Data Analysis with Zelig

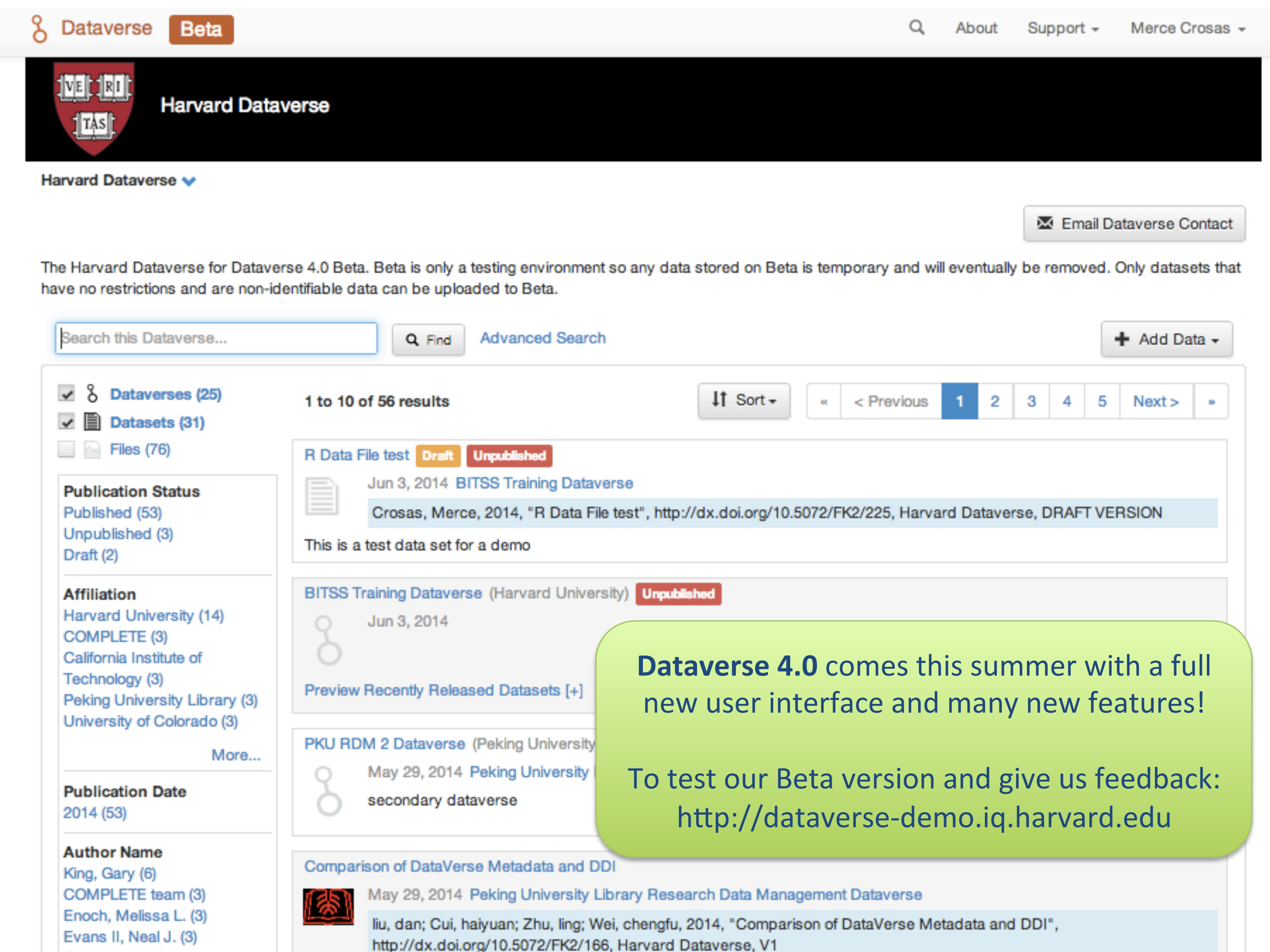
Dataverse integrates with **Zelig**:

- Zelig is an R package that provides a common interface to a large set of statistical models
- It is also developed at Harvard's IQSS, by our data science team plus contributors
- An enhanced version (Zelig 5) will be available this summer
- More information at: http://datascience.iq.harvard.edu/zelig

Additional Dataverse Features

Dataverse also allows you to:

- Link your data set to the original publication(s)
- Publish multiple versions of your datasets
- Set terms of use for your data
- Restrict data files, while metadata and documentation can be kept public (but we encourage **open data**, when possible)
- Brand your dataverse banner with your logo, image or colors
- Track downloads for your data, and enable a guestbook
- List data sets from other dataverses in your dataverse



Dataverse Beta

About Support Merce Crosas

Harvard Dataverse

Harvard Dataverse

Email Dataverse Contact

The Harvard Dataverse for Dataverse 4.0 Beta. Beta is only a testing environment so any data stored on Beta is temporary and will eventually be removed. Only datasets that have no restrictions and are non-identifiable data can be uploaded to Beta.

Search this Dataverse... Find Advanced Search Add Data

☑ Dataverses (25)
☑ Datasets (31)
☐ Files (76)

Publication Status
Published (53)
Unpublished (3)
Draft (2)

Affiliation
Harvard University (14)
COMPLETE (3)
California Institute of Technology (3)
Peking University Library (3)
University of Colorado (3)
More...

Publication Date
2014 (53)

Author Name
King, Gary (6)
COMPLETE team (3)
Enoch, Melissa L. (3)
Evans II, Neal J. (3)

1 to 10 of 56 results

Sort « < Previous 1 2 3 4 5 Next > »

R Data File test Draft Unpublished
Jun 3, 2014 BITSS Training Dataverse
Crosas, Merce, 2014, "R Data File test", http://dx.doi.org/10.5072/FK2/225, Harvard Dataverse, DRAFT VERSION
This is a test data set for a demo

BITSS Training Dataverse (Harvard University) Unpublished
Jun 3, 2014
Preview Recently Released Datasets [+]

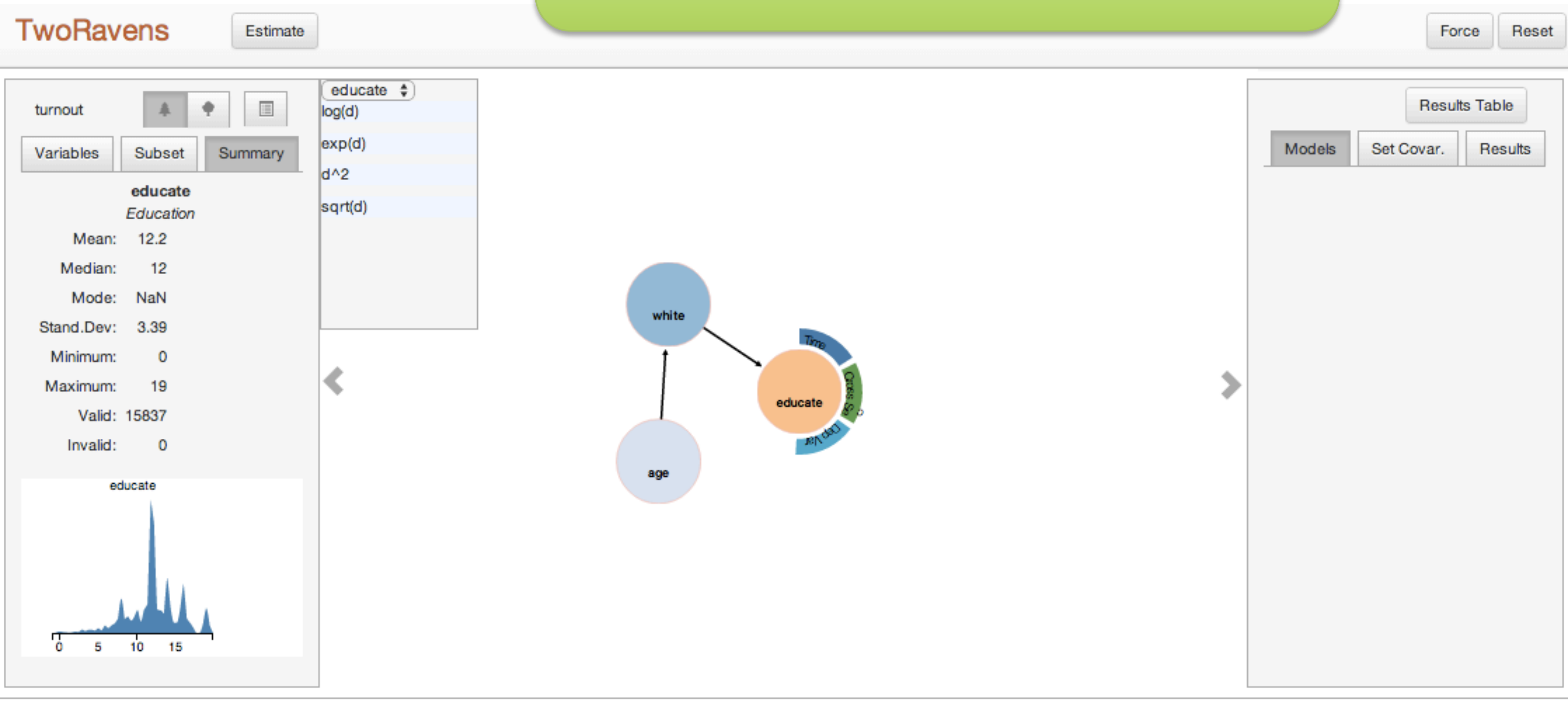
PKU RDM 2 Dataverse (Peking University
May 29, 2014 Peking University
secondary dataverse

Comparison of DataVerse Metadata and DDI
May 29, 2014 Peking University Library Research Data Management Dataverse
liu, dan; Cui, haiyuan; Zhu, ling; Wei, chengfu, 2014, "Comparison of DataVerse Metadata and DDI", http://dx.doi.org/10.5072/FK2/166, Harvard Dataverse, V1

Dataverse 4.0 comes this summer with a full new user interface and many new features!

To test our Beta version and give us feedback: http://dataverse-demo.iq.harvard.edu

Dataverse 4.0 will include a new interactive data exploration and analysis tool, **TwoRavens,** which integrates with **Zelig**

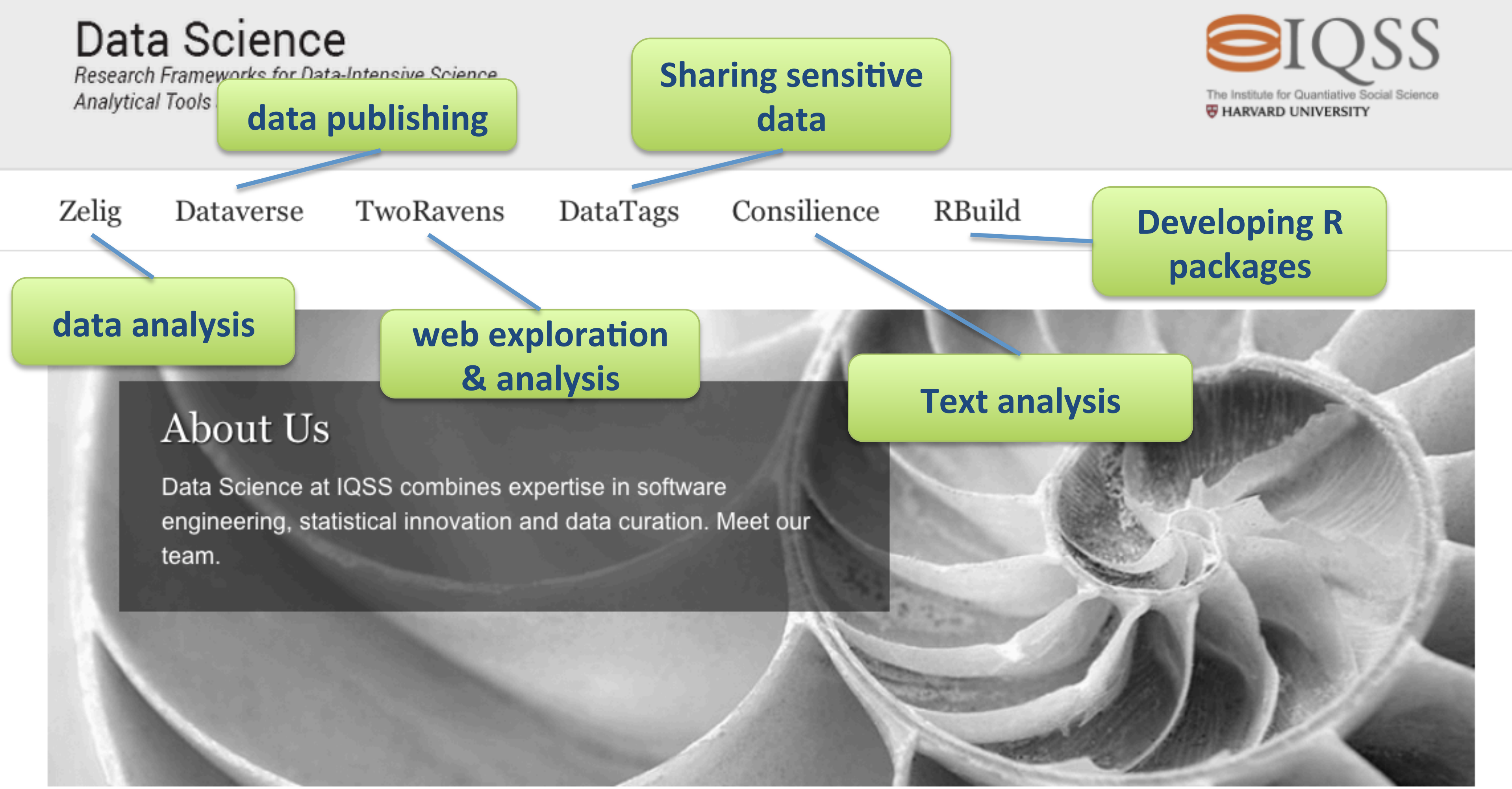


educate

Education

Mean:	12.2
Median:	12
Mode:	NaN
Stand.Dev:	3.39
Minimum:	0
Maximum:	19
Valid:	15837
Invalid:	0

Learn more about upcoming research tools at: http://datascience.iq.harvard.edu



Data Science

Research Frameworks for Data-Intensive Science

Analytical Tools

IQSS

The Institute for Quantitative Social Science

HARVARD UNIVERSITY

Zelig Dataverse TwoRavens DataTags Consilience RBuild

About Us

Data Science at IQSS combines expertise in software engineering, statistical innovation and data curation. Meet our team.

data publishing

Sharing sensitive data

Developing R packages

data analysis

web exploration & analysis

Text analysis

THANKS – mcrosas@iq.harvard.edu Twitter:@mercecrosas