The Quest for Replicability: A review of research data policies in economics journals

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Quick facts: SMU Libraries

- Over 462,000 books (Over 400,000 e-books)
- Access to 80,000+ e-journals
- 170+ electronic databases
- More than 2.8 million downloads from institutional repository
- Over 1.27 million visitors in 2018
- 39 staff: 19 professional librarians
What We Did

Examined the policies of the 74 general and field-specific Economics journals listed in the *Tilburg University Top 100 Economics School Research Ranking* database.

Why?

• To gain a broad understanding of the current state of data policies in economics journals

• Better informed in our advisory role to faculty in SMU’s School of Economics (SOE)
SMU’s School of Economics
and the *Tilburg University Top 100 Economics School Research Ranking*

**1st in Asia | Top 10 Worldwide**
for Econometrics Research, and 79th worldwide for overall Economics research in the Tilburg University Economics Schools Research Ranking based on contributions from 2013 to 2017

**Top 100 Worldwide Economics Schools**
Based on publications over a 5-year period in 68 leading economics journals

**50 full-time faculty from around the world**
with a wide range of expertise, from Econometrics, International Trade, Urban and Real Estate Economics, Health Economics and Labour Economics, to Macroeconomics, Game Theory and Mechanism Design and many more

SOE at a glance [https://economics.smu.edu.sg/](https://economics.smu.edu.sg/)
Research Question

WHAT PROPORTION OF ECONOMICS JOURNALS ON THE TILBURG LIST HAVE DATA AVAILABILITY POLICIES IN PLACE?
Methods

• **Exploratory** - categories depended on what characteristics we would find in the policies

• **3 phases of analysis:**
  i) Pilot examination of initial 10 journal policies
  ii) Full analysis of all 74 journal policies
  iii) Re-examination of policies and criteria

• **Analysis of text** - Systematically examined the author submission guidelines and data availability policies for key vocabulary, including eg “policy”, “data”, “must”, “strongly encouraged” etc.

• **Identified and defined criteria** indicative of strength
Process of Analysis

Data Availability Policy
Y/N

Type of Policy
Mandatory Data Policy (MDAP), Encouraged (EDAP), Author Responsibility Policy (ARP)

Elements of individual Policies
Strength criteria
Criteria - Indicative of Strength

- **Type of Policy** – mandatory policies

- **Separate policy/section** – substantial separate section encompassing both words ‘data’ AND ‘policy’.

- **Discipline-specific requirements** for Economics – distinguishes between Empirical papers and Experimental papers

- **Required components** – data, code, software, readme files etc.

- **Exemptions** – process for exemptions for proprietary, commercial, or confidential data

- **Clear instructions**, comprising of
  
  i) **Timing of deposit** eg. *on submission; upon acceptance; prior to publication*
  
  ii) **Location of deposit** eg. *specified data repository; alongside article as a file*
# Transparency and Openness Promotion (TOP) Guidelines

<table>
<thead>
<tr>
<th></th>
<th>Not Implemented</th>
<th>Level I</th>
<th>Level II</th>
<th>Level III</th>
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</thead>
<tbody>
<tr>
<td><strong>Citation Standards</strong></td>
<td>Journal encourages citation of data, code, and materials, or says nothing.</td>
<td>Journal describes citation of data in guidelines to authors with clear rules and examples.</td>
<td>Article provides appropriate citation for data and materials used consistent with journal’s author guidelines.</td>
<td>Article is not published until providing appropriate citation for data and materials following journal’s author guidelines.</td>
</tr>
<tr>
<td><strong>Data Transparency</strong></td>
<td>Journal encourages data sharing, or says nothing.</td>
<td>Article states whether data are available, and, if so, where to access them.</td>
<td>Data must be posted to a trusted repository. Exceptions must be identified at article submission.</td>
<td>Data must be posted to a trusted repository, and reported analyses will be reproduced independently prior to publication.</td>
</tr>
<tr>
<td><strong>Analytic Methods (Code) Transparency</strong></td>
<td>Journal encourages code sharing, or says nothing.</td>
<td>Article states whether code is available, and, if so, where to access it.</td>
<td>Code must be posted to a trusted repository. Exceptions must be identified at article submission.</td>
<td>Code must be posted to a trusted repository, and reported analyses will be reproduced independently prior to publication.</td>
</tr>
<tr>
<td><strong>Study Preregistration</strong></td>
<td>Journal says nothing</td>
<td>Article states whether preregistration of study exists, and, if so, where to access it.</td>
<td>Article states whether preregistration of study exists, and, if so, allows journal access during peer review for verification.</td>
<td>Journal requires preregistration of studies and provides link and badge in article to meeting requirements.</td>
</tr>
<tr>
<td><strong>Analysis Plan Preregistration</strong></td>
<td>Journal says nothing</td>
<td>Article states whether preregistration of analysis plan exists, and, if so, where to access it.</td>
<td>Article states whether preregistration with analysis plan exists, and, if so, allows journal access during peer review for verification.</td>
<td>Journal requires preregistration of studies with analysis plans and provides link and badge in article to meeting requirements.</td>
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<td><strong>Replication</strong></td>
<td>Journal discourages submission of replication studies, or says nothing.</td>
<td>Journal encourages submission of replication studies.</td>
<td>Journal encourages submission of replication studies and conducts results blind review.</td>
<td>Journal uses Registered Reports as a submission option for replication studies with peer review prior to observing the study outcomes.</td>
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Center for Open Science, TOP Guidelines Committee  
[https://cos.io/top/](https://cos.io/top/)
FINDINGS
Proportion with policies

\[ N = 74 \]

Data Availability Policy

75.7% (56 Journals)

No Policy

24.3% (18 Journals)
JCR Impact Factor – by Policy Type

No policy | Mandatory | Encouraged

×2.29 | ×2.97 | 2.89

1.54 | ×1.74 | 1.62
Strength Categories - Economics Journals

• **Category 1 – Very Strong**
  Separate mandatory policy with clear instructions regarding exemptions, timing and deposit of data & code.

• **Category 2 – Strong**
  Separate data policy - mandatory

• **Category 3 – Moderate**
  Mandatory data policy within author submission guidelines/instructions

• **Category 4 – Weak**
  Encourages data availability

• **Category 5 – No Policy**
  No policy requiring data availability
### Strength Categories $N = 74$

<table>
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<th>Level II TOP- only</th>
<th>29%</th>
<th>Very Strong</th>
<th>No Policy</th>
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<tr>
<td><strong>Not Implemented</strong></td>
<td>22</td>
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**Journal List**

- AEJ - Applied Economics, AEJ - Economic Policy
- AEJ – Macroeconomics, AEJ - Microeconomics
- American Economic Review, Brookings Papers on Economic Activity
- Econometrica, Econometrics Journal
- Journal of Economic Literature, Journal of Economic Perspectives
- Quarterly Journal of Economics, Review of Economic Studies
- Economics Letters, Journal of Applied Econometrics
- European Economic Review, Explorations in Economic History
- Games and Economic Behavior, International Journal of Industrial Organization
- Journal of Monetary Economics, Journal of Money, Credit and Banking
- Land Economics, Public Choice, Review of Economic Dynamics, World Development
- Bernoulli, Econometric Theory, Economic Inquiry, Economic Theory
- Economica, Journal of Comparative Economics
- Stochastic Processes and their Applications
Summary of Findings

• Overall optimistic, with 56 out 74 Journals (75.7%) on the Tilburg list with some form of data availability policy in place

• 34 are mandatory policies

• Appears to have some relationship to impact factor, with median IF for Mandatory policies higher at 2.89, as opposed to Journals without data availability policies at 1.54

• Many have yet to adopt the TOP guidelines for Data Transparency and Analytic Methods Transparency

• Still plenty of potential, especially for the 21 non-mandatory policies
Limitations

• Based solely on the policies, rather than on compliance and actual submissions. Compliance and enforceability of policies lies outside the scope of this project.

• Based on a set of criteria which involved some level of judgement and subjectivity.

• Sample size of 74 Journals

Potential Next Steps

• Investigate actual practice and how data availability policies translate into compliance

• Explore if there exists a relationship between journal data policies and faculty publishing choices
Thank You

Q & A

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