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The quest for replicability: A review of research data policies in economics journals

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

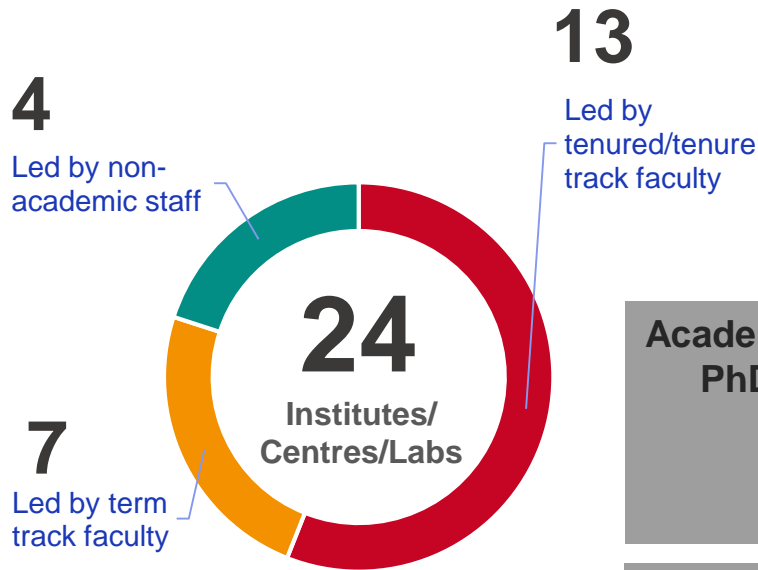
INCONECSS 2019

Melody Chin
Research Librarian, Economics

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Singapore Management University

SMU at a glance, across the 6 schools



Full-time Faculty

361

Professional
Master's Students

1,549

Professional
Master's
Programmes

20

Academic Research
PhD Students

175

Professional
Doctorate Students

142

Doctoral
Programmes

9 Academic Research
3 Professional
Doctorate

Undergraduates

8,000

Undergraduate
Majors

24

Undergraduate
Programmes

6

School of
Accountancy

Lee Kong Chian
School of Business

School of
Economics

School of
Social Sciences

School of Law

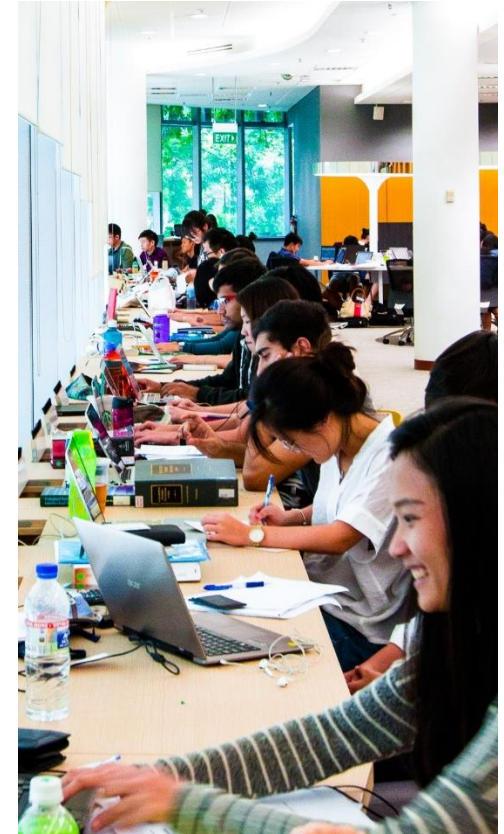
School of
Information Systems

SMU Libraries



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

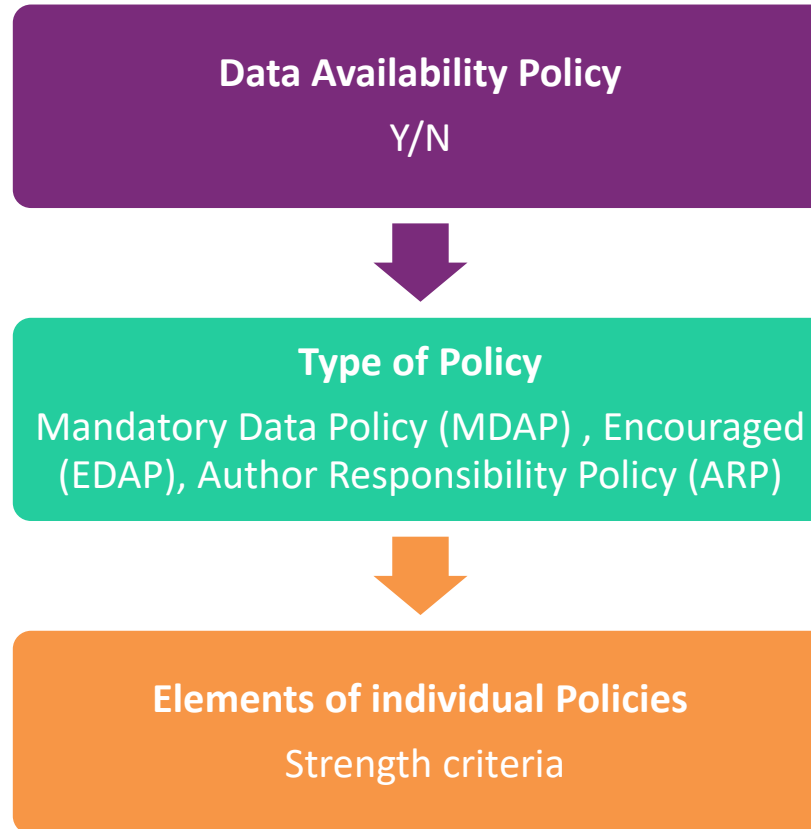
Research Question

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



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

| | Not Implemented | Level I | Level II | Level III |
|---|--|--|--|---|
| Citation Standards | Journal encourages citation of data, code, and materials, or says nothing. | Journal describes citation of data in guidelines to authors with clear rules and examples. | Article provides appropriate citation for data and materials used consistent with journal's author guidelines. | Article is not published until providing appropriate citation for data and materials following journal's author guidelines. |
| Data Transparency | Journal encourages data sharing, or says nothing. | Article states whether data are available, and, if so, where to access them. | Data must be posted to a trusted repository. Exceptions must be identified at article submission. | Data must be posted to a trusted repository, and reported analyses will be reproduced independently prior to publication. |
| Analytic Methods (Code) Transparency | Journal encourages code sharing, or says nothing. | Article states whether code is available, and, if so, where to access it. | Code must be posted to a trusted repository. Exceptions must be identified at article submission. | Code must be posted to a trusted repository, and reported analyses will be reproduced independently prior to publication. |

nothing.

| | | | | |
|--------------------------------------|---|---|--|--|
| Study Preregistration | Journal says nothing. | Article states whether preregistration of study exists, and, if so, where to access it. | Article states whether preregistration of study exists, and, if so, allows journal access during peer review for verification. | Journal requires preregistration of studies and provides link and badge in article to meeting requirements. |
| Analysis Plan Preregistration | Journal says nothing. | Article states whether preregistration of study exists, and, if so, where to access it. | Article states whether preregistration with analysis plan exists, and, if so, allows journal access during peer review for verification. | Journal requires preregistration of studies with analysis plans and provides link and badge in article to meeting requirements. |
| Replication | Journal discourages submission of replication studies, or says nothing. | Journal encourages submission of replication studies. | Journal encourages submission of replication studies and conducts results blind review. | Journal uses Registered Reports as a submission option for replication studies with peer review prior to observing the study outcomes. |

FINDINGS

Proportion with policies

$N = 74$

Data Availability Policy

75.7%

56 Journals

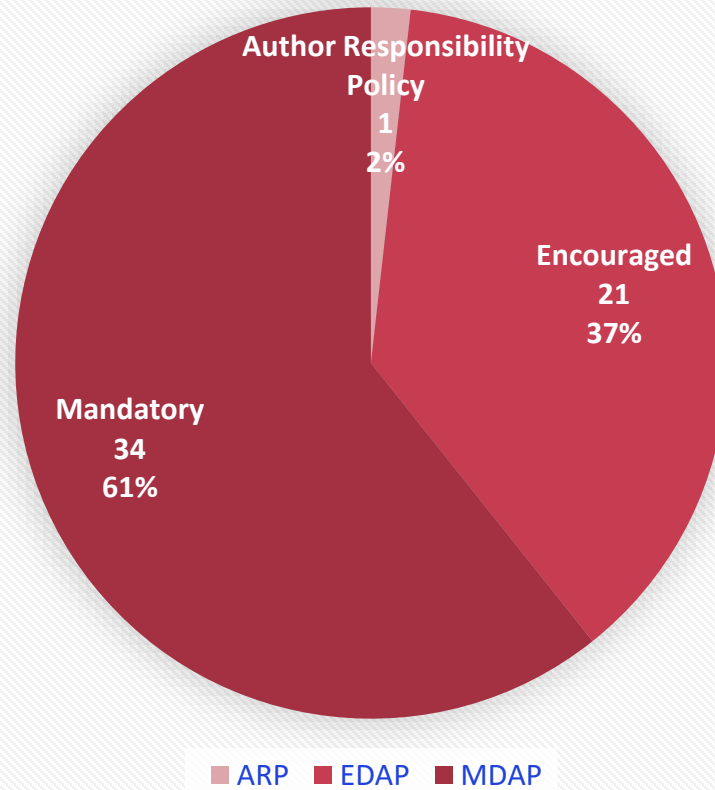
No Policy

24.3%

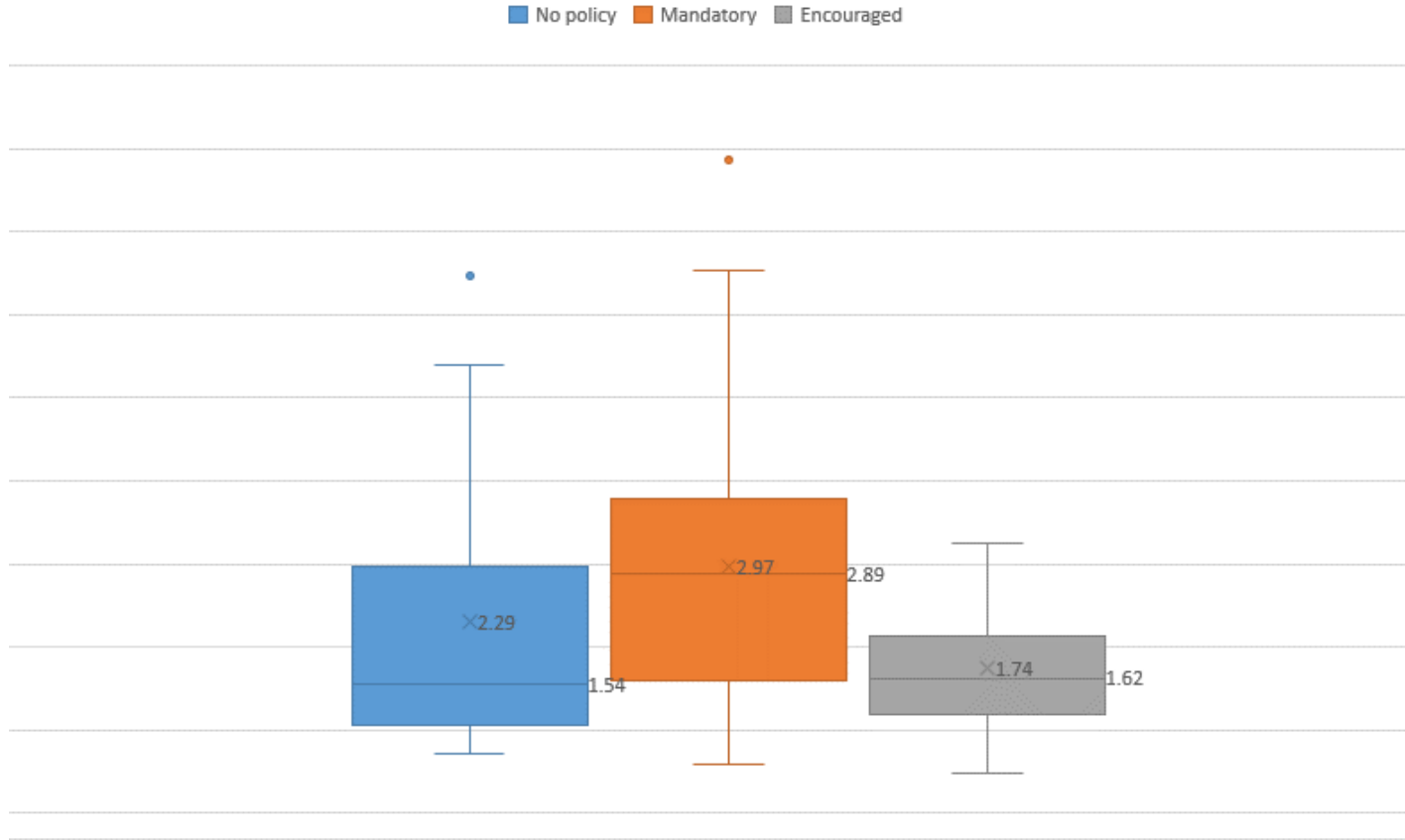
18 Journals

Policy Type

Journals with policies



JCR Impact Factor – by Policy Type



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**

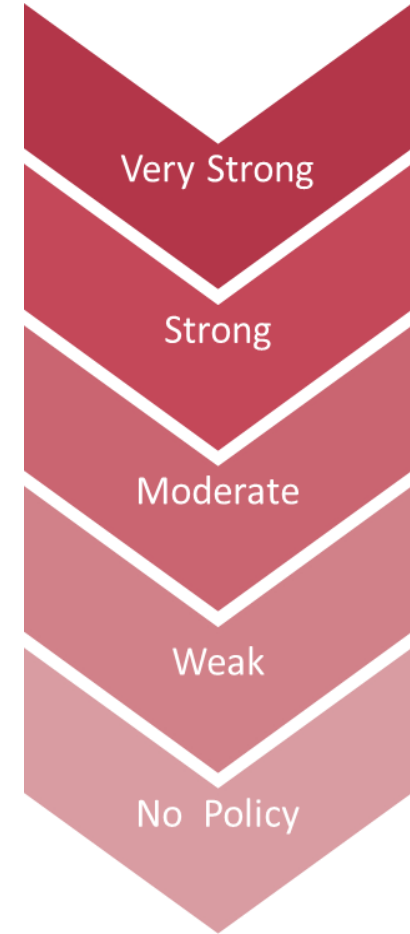
Mandatory data policy within author submission guidelines/instructions

- **Category 4 – Weak**



Encourages data availability

- **Category 5 – No Policy**

No policy requiring data availability



Strength Categories $N = 74$

| | | | | |
|-------------------------------------|--|----|--|--|
| Level II TOP- only 29% | AEJ - Applied Economics, AEJ - Economic Policy AEJ - Macroeconomics, AEJ - Microeconomics American Economic Review, Brookings Papers on Economic Activity Econometrica, Econometrics Journal Economic Journal, Economic Policy, international Economic Review Journal of Economic Literature, Journal of Economic Perspectives Journal of Human Resources, Journal of Labor Economics Journal of Law and Economics, Journal of Law, Economics and Organization Journal of Political Economy, Journal of the European Economic Association Quarterly Journal of Economics, Review of Economic Studies | 21 |  Very Strong | |
| | Scandinavian Journal of Economics, Review of Economics and Statistics, Oxford Economic Papers - New Series Economics Letters, Journal of Applied Econometrics Journal of Development Economics, Journal of Econometrics Journal of Economic History, Journal of International Economics, Journal of the American Statistical Association Journal of the Royal Statistical Society Series A - Statistics in Society, Journal of the Royal Statistical Society Series B - Statistical Methodology, World Bank Economic Review | 10 | | |
| | European Economic Review, Explorations in Economic History Games and Economic Behavior, International Journal of Industrial Organization Journal of Banking and Finance, Journal of Business and Economic Statistics Journal of Economic Behavior and Organization, Journal of Economic Dynamics and Control Journal of Economic Theory, Journal of Environmental Economics and Management Journal of Financial Intermediation, Journal of Health Economics, Journal of Mathematical Economics, Journal of Monetary Economics, Journal of Money, Credit and Banking Journal of Public Economics, Journal of Risk and Uncertainty, Journal of Urban Economics Land Economics, Public Choice, Review of Economic Dynamics, World Development | 22 | | |
| | Advances in Applied Probability, Annals of Probability, Annals of Statistics Bernoulli, Econometric Theory, Economic Inquiry, Economic Theory Economica, Journal of Comparative Economics Journal of Economic Growth, Journal of Finance, Journal of Financial Economics Journal of Financial and Quantitative Analysis, Journal of Industrial Economics Oxford Bulletin of Economics and Statistics, Rand Journal of Economics, Review of Financial Studies Stochastic Processes and their Applications | 18 | |  No Policy |
| | Not Implemented TOP | | | |

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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