

# econ.bst: BIB<sub>T</sub>E<sub>X</sub> style for economics\*

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\*econ.bst is available at <https://github.com/ShiroTakeda/econ-bst>

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## 1 Main features

“econ.bst” is a BibTeX style file. It provides the following features:

- The author-year type citation (you need “natbib.sty” as well).
- Reference style used in economics papers.
- Highly customizable. You can easily customize reference style as you wish.
- You can use “*certified random order*” proposed by [Ray & Robson \(2018, AER\)](#).
  - If you want to use certified random order, please see Section 4.

The third feature is the key characteristic of “econ.bst”.

## 2 How to use “econ.bst”

- “econ.bst” requires “natbib.sty”, which is installed in the standard TeX system.
- Put “econ.bst” file somewhere under the directory (folder) “/texmf/bibtex/bst”. Or you can place “econ.bst” at the same directory as the TeX file you are editing.
- See “econ-example.tex” for preparing an tex file.
- For BibTeX in general, see, for example, [Using BibTeX: a short guide](#) by Martin J. Osborne.

### 2.1 Preparing a tex file

In the tex file you are editing, you first need to load natbib package in the preamble (i.e. before `\begin{document}`)

```
\usepackage{natbib}
```

In the main text, you can cite bibliographic entries by `\citet` command.

For example, “`\citet{Takeda2014a}` is my paper” generates the output like

```
Takeda et al. (2014) is my paper.
```

At the place where you want to add “the reference part”, you have to set the bibliography style (`econ.bst`) and database (`econ-example.bib`) like

```
\bibliographystyle{econ}
\bibliography{econ-example}
```

Note that you should not attach the extension “`bst`” and “`bib`” to the `bst` and database file name.

## 2.2 Running pdf $\TeX$

`econ-example.tex` is created so that it is compiled with pdf $\TeX$  (“`pdflatex.exe`”). So to compile `econ-example.tex`, you just execute the following commands.

```
pdflatex econ-example.tex
bibtex econ-example
pdflatex econ-example.tex
pdflatex econ-example.tex
```

## 3 Customization

“`econ.bst`” defines many functions which have names like “`bst.xxx.yyy`”. You can easily customize the reference style by changing the contents of these functions.

### 3.1 Notes on customization

- Customization here is customization of the reference part. Style in the citation part mainly depends on a style file for citation (“`natbib.sty`”).
- Except for some cases, customization here cannot change order of fields (order of author, year, title etc.)
- Functions with “`.pre`” define strings attached to the start of the field and functions with “`.post`” define strings attached to the end of field. For example, “`bst.author.pre`” defines strings attached before author.
- You can change order of entries (references). It will be explained in Section 5.
- In a `bst` file, integer (e.g. 0, 1, 2) is represented as `#0`, `#1`, `#2`.

## 3.2 Customized bst files

Many customized bst files listed in Table 1 are already provided. You can find these files under the “customization” folder. See <https://github.com/ShiroTakeda/econ-bst/tree/master/customization>.

Table 1: List of customized files.

bst files	Explanation
econ.bst	The default econ.bst file.
econ-a.bst	A simple style.
econ-b.bst	A style with much decoration.
econ-no-sort.bst	This style lists entries in citation order.
econ-abbr.bst	This style uses abbreviated journal name.
econ-aea.bst	The style for AEA journals such as AER, JEL, AEJ and JEP.
econ-econometrica.bst	The style for Econometrica.
econ-jpe.bst	The style for JPE ( <i>Journal of Political Economy</i> ).
econ-jet.bst	The style for JET ( <i>Journal of Economic Theory</i> ).
econ-jie.bst	The style for JIE ( <i>Journal of International Economics</i> ).
econ-old.bst	The style of the old econ.bst.

## 3.3 Examples of customization

### 3.3.1 Change delimiter used to separate multiple author names from “and” to “&”.

For this, change the contents of “bst.and” and “bst.ands”.

#### Default definition:

```
FUNCTION {bst.and}
{ " and " }
FUNCTION {bst.ands}
{ ", and " }
```

#### New definition:

```
FUNCTION {bst.and}
{ " \& " }
FUNCTION {bst.ands}
{ " \& " }
```

Then, author names in reference part are displayed as follows:

Fujita, Masahisa, Paul R. Krugman, and Anthony J. Venables

↓

Fujita, Masahisa, Paul R. Krugman & Anthony J. Venables

See “econ-b.bst” for an example.

### 3.3.2 Make author to small caps style

For this, change the contents of “bst.author.pre” and “bst.author.post”.

#### Default definition:

```
FUNCTION {bst.author.pre}
{ "" }
FUNCTION {bst.author.post}
{ "" }
```

#### New definition:

```
FUNCTION {bst.author.pre}
{ "\textsc{" }
FUNCTION {bst.author.post}
{ "}" }
```

Then, author names in reference part are changed as follows:

Fujita, Masahisa, Paul R. Krugman, and Anthony J. Venables  
↓  
FUJITA, MASAHISA, PAUL R. KRUGMAN, AND ANTHONY J. VENABLES

See “econ-b.bst” for an example.

### 3.3.3 Change the style of volume and number

For this, change the contents of “bst.volume.pre”, “bst.volume.post”, “bst.number.pre” and “bst.number.post”.

#### Default definition:

```
FUNCTION {bst.volume.pre}
{ ", " }
FUNCTION {bst.volume.post}
{ "" }
FUNCTION {bst.number.pre}
{ " (" }
FUNCTION {bst.number.post}
{ ")" }
```

**New definition:**

```
FUNCTION {bst.volume.pre}
{ ", Vol. " }
FUNCTION {bst.volume.post}
{ "" }
FUNCTION {bst.number.pre}
{ ", No. " }
FUNCTION {bst.number.post}
{ "" }
```

By this, the style of volume and number change from “5 (10)” to “Vol. 5, Non. 10”. See “econ-b.bst” for an example.

### 3.3.4 Abbreviation of author name

By default, when there are mutiple documents of the same author, author name except for the first document is abbreviated by \bysame command (i.e. ——— ).

If you want to always show author name for all documents, change the content of “bst.use.bysame” as follows:

```
FUNCTION {bst.use.bysame}
{ #0 }
```

In the default setting (‘bst.use.bysame’ is set to #1), author names are abbreviated when they are exactly the same. For example, suppose that there are the following entries

- Mazda, A., Subaru, B., and Honda, C., (2011) "ABC"
- Mazda, A., Subaru, B., and Honda, C., (2011) "DEF"
- Mazda, A., Subaru, B., and Toyota, D., (2011) "GHI"

In the default setting, these entries are listed like

- Mazda, A., Subaru, B., and Honda, C., (2011) "ABC"
- ——— , (2011) "DEF"
- Mazda, A., Subaru, B., and Toyota, D., (2011) "GHI"

That is, the abbreviation of authors by ‘bysame’ is only applied to entries with exactly the same authors.

If you set #2 to 'bst.use.bysame' like

```
FUNCTION {bst.use.bysame}
{ #2 }
```

you can choose alternative abbreviation style like

- Mazda, A., Subaru, B., Honda, C., (2011) "ABC"
- ——— , ——— , and ——— , (2011) "DEF"
- ——— , ——— , and Toyota, D., (2011) "GHI"

See "econ-a.bst" and "econ-b.bst" for examples.

### 3.3.5 Order of first and last name in author field

"bst.author.name" defines order of first and last name in author field.

#### Default definition:

```
FUNCTION {bst.author.name}
{ #0 }
```

If you change #0 to #1 or #2, you can customize order of first and family name. For example, suppose author field is defined as follows:

```
author = {Masahisa Fujita and Paul R. Krugman and Anthony J. Venables}
```

According to the content of "bst.author.name", expression of author changes as follows:

- #0: First author → last-first, other authors → first-last.  
→ Fujita, Masahisa, Paul R. Krugman, and Anthony J. Venables
- #1: All authors → last-first  
→ Fujita, Masahisa, Krugman, Paul R., and Venables, Anthony J.
- #2: All authors → first-last  
→ Masahisa Fujita, Paul R. Krugman, and Anthony J. Venables

### 3.3.6 First name in initial

By default, first name is displayed in full. If you change the content of “`bst.first.name.initial`” to non-zero, first name is displayed in initial. For example,

Fujita, Masahisa, Paul R. Krugman, and Anthony J. Venables

↓

Fujita, M., P. R. Krugman, and A. J. Venables

See “`econ-a.bst`” for an example.

### 3.3.7 Decapitalize letters in title field

Suppose that the title field is defined as follows

```
title = {Econometric Policy Evaluation: A Critique}
```

Then, title is displayed in reference as follows:

Econometric Policy Evaluation: A Critique

If you change the content of “`bst.title.lower.case`” to non-zero, letters except the first letter are decapitalized. That is, you get the following expression in reference:

Econometric policy evaluation: A critique

See “`econ-a.bst`” for an example.

### 3.3.8 Number index before documents in reference

You can put the number index to each documents as in “`plain.bst`”. For this, change the content of “`bst.use.number.index`” to non-zero.

```
FUNCTION {bst.use.number.index}
{ #1 }
```

If you use fonts other than computer modern fonts, you had better adjust the contents of functions “`bst.number.index.xxx.yyy`”.

See “`econ-b.bst`” for an example.

### 3.3.9 List old references first

By default, references written by the same author are listed in chronological order (old documents are listed first). If you change the contents of “`bst.reverse.year`” to non-zero, the order is reversed.

```
FUNCTION {bst.reverse.year}
{ #1 }
```



### 3.3.10 Change the position of year

By default, year is always displayed right after author name. You can change the place of year by setting other values to “bst.year.position”.

If non-zero set to “bst.year.position”, year is placed

- at the end of line if there is no “note” field,
- and before “note” field if there is.

for non-article type entry.

With respect to article type entry, the following rule is applied:

1. #1: → year is placed at the end (before note field).
2. #2: → year is placed after journal name.
3. #3: → year is placed after volume.

For example, reference style changes as follows:

**#0:** Mazda, A. and B. Subaru, 2007, “ABC,” *Journal of Automobiles*, 1 (2), pp. 1-10.

**#1:** Mazda, A. and B. Subaru, “ABC,” *Journal of Automobiles*, 1 (2), pp. 1-10, 2007.

**#2:** Mazda, A. and B. Subaru, “ABC,” *Journal of Automobiles*, 2007, 1 (2), pp. 1-10.

**#3:** Mazda, A. and B. Subaru, “ABC,” *Journal of Automobiles*, 1 (2), 2007, pp. 1-10.

See “econ-a.bst” and “econ-b.bst” for examples.

### 3.3.11 Order of editors and book title in incollection and inproceedings entry

By default, editor name comes before book title in incollection and inproceedings entry. You can reverse this order by setting non-zero to ‘bst.editor.btitle.order’ like

```
FUNCTION {bst.editor.btitle.order}
{ #1 }
```

Krugman, Paul R. (1991) “Is Bilateralism Bad?” in Elhanan Helpman and Assaf Razin eds. *International Trade and Trade Policy*, Cambridge, MA: MIT Press, pp. 9–23.

↓

Krugman, Paul R. (1991) “Is Bilateralism Bad?” in *International Trade and Trade Policy* eds. by Elhanan Helpman and Assaf Razin, Cambridge, MA: MIT Press, pp. 9–23.

### 3.3.12 Order of address and publisher

By default, publisher address is placed before publisher name. You can reverse this order by setting non-zero to ‘bst.address.position’.

Krugman, Paul R. (1991) “Is Bilateralism Bad?” in Elhanan Helpman and Assaf Razin eds. *International Trade and Trade Policy*, Cambridge, MA, MIT Press, pp. 9–23.

↓

Krugman, Paul R. (1991) “Is Bilateralism Bad?” in Elhanan Helpman and Assaf Razin eds. *International Trade and Trade Policy*, MIT Press, Cambridge, MA, pp. 9–23.

## 3.4 Customization of citation part

We have so far seen the customization of reference part. “econ.bst” also can change the styles of citation part although it is highly limited.

### 3.4.1 The number of authors for “*et al.*” in citation part

With natbib.sty, you can cite a paper by both full names and abbreviated names. For example, by using command ‘\citet’ and ‘\citet\*’, you can generate the following two styles.

- Citation by full names:

`\citet*{Takeda2014a}` → Takeda, Arimura, Tamechika, Fischer and Fox (2014)

- Citation by abbreviated names:

`\citet{Takeda2014a}` → Takeda et al. (2014)

By the default, author names more than three are abbreviated. But you can change the number of authors to which abbreviation is applied. For example, if you set #4 to ‘bst.and.others.num’, abbreviation is applied only to the entry with more than four authors.

```
FUNCTION {bst.and.others.num}
{ #4 }
```

## 3.5 Customization of citation part by natbib.sty

The style of citation part is mainly controlled by natbib.sty. You can change the style of citation part by changing commands and options provided by natbib.sty. See the manual of natbib.sty for the details.

- The manual of `natbib.sty`: [natbib.pdf](#)
- The reference sheet of `natbib.sty`: [natnotex.pdf](#)

### 3.5.1 Citation by number index

Here I show one customization of `natbib.sty` for citation style. With `natbib.sty`, we usually use “author (year)” citation format. However, we can use citation by number index like [1], [2], [3]...

To use this style, you first need to load `natbib` package with option “numbers”

```
\usepackage[numbers]{natbib}
```

In addition, you need to use `citep` command in the citation part like

```
\citep{Takeda2014a}
```

See “`econ-numbers.tex`” and “`econ-numbers.pdf`” for an example.

## 4 Certified random order

### 4.1 What is “certified random order”?

The ordering of author names in joint publications in economics is typically alphabetical. However, alphabetical order has its shortcomings; in particular, it confers greater benefits on the first author.<sup>1</sup> This can happen for various reasons, including the use of the “et al.” convention, the bunching of bibliographic references for early-ordered names in reference lists, and the psychological focus on first authors.

Ray ⊕ Robson (2018) propose “certified random order,” in which names are separated by a symbol, ⊕, that certifies or signals that the author names are in random order. In particular, the symbol permits authors to “certify” that a reverse name order is only due to randomization, and avoids the usual interpretation of name reversal in economics.

“`econ.bst`” can handle references to papers in random order. Examples of such papers in this document are Ray ⊕ Robson (2018), Dworzak ⊕ al. (2018), Vohra ⊕ Ray (2018), Genicot ⊕ al. (2018).

### 4.2 How to cite papers in certified random order

To cite papers in certified random order with “`econ.bst`”, you must flag those entries in the bib file. To achieve this, “`econ.bst`” contains the field “`nameorder`”. If the bibliographical entry uses random order, add the following information to that entry:

```
nameorder = {random}
```

---

<sup>1</sup>See Ray ⊕ Robson (2018) for the details.

For instance, the entry for [Ray & Robson \(2018\)](#) is specified in `econ-example.bib` as follows:

```
@article{10.1257/aer.20161492,  
  Author       = {Ray, Debraj and Robson, Arthur},  
  Title        = {Certified Random: A New Order for Coauthorship},  
  Journal      = {American Economic Review},  
  Volume       = {108},  
  Number       = {2},  
  Year         = {2018},  
  Month        = {February},  
  Pages        = {489-520},  
  DOI          = {10.1257/aer.20161492},  
  URL          = {http://www.aeaweb.org/articles?id=10.1257/aer.20161492},  
  nameorder    = {random}  
}
```

#### [Notes]

1. The field “nameorder” is currently unique to `econ.bst` and it is not a field used in bibliography databases (at least for now).
2. “`econ.bst`” does not itself randomize the order of names. It simply cites an existing reference in random order, as the authors intend it to be cited.

With the “nameorder” field in place, there is nothing else you need to change, and you can cite bibliographic entries as before. For example, the command `\citet{10.1257/aer.20161492}` will generate the citation [Ray & Robson \(2018\)](#) in the text, and the following entry in the references:

Ray, Debraj & Arthur Robson (2018) “Certified Random: A New Order for Coauthorship,” *American Economic Review*, 108 (2), 489–520, [10.1257/aer.20161492](#).

Under the random order style, an entry with two authors is cited as already described: [Ray & Robson \(2018\)](#). On the other hand, an entry with more than two authors has two citation styles, depending on whether all names are cited in full, or the citation is abbreviated:

- All-names citation → [Genicot & Bouton & Castanheira \(2018\)](#)
- Abbreviated citation → [Genicot & al. \(2018\)](#)

Note that in the abbreviated names style, & is used instead of “et”. Think of & as a conjunction just as “and” or “but”. In verbal citations, it would be pronounced just as the letter “r” is pronounced.

### 4.3 Customization for certified random order

The behavior of random order is controlled by the following functions: ‘`bst.use.nameorder`’, ‘`bst.and.nameorder`’, ‘`bst.cite.and.nameorder`’ and ‘`bst.and.others.nameorder`’.

Under the default setting of “`econ.bst`”, random order is automatically used for bibliographic entries

with ‘nameorder’ field. However, if you set #0 to ‘bst.use.nameorder’ as follows, the function of random order is not used.

```
FUNCTION {bst.use.nameorder}
{ #0 } % Not use random order
```

Under the default setting, we use “Ⓢ” (`\textcircled{r}`) for the symbol for separating author names. They are defined with the following code in `econ.bst`.

```
FUNCTION {bst.and.nameorder}
{ " \textcircled{r} " }

FUNCTION {bst.cite.and.nameorder}
{ " \textcircled{r} " }

FUNCTION {bst.and.others.nameorder}
{ " \textcircled{r}~al." }
```

You can use an alternative symbol by redefining these functions: ‘`bst.and.nameorder`’, ‘`bst.cite.and.nameorder`’ and ‘`bst.and.others.nameorder`’.

## 5 Sorting rule

[Note] If you want to create an ordinary list of references, you need not read this part. The explanation below is for sorting references in a special way.

### 5.1 Basic sorting rule

The sorting of references is done according to values of fields defined in bib files. Basically, sorting is done according to the following order of priority:

1. Type of entry (if “`bst.sort.entry.type`” has non-zero value)
2. Value of “year” field (if “`bst.sort.year`” has non-zero value)
3. Value of “absorder” field (if “absorder” field has a value)
4. Value of “author” (or “editor”) field.
5. Value of “year” field.
6. Value of “order” field.
7. Value of “month” field.
8. Value of “title” field.

By default,

- “`bst.sort.entry.type`” and “`bst.sort.year`” have zero,
- “**absorder**” and “**order**” fields are not assigned values because they are fields specific to “`econ.bst`”.

Thus, references are sorted according to

```
“author” → “year” → “month” → “title”
```

That is, “`author`” is used as the primary key, “`year`” as the secondary key, “`month`” as the third key and “`title`” as the fourth key.

## 5.2 No sorting

If you want to list references in citation order, set non-zero value to “`bst.no.sort`”.

```
FUNCTION {bst.no.sort}  
{ #1 }
```

Note that when you set non-zero value to “`bst.no.sort`”, you had better not use `\bysame`.

## 5.3 Sort references by type

If you want to gather references according to their types (article, book, incollection, unpublished etc.), set non-zero value to “`bst.sort.entry.type`”.

```
FUNCTION {bst.sort.entry.type}  
{ #1 }
```

Order of listing by entry type is determined by function “`bst.sort.entry.type.order`” (by default, listed in alphabetical order, that is, `article` → `book` → `booklet` → `comment` → `inbook` → `incollection` → `...` → `unpublished`). See “`bst.sort.entry.type.order`” in “`econ.bst`”.

## 5.4 Use “`year`” as the primary sorting key

When you create CV or a list of your papers, you may want to sort references in chronological order. If all papers are written solely by yourself, references are sorted in chronological order by default. However, there are co-writers and if you are not the first author, references are not sorted in chronological order

because the author name is used as the primary sorting key by default. If you want to sort references in chronological order even when there are co-writers, set non-zero to “`bst.sort.year`”.

```
FUNCTION {bst.sort.year}
{ #1 }
```

By default, old references are listed first. But if you set non-zero to “`bst.reverse.year`”, new references are listed first.

## 5.5 Sorting by “absorder” field

If “absorder” is defined in bib file, “`econ.bst`” uses its content as the primary sorting key. You can set number 0–999 to “absorder” field.

```
no absorder or absorder = 0 → absorder = 1 → absorder = 2 → ... → absorder = 999
```

That is, reference with a small value of “absorder” is listed first. In this document (“`econ-example.bib`”), the reference with the key [Takeda \(2010\)](#) has 999 for “absorder” field and thus listed in the last.

### 5.5.1 Ignore “absorder” field

If you set some values for “absorder” fields in bib file, but if you want to ignore them, set non-zero to “`bst.notuse.absorder.field`”.

```
FUNCTION {bst.notuse.absorder.field}
{ #1 }
```

## 6 Misc.

- Email: <[shiro.takeda@gmail.com](mailto:shiro.takeda@gmail.com)>.
- “`econ.bst`” is available at <https://github.com/ShiroTakeda/econ-bst>.

[Borgers \(1995\)](#), [Bergemann et al. \(2011\)](#), [Takeda et al. \(2015\)](#), [Takeda et al. \(2014\)](#), [Babiker and Eckaus \(2007\)](#), [Babiker et al. \(1999a\)](#), [Babiker et al. \(1999b\)](#), [Babiker et al. \(2000\)](#), [Babiker and Rutherford \(2005\)](#), [Goldin and Katz \(2011\)](#), [Goldin and Katz \(2008\)](#), [Goldin and Katz \(2000\)](#). [Takeda \(2019\)](#), [Le Quéré et al. \(2018\)](#), [Luthi et al. \(2008\)](#), [Meehl et al. \(2009\)](#), [Rivers and Jaccard \(2005\)](#), [Wilson et al. \(2005\)](#), [Zhang et al. \(2016\)](#), [Imbens and Wager \(2019\)](#).

## References

- Babiker, Mustafa H. and Richard S. Eckaus (2007) “Unemployment Effects of Climate Policy,” *Environmental Science and Policy*, 10 (7-8), 600–609, [10.1016/j.envsci.2007.05.002](https://doi.org/10.1016/j.envsci.2007.05.002).
- Babiker, Mustafa H., John M. Reilly, and A. Denny Ellerman (1999a) “Japanese Nuclear Power and the Kyoto Agreement,” August, The MIT Joint Program on the Science and Policy of Global Change (Report No. 51).
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