Package ‘ivdesc’

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Title Profiling Compliers and Non-Compliers for Instrumental Variable Analysis

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Depends R (>= 3.4.0)

License GPL-3

URL https://github.com/sumtxt/ivdesc/

BugReports https://github.com/sumtxt/ivdesc/issues

Encoding UTF-8

LazyData true

RoxygenNote 7.1.1

Suggests icsw, haven

Imports knitr (>= 1.20.8), purrr (>= 0.2.5), rsample (>= 0.0.3)

NeedsCompilation no

Repository CRAN

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ivdesc

Profiling compliers and non-compliers for instrumental variable analysis

Description

Estimates the mean and variance of a covariate for the complier, never-taker and always-taker subpopulation.

Usage

\[
\text{ivdesc}(
X, \\
D, \\
Z, \\
\text{variance = FALSE,} \\
\text{boot = TRUE,} \\
\text{bootn = 1000,} \\
\text{balance = TRUE,} \\
\text{...}
\)
\]

Arguments

- **X**: vector with numeric covariate
- **D**: vector with binary treatment
- **Z**: vector with binary instrument
- **variance**: Calculate the variance of the covariate for each subgroup?
- **boot**: Replace all standard errors with bootstrap standard errors?
- **bootn**: number of bootstraps (ignored if boot=FALSE )
- **balance**: Run balance test?
- **...**: additional arguments to be passed to ivdesc_all

Details

This function estimates the mean and the associated standard error of X for the complier, never-taker and always-taker subpopulation within a sample where some, but not all, units are encouraged by instrument Z to take the treatment D. Observations with missing values in either X, D, or Z are dropped (listwise deletion).

One-sided noncompliance is supported. The mean for the always-/never-taker subpopulation will only be computed if there are at least two observed units in these subpopulations.

If boot=FALSE, standard errors based on asymptotic theory are estimated.

The balance test is a t-test allowing for unequal variances.
Value

Returns a object ivdesc with estimates for each subgroup (co: complier, nt: never-taker, at : always-taker) and the full sample:

- mu and mu_se : Mean of X and standard error
- pi and pi_se: Proportion of each subgroup in the sample and standard error
- var: Variance of X (if variance=TRUE)

Can be coerced to a proper data.frame using as.data.frame.

References


See Also

ivreg

Examples

# Example 1: Albertson/Lawrence (2009)
# see Marbach/Hangartner (2019) for details/discussion

library(icsw)
data(FoxDebate)

with(FoxDebate, ivdesc(X=readnews,D=watchpro,Z=conditn) )

# Example 2: JTPA Data

library(haven)
jtpa <- read_dta("http://fmwww.bc.edu/repec/bocode/j/jtpa.dta")

with(jtpa, ivdesc(age, training, assignmt, bootn=500))
with(jtpa, ivdesc(hispanic, training, assignmt, boot=FALSE))
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