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

RoxygenNote 7.2.1

Suggests icsw, haven

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

NeedsCompilation no

Repository CRAN

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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

```r
ivdesc(
  X,  
  D,  
  Z,  
  variance = FALSE,  
  boot = TRUE,  
  bootn = 1000,  
  balance = TRUE,  
  ...  
)
```

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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