

Sensitivity Analysis in Applied Economics: Introducing the samregc Stata Package

Pablo Gluzmann – Demian Panigo

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samregc: Sensitivity Analysis of Main Regression Coefficients

- **Stata command to perform exhaustive robustness (and/or exploratory) exercises on control variables**
- **Sensitivity of coefficients of interest to changes in covariates**
- **Methodology**
 - **Systematically vary covariates**
 - **Compare estimates and statistical significance**
 - **Upper/lower bound robustness sense**
 - **Decompose effects of sample / omitted variables**
- **Key features**
 - **Flexibility across estimators (OLS, IV, GMM, etc.)**
 - **Efficient handling of the combinatorial space**
 - **Graphical diagnostics and tables**
 - **Reduced computation time**

```
samregc depvar Main_Varlist [if] [in] [weight] ,  
  iterateover(Iteration_Varlist) |  
  griterateover(Groups_Iteration_Varlist) [ncomb(#1,#2)  
  fixvar(Fix_Varlist) cmdest(commandname)  
  cmdoptions(commandoptions) cmdiveq(Endogenous_Varlist =  
  Instrument_Varlist) resultsdta(newbasename) replace count double  
  noexcel nograph graphtype(extension)  
  graphtitle(varnames|varlabels) graphoptions(twowayoptions)  
  level(#) at(#) samesample unbalanced  
  sisters(scatter|pcarrow|both)]
```

iterateover(*Iteration_Varlist*) this option specifies the list of variables that will be used to generate all possible combinations of regressors (i.e., all-subset regressions), taken from 0 to n at a time, where n is the number of iteration variables. For example, `iterateover(var1 var2 var3 var4 var5)` will run estimations using different combinations of these 5 variables – that is, all combinations of 5 variables taken from 0 to 5 at a time. See [Examples of using ncomb](#)

griterateover(*Groups_Iteration_Varlist*) This option specifies the list of variable groups over which the estimations will iterate. For example, `griterateover(var5 var6 | var7 var8 var9)` will iterate over two groups: "var5 var6" and "var7 var8 var9" and running 4 estimations including none of these variables, variables of group 1, variables of group 2, and variables of both groups.

fixvar(*Fix_Varlist*) allows users to specify a subset of covariates that must be included in all regressions. However, these variables are of no other interest than be used as ubiquitous control variables (i.e., they are not part of the main variables), so no graphs or tables are generated for these variables. See [Examples of using fixvar](#)

ncomb(#1,#2) specifies the minimum and maximum number of covariates to be included in the iteration procedure. With this option, **samregc** will perform a subsample of all-subset regressions, using combinations taken from #1 to #2 variables at a time, plus the -always estimated- regression without any iteration variable. #1 must be less than or equal to #2, and additionally, the number of iteration variables must be greater than or equal to #2. For example, `ncomb(k)` – or `ncomb(k,k)` – will perform all possible combinations of n taken k at a time, without repetition (plus the no-iteration variable regression). This option is specially useful when n is too high, and the number of all-possible subset regressions (2^n) becomes prohibitive.

cmdest(*commandname*) allows the user to choose the estimation command to be used. If the option is not specified, the default command is *regress*. This option allows using *regress*, *xtreg*, *areg*, *qreg* and *plreg*, but it can also accept other estimation commands with a similar syntax and that saves results in the same way (*matrices e(b) and e(V)*). *ivregress* is also accepted using option **cmdiveq**(*Endogenous_Varlist = Instrument_Varlist*). See *Examples of using cmdest, cmdoptions and cmdiveq*

cmdoptions(*cmdoptions*) allows adding additional options supported by *commandname* for each regression. See *Examples of using cmdest, cmdoptions and cmdiveq*

cmdiveq(*Endogenous_Varlist = Instrument_Varlist*) is a special option that allows including a varlist of endogenous variables (*Endogenous_Varlist*) and of instruments (*Instrument_Varlist*) when the estimator command is *ivregress*. When using this option, **cmdest**(*ivregress 2sls*), **cmdest**(*ivregress liml*) or **cmdest**(*ivregress gmm*) must be specified. The endogenous variables must also be included in *Main_Varlist*. See *Examples of using cmdest, cmdoptions and cmdiveq*

level(#) sets the significance level (p-value) for the sensitivity analysis. By default, the level is 95%.

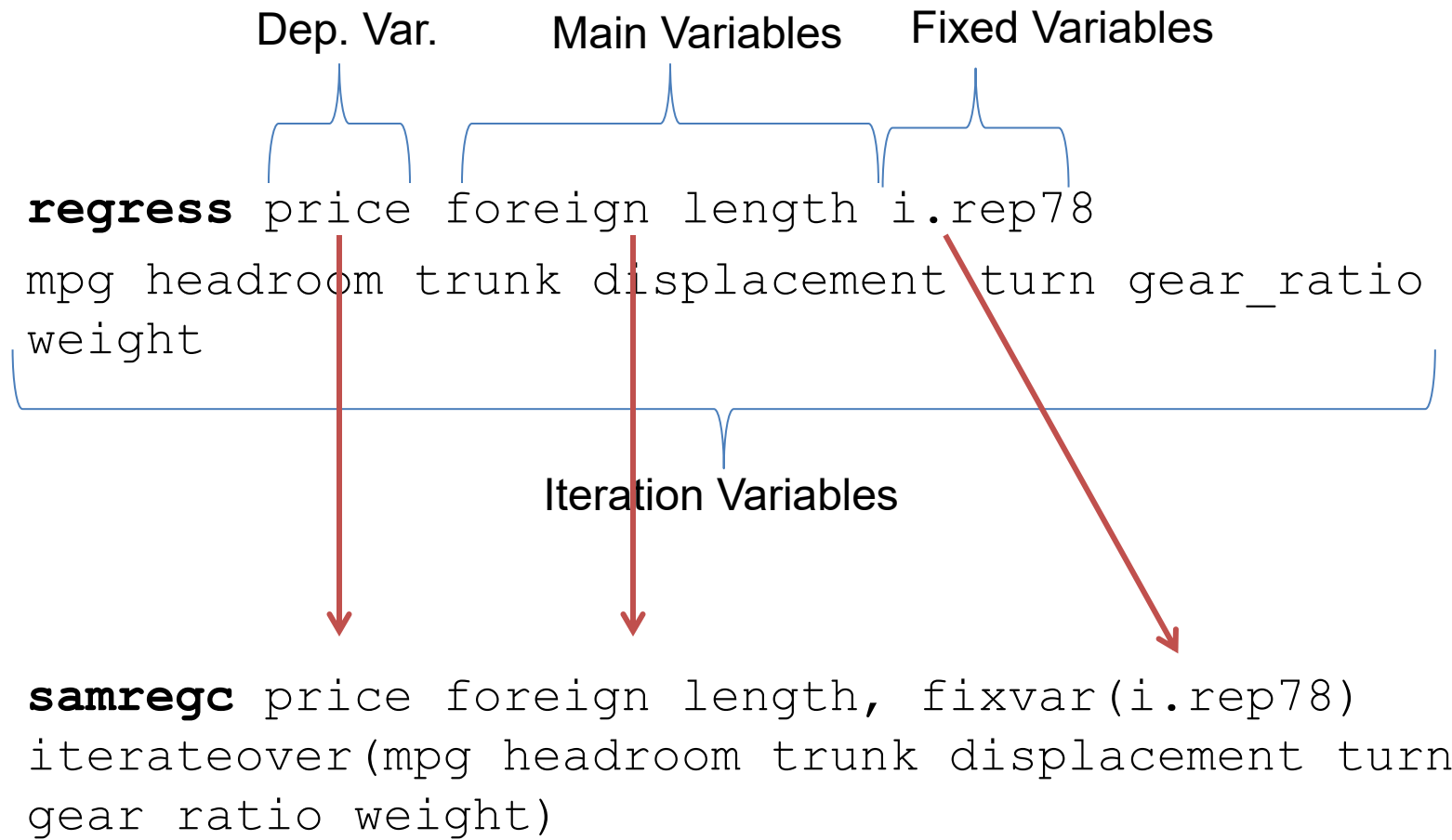
at(#) allows evaluating the statistical significance of coefficients at a specific value. By default, the coefficient analysis evaluates significant differences relative to 0.

samesample forces all regressions to be performed on the same sample of observations, which is the largest common sample. By default, **samregc** performs each regression using the maximum number of common observations available covariate subset in each case. Option **samesample** cannot be combined with options **unbalanced** or **sisters**. See [Examples of changes in observations due to iteration variables](#)

unbalanced This is a useful option when the number of observations varies between the interaction variables (i.e. some variables have missing values). This option generates (and stores) scatterplots of coefficients and t-statistics h main variable, along with the number of observations. Otherwise, only kernel density figures are created. These figures show raw/composite (omitted-variable/collinearity + sample) effects of *Iteration_Varlist* on *Main_Varlist* and can b to detect the impact of asymmetric missing values distribution among *Iteration_Varlist* on estimated coefficients and t-statistics.

sisters(scatter|pcarrow|both) implies **unbalanced**. Runs a set of paired estimations (i.e. "sister" regressions): for each estimation already performed, an additional comparative (sister) regression is made, using the same samp ithout any iteration variable. For each *Main_Varlist*, figures show t-statistics from original and sister estimations against the number of observations. With option **sisters(scatter)** the figure use scatter plots (including linear trends with option **sisters(pcarrow)** the figure uses arrows to show the shift in the coefficient between original and sister estimations. The option **sisters(both)** generates both figures. These graphs allow the user to observe both omitted- /collinearity effects and sample effects of each *Iteration_Varlist* combination. See [Examples of changes in observations due to iteration variables](#)

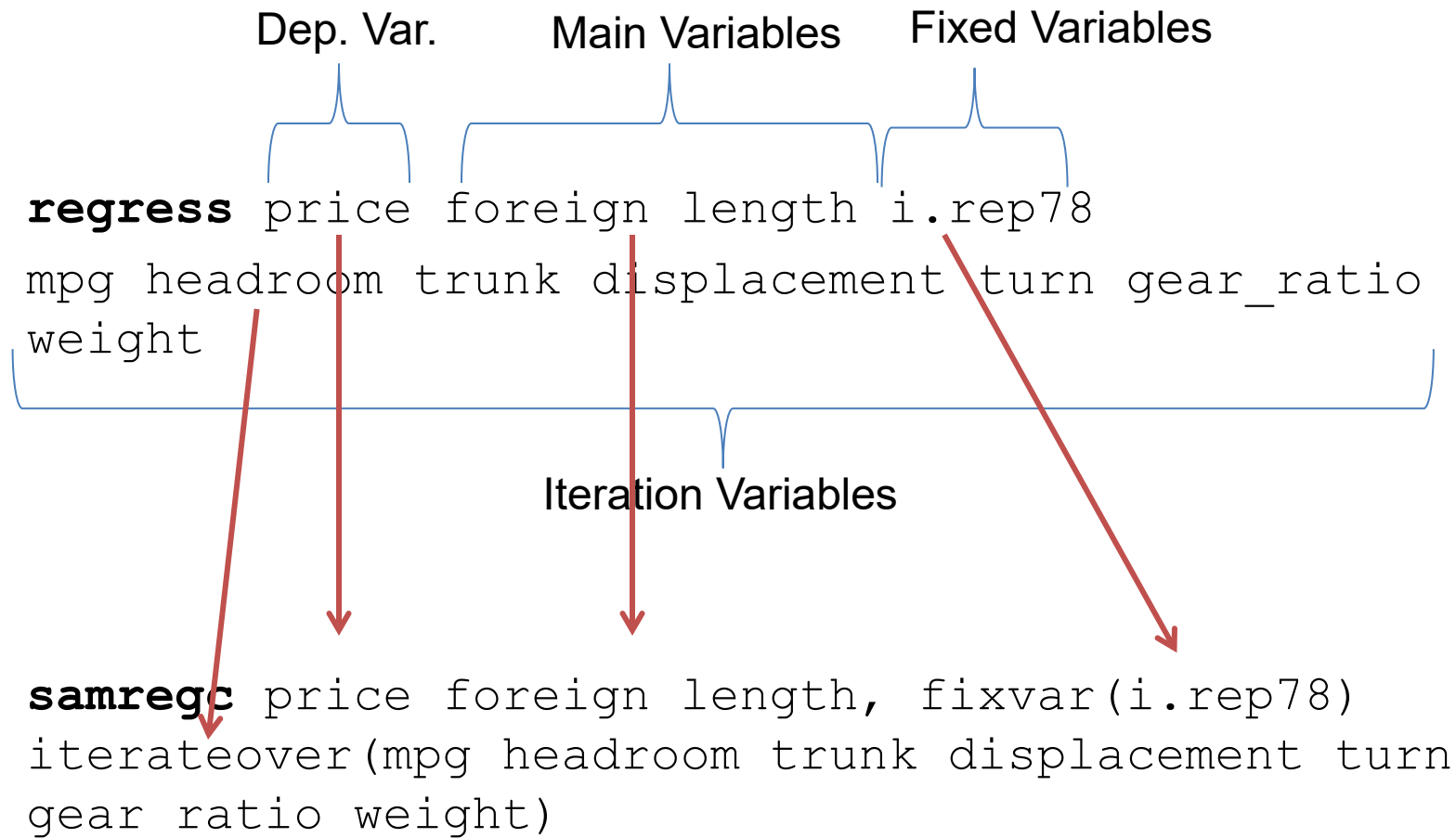
$$price = \beta_0 + \beta_1 foreing + \beta_2 length + \sum_j \beta_j rep78_j + \epsilon$$



| Source | SS | df | MS | Number of obs | = | 69 |
|----------|-----------|----|------------|---------------|---|--------|
| | | | | F(13, 55) | = | 6.52 |
| Model | 349839256 | 13 | 26910712 | Prob > F | = | 0.0000 |
| Residual | 226957703 | 55 | 4126503.69 | R-squared | = | 0.6065 |
| | | | | Adj R-squared | = | 0.5135 |
| Total | 576796959 | 68 | 8482308.22 | Root MSE | = | 2031.4 |

| price | Coefficient | Std. err. | t | P> t | [95% conf. interval] | |
|--------------|-------------|-----------|-------|-------|----------------------|----------|
| foreign | 3064.515 | 1061.906 | 2.89 | 0.006 | 936.4084 | 5192.622 |
| length | -80.65842 | 43.41116 | -1.86 | 0.069 | -167.6563 | 6.339501 |
| rep78 | | | | | | |
| 2 | 1353.801 | 1721.302 | 0.79 | 0.435 | -2095.765 | 4803.366 |
| 3 | 955.4354 | 1618.354 | 0.59 | 0.557 | -2287.818 | 4198.689 |
| 4 | 976.6333 | 1664.928 | 0.59 | 0.560 | -2359.957 | 4313.224 |
| 5 | 1757.997 | 1804.181 | 0.97 | 0.334 | -1857.663 | 5373.657 |
| mpg | -43.948 | 85.07476 | -0.52 | 0.608 | -214.4416 | 126.5456 |
| headroom | -689.3982 | 400.1119 | -1.72 | 0.091 | -1491.24 | 112.444 |
| trunk | 74.29435 | 100.4034 | 0.74 | 0.462 | -126.9186 | 275.5073 |
| displacement | 12.70613 | 8.774824 | 1.45 | 0.153 | -4.87901 | 30.29127 |
| turn | -143.7061 | 129.3259 | -1.11 | 0.271 | -402.881 | 115.4688 |
| gear_ratio | 115.0845 | 1269.769 | 0.09 | 0.928 | -2429.59 | 2659.759 |
| weight | 4.667033 | 1.464867 | 3.19 | 0.002 | 1.731373 | 7.602693 |
| _cons | 9969.75 | 7135.813 | 1.40 | 0.168 | -4330.739 | 24270.24 |

$$price = \beta_0 + \beta_1 foreing + \beta_2 length + \sum_j \beta_j rep78_j + \epsilon$$



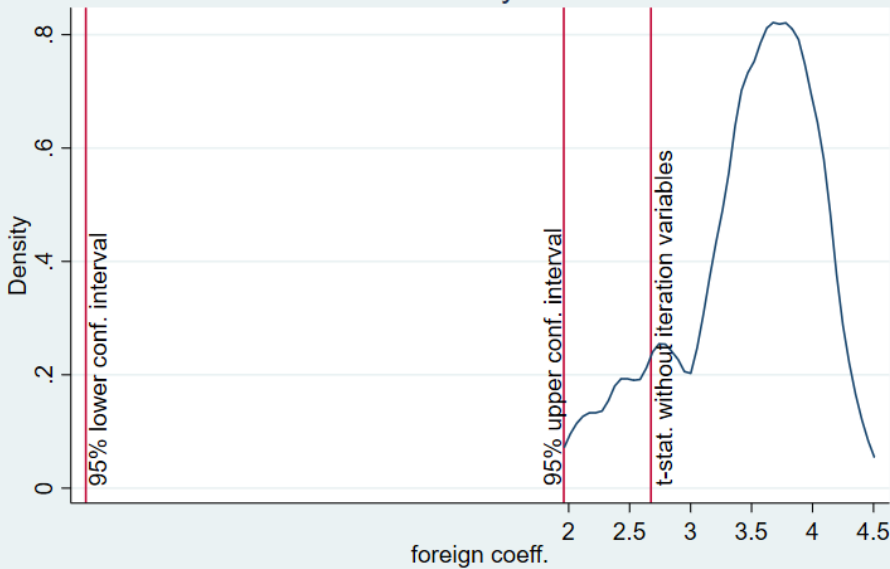
$$price = \beta_0 + \beta_1 foreign + \beta_2 length + \sum_j \beta_j rep78_j + \epsilon$$

```

samregc price foreign length, fixvar(i.rep78)
iterateover(mpg headroom trunk displacement turn
gear_ratio weight)

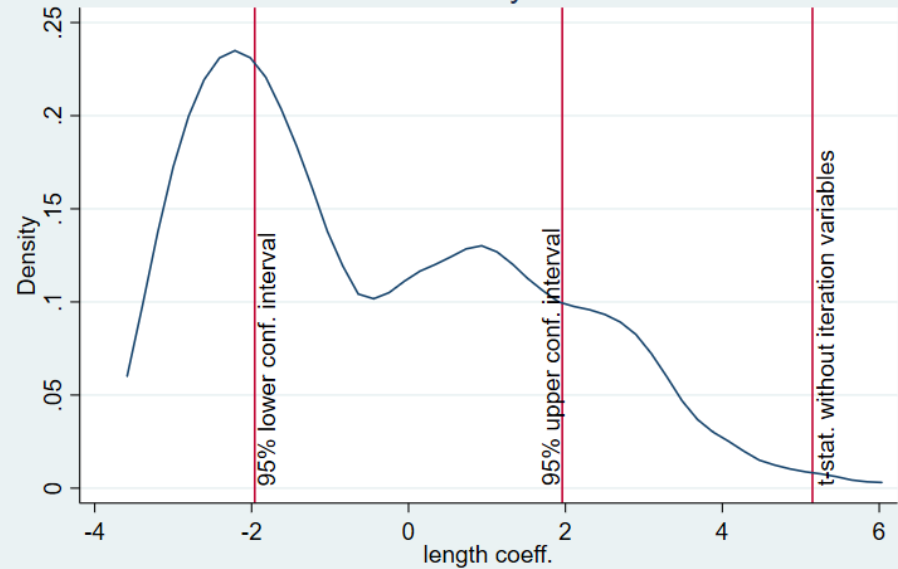
```

Kernel density estimate



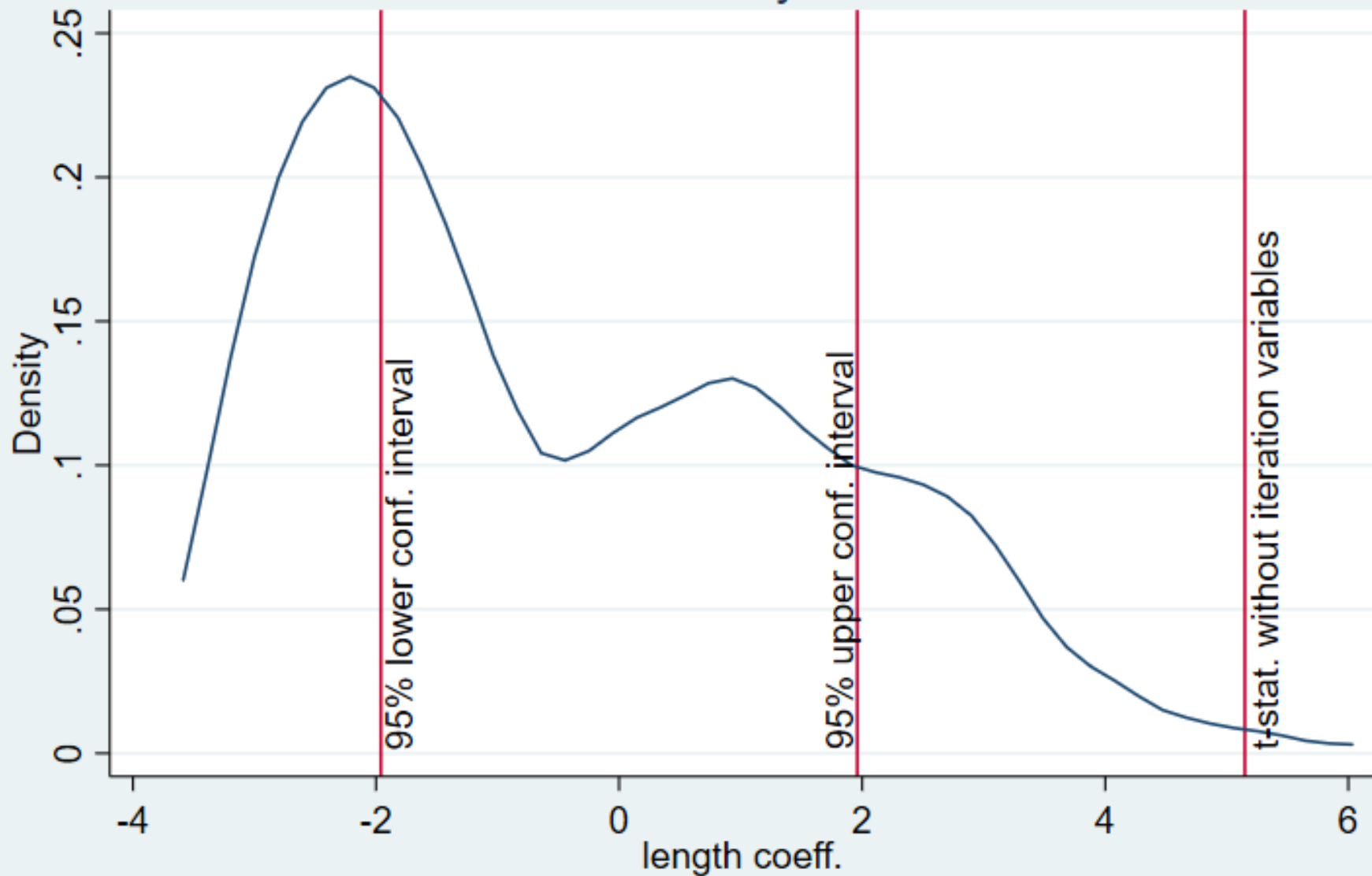
kernel = epanechnikov, bandwidth = 0.1547

Kernel density estimate



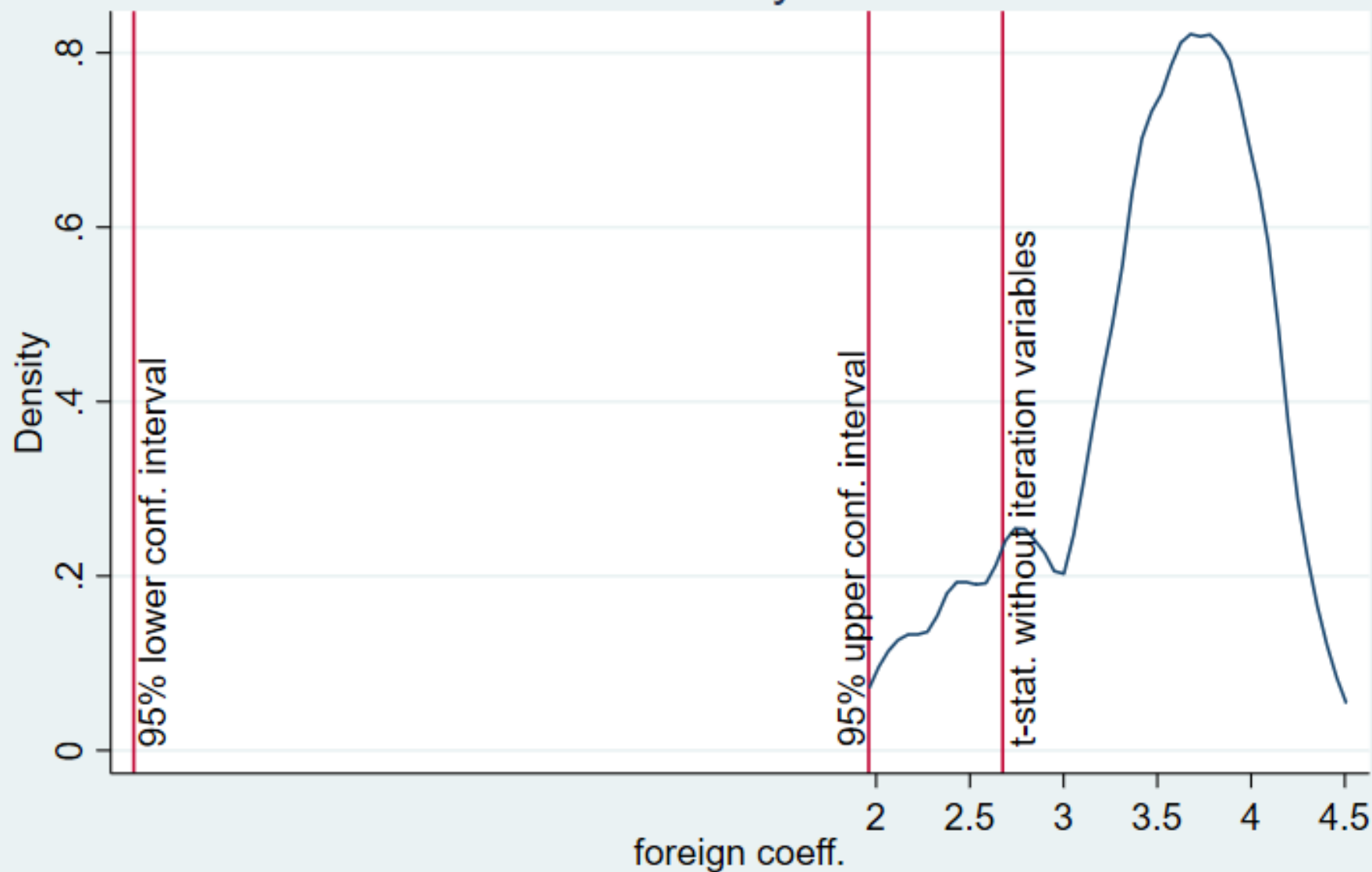
kernel = epanechnikov, bandwidth = 0.6953

Kernel density estimate



kernel = epanechnikov, bandwidth = 0.6953

Kernel density estimate



kernel = epanechnikov, bandwidth = 0.1547

Baseline Regression: without iteration variables

| Source | SS | df | MS | Number of obs | = | 69 |
|----------|-----------|----|------------|---------------|---|--------|
| | | | | F(6, 62) | = | 4.64 |
| Model | 178616709 | 6 | 29769451.5 | Prob > F | = | 0.0006 |
| Residual | 398180250 | 62 | 6422262.1 | R-squared | = | 0.3097 |
| | | | | Adj R-squared | = | 0.2429 |
| Total | 576796959 | 68 | 8482308.22 | Root MSE | = | 2534.2 |

| price | Coefficient | Std. err. | t | P> t | [95% conf. interval] | |
|-----------|-------------|-----------|-------|-------|----------------------|-----------|
| foreign | 2655.256 | 992.7003 | 2.67 | 0.010 | 670.8764 | 4639.636 |
| length | 88.60508 | 17.20943 | 5.15 | 0.000 | 54.20392 | 123.0062 |
| _Irep78_2 | 483.8473 | 2011.416 | 0.24 | 0.811 | -3536.915 | 4504.61 |
| _Irep78_3 | 1156.182 | 1857.745 | 0.62 | 0.536 | -2557.398 | 4869.762 |
| _Irep78_4 | 548.5598 | 1944.983 | 0.28 | 0.779 | -3339.407 | 4436.526 |
| _Irep78_5 | 843.4043 | 2071.236 | 0.41 | 0.685 | -3296.938 | 4983.747 |
| _cons | -12181.86 | 3713.545 | -3.28 | 0.002 | -19605.13 | -4758.588 |

Total Number of Estimations: 128

Computing combinations...
Preparing estimation list...
Doing estimations...
Saving results...

Valid Estimations decomposition:

Total estimations: 128

Total estimations excluding the baseline regression: 127

Acronyms description:

Pos: Coeff. > 0

Neg: Coeff. < 0

st_Low: Coeff. significantly below the 95% **conf.** interval

st_Ins: Coeff. inside 95% **conf.** interval (not significantly diff. from 0)

st_Up: Coeff. significantly above the 95% **conf.** interval

Total: Total number of estimations

Table 1 (**values**): Aggregate impact of iteration vars. **on** each main **var.**

| varname | Pos | Neg | st_Low | st_Ins | st_Up | Total |
|---------|-----|-----|--------|--------|-------|-------|
| foreign | 127 | 0 | 0 | 0 | 127 | 127 |
| length | 55 | 72 | 51 | 53 | 23 | 127 |

Table 1 (percentages)

| varname | Pos | Neg | st_Low | st_Ins | st_Up |
|---------|------|------|--------|--------|-------|
| foreign | 100 | 0 | 0 | 0 | 100 |
| length | 43.3 | 56.7 | 40.2 | 41.7 | 18.1 |

foreign:
Matrix with detailed results showing how each individual iteration variable affects foreign
was stored as r(foreign_Table) and included as a new sheet the Excel report

length:
Matrix with detailed results showing how each individual iteration variable affects length
was stored as r(length_Table) and included as a new sheet the Excel report

| Variable Name | Total number of reg. where the iteration var. is included | No. of reg. where iteration var. makes main var. non-significant | No. of reg. where main var. coef. > 0 & sig. turns non-sig. w/ iter. var. | No. of reg. where main var. coef. < 0 & sig. turns non-sig. w/ iter. var. | No. of reg. w/ non-sig. main var. coef. with & without (baseline) iter. var. |
|---------------|---|--|---|---|--|
| displacement | 64 | 43 | 0 | 43 | 0 |
| turn | 64 | 37 | 0 | 37 | 0 |
| mpg | 64 | 29 | 0 | 29 | 0 |
| headroom | 64 | 29 | 0 | 29 | 0 |
| gear_ratio | 64 | 29 | 0 | 29 | 0 |
| trunk | 64 | 27 | 0 | 27 | 0 |
| weight | 64 | 13 | 0 | 13 | 0 |

| Variable Name | No. of reg. where iter. var. increases main var. t-stat. | No. of reg. where iter. var. decreases main var. t-stat. | No. reg. w/ main var. t-stat increases > 1.96 due to iter. var. | No. reg. w/ main var. t-stat decreases > 1.96 due to iter. var. |
|---------------|--|--|---|---|
| displacement | 0 | 64 | 0 | 24 |
| turn | 0 | 64 | 0 | 30 |
| mpg | 0 | 64 | 0 | 24 |
| headroom | 1 | 63 | 0 | 28 |
| gear_ratio | 0 | 64 | 0 | 28 |
| trunk | 0 | 64 | 0 | 27 |
| weight | 0 | 64 | 0 | 0 |

| Variable Name | Average coef. of main var. where iter. var. is included | Main var. coef. in the Baseline regression. | Average t-stat. of main var. where iter. var. is included | Average t-stat. of main var. in the Baseline regression. |
|---------------|---|---|---|--|
| displacement | -37.5202 | 88.6051 | -0.91387 | 5.14864 |
| turn | -20.2735 | 88.6051 | -0.37051 | 5.14864 |
| mpg | -28.5533 | 88.6051 | -0.59614 | 5.14864 |
| headroom | -19.5107 | 88.6051 | -0.25860 | 5.14864 |
| gear_ratio | -25.0235 | 88.6051 | -0.43254 | 5.14864 |
| trunk | -24.6820 | 88.6051 | -0.40332 | 5.14864 |
| weight | -87.3105 | 88.6051 | -2.21126 | 5.14864 |

| Variable Name | Total number of reg. where the iteration var. is included | No. of reg. where iteration var. makes main var. non-significant | No. of reg. where main var. coef. > 0 & sig. turns non-sig. w/ iter. var. | No. of reg. where main var. coef. < 0 & sig. turns non-sig. w/ iter. var. | No. of reg. w/ non-sig. main var. coef. with & without (baseline) iter. var. |
|---------------|---|--|---|---|--|
| mpg | 64 | 0 | 0 | 0 | 0 |
| headroom | 64 | 0 | 0 | 0 | 0 |
| trunk | 64 | 0 | 0 | 0 | 0 |
| displacement | 64 | 0 | 0 | 0 | 0 |
| turn | 64 | 0 | 0 | 0 | 0 |
| gear_ratio | 64 | 0 | 0 | 0 | 0 |
| weight | 64 | 0 | 0 | 0 | 0 |

| Variable Name | No. of reg. where iter. var. increases main var. t-stat. | No. of reg. where iter. var. decreases main var. t-stat. | No. reg. w/ main var. t-stat increases > 1.96 due to iter. var. | No. reg. w/ main var. t-stat decreases > 1.96 due to iter. var. |
|---------------|--|--|---|---|
| mpg | 52 | 12 | 0 | 0 |
| headroom | 54 | 10 | 0 | 0 |
| trunk | 55 | 9 | 0 | 0 |
| displacement | 60 | 4 | 0 | 0 |
| turn | 52 | 12 | 0 | 0 |
| gear_ratio | 60 | 4 | 0 | 0 |
| weight | 64 | 0 | 0 | 0 |

| Variable Name | Average coef. of main var. where iter. var. is included | Main var. coef. in the Baseline regression. | Average t-stat. of main var. where iter. var. is included | Average t-stat. of main var. in the Baseline regression. |
|---------------|---|---|---|--|
| mpg | 3229 | 2655 | 3.23655 | 2.67478 |
| headroom | 3306 | 2655 | 3.46234 | 2.67478 |
| trunk | 3333 | 2655 | 3.45367 | 2.67478 |
| displacement | 3299 | 2655 | 3.52626 | 2.67478 |
| turn | 3271 | 2655 | 3.35288 | 2.67478 |
| gear_ratio | 3628 | 2655 | 3.49325 | 2.67478 |
| weight | 3397 | 2655 | 3.75927 | 2.67478 |

Observations: 128

Variables: 33

11 Sep 2025 18:44

| Variable name | Storage type | Display format | Value label | Variable label |
|---------------|--------------|----------------|-------------|----------------------------|
| order | int | %10.0g | | Order number of estimation |
| v_1_b | float | %10.0g | | foreign coeff. |
| v_1_t | float | %10.0g | | foreign t-stat. |
| v_2_b | float | %10.0g | | length coeff. |
| v_2_t | float | %10.0g | | length t-stat. |
| v_3_b | float | %10.0g | | _Irep78_2 coeff. |
| v_3_t | float | %10.0g | | _Irep78_2 t-stat. |
| v_4_b | float | %10.0g | | _Irep78_3 coeff. |
| v_4_t | float | %10.0g | | _Irep78_3 t-stat. |
| v_5_b | float | %10.0g | | _Irep78_4 coeff. |
| v_5_t | float | %10.0g | | _Irep78_4 t-stat. |
| v_6_b | float | %10.0g | | _Irep78_5 coeff. |
| v_6_t | float | %10.0g | | _Irep78_5 t-stat. |
| v_7_b | float | %10.0g | | mpg coeff. |
| v_7_t | float | %10.0g | | mpg t-stat. |
| v_8_b | float | %10.0g | | headroom coeff. |
| v_8_t | float | %10.0g | | headroom t-stat. |
| v_9_b | float | %10.0g | | trunk coeff. |
| v_9_t | float | %10.0g | | trunk t-stat. |

| v_7_b | v_7_t | v_8_b | v_8_t | v_9_b | v_9_t | v_10_b | v_10_t | v_11_b | v_11_t |
|------------|------------|------------|------------|------------|------------|-----------|-----------|-----------|-----------|
| . | . | . | . | . | . | . | . | . | . |
| -134.84396 | -1.4135492 | . | . | . | . | . | . | . | . |
| . | . | -661.60187 | -1.4966491 | . | . | . | . | . | . |
| . | . | . | . | -63.33485 | -.56509882 | . | . | . | . |
| . | . | . | . | . | . | 28.211363 | 4.7333546 | . | . |
| . | . | . | . | . | . | . | . | 37.757278 | .24252218 |
| . | . | . | . | . | . | . | . | . | . |
| . | . | . | . | . | . | . | . | . | . |
| -125.57777 | -1.3238627 | -621.22412 | -1.4105561 | . | . | . | . | . | . |
| -132.22485 | -1.3753464 | . | . | -54.852055 | -.49221992 | . | . | . | . |
| -79.568306 | -.94879627 | . | . | . | . | 27.38122 | 4.5417156 | . | . |
| -134.27158 | -1.3810713 | . | . | . | . | . | . | 6.3090353 | .04038834 |
| -40.98666 | -.42104691 | . | . | . | . | . | . | . | . |
| -37.701389 | -.47314927 | . | . | . | . | . | . | . | . |
| . | . | -680.13519 | -1.3736502 | 10.623118 | .08593862 | . | . | . | . |
| . | . | -700.67151 | -1.8559715 | . | . | 28.442116 | 4.865653 | . | . |
| . | . | -657.23108 | -1.4714162 | . | . | . | . | 22.398212 | .14490384 |
| . | . | -638.98236 | -1.5417532 | . | . | . | . | . | . |
| . | . | -488.28873 | -1.3654414 | . | . | . | . | . | . |
| . | . | . | . | -50.355663 | -.52064043 | 28.121967 | 4.6881576 | . | . |
| . | . | . | . | -62.257877 | -.55060053 | . | . | 33.964214 | .21669933 |

Bank Concentration and Schumpeterian Growth:
Theory and International Evidence
B. Diallo, W. Koch (2019)

growthpc =

$$\beta_0 + \beta_1 \text{proxpc} + \beta_2 \text{findev} + \beta_3 \text{conc3} + \beta_4 \text{interpfindev} \\ + \beta_5 \text{interpconc3} + \beta_6 \text{meancost}_3 + \epsilon$$

- Covariables and Interactions

School → school interpchk

Money growth → M2 interpCM2

Gover. consump. → govc interpCGOVC

Creditor rights → credrights intpcCred

Corruption → corrup intpcCorr

Landlock → landlocked interpcland

Dep. Var.

Fixed Variables

Main Variables

```
ivreg2h growthpc proxpc meancost_3 (findev conc3  
interpcconc3 interpcfindex = legor_uk legor_fr  
legor_ge proxlegoruk proxlegorfr proxlegorge  
cathos muslims protmgs proxcatholic proxmuslim  
proxprotest), {small robust gmm2s}
```

Iteration Variables

Options

```
samregc growthpc findev conc3 interpcconc3  
interpcfindex , fix(proxpc meancost_3)  
griterateover(landlocked interpccland | school  
interpchk | credrights intpcCred | corrup intpcCorr  
| govc interpcgovc | M2 interpcM2) cmdest(ivreg2h)  
cmdoptions(small robust gmm2s) cmdiveq(findev conc3  
interpcconc3 interpcfindex = legor_uk legor_fr  
legor_ge proxlegoruk proxlegorfr proxlegorge cathos  
muslims protmgs proxcatholic proxmuslim proxprotest)
```

Dep. Var.

Fixed Variables

Main Variables

```
ivreg2h growthpc proxpc meancost_3 (findev conc3  
interpcconc3 interpcfindex = legor_uk legor_fr  
legor_ge proxlegoruk proxlegorfr proxlegorge  
cathos muslims protmgs proxcatholic proxmuslim  
proxprotest), {small robust gmm2s}
```

Iteration Variables

Options

```
samregc growthpc findev conc3 interpcconc3  
interpcfindex , fix(proxpc meancost_3)  
griterateover(landlocked interpccland | school  
interpchck | credrights intpcCred | corrup intpcCorr  
| govc interpcgovc | M2 interpcM2) cmdest(ivreg2h)  
cmdoptions(small robust gmm2s) cmdiveq(findev conc3  
interpcconc3 interpcfindex = legor_uk legor_fr  
legor_ge proxlegoruk proxlegorfr proxlegorge cathos  
muslims protmgs proxcatholic proxmuslim proxprotest)
```

Dep. Var.

Fixed Variables

Main Variables

```
ivreg2h growthpc proxpc meancost_3 (findev conc3  
interpcconc3 interpcfindex = legor_uk legor_fr  
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cathos muslims protmgs proxcatholic proxmuslim  
proxprotest), {small robust gmm2s}
```

Iteration Variables

Options

```
samregc growthpc findev conc3 interpcconc3  
interpcfindex , fix(proxpc meancost_3)  
griterateover(landlocked interpcland | school  
interpchck | credrights intpcCred | corrup intpcCorr  
| govc interpcgovc | M2 interpcM2) cndest(ivreg2h)  
cmdoptions(small robust gmm2s) cmdiveq(findev conc3  
interpcconc3 interpcfindex = legor_uk legor_fr  
legor_ge proxlegoruk proxlegorfr proxlegorge cathos  
muslims protmgs proxcatholic proxmuslim proxprotest)
```

2-Step GMM estimation

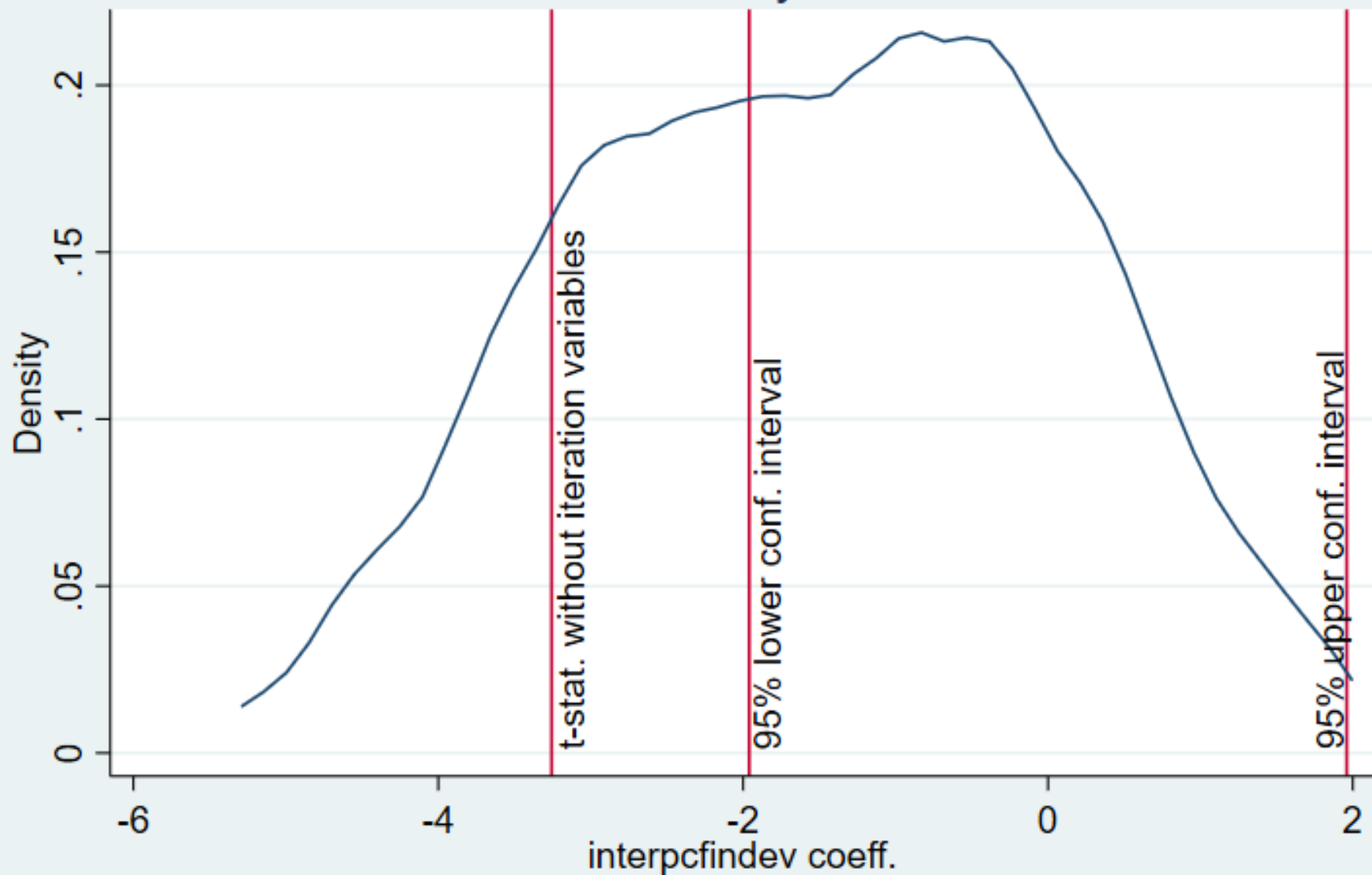
Estimates efficient for arbitrary heteroskedasticity

Statistics robust to heteroskedasticity

| | | | | | |
|-----------------------|---|-------------|---------------|---|--------|
| Total (centered) SS | = | 163.0596596 | Number of obs | = | 95 |
| Total (uncentered) SS | = | 472.9747159 | F(6, 88) | = | 10.30 |
| Residual SS | = | 115.4690596 | Prob > F | = | 0.0000 |
| | | | Centered R2 | = | 0.2919 |
| | | | Uncentered R2 | = | 0.7559 |
| | | | Root MSE | = | 1.145 |

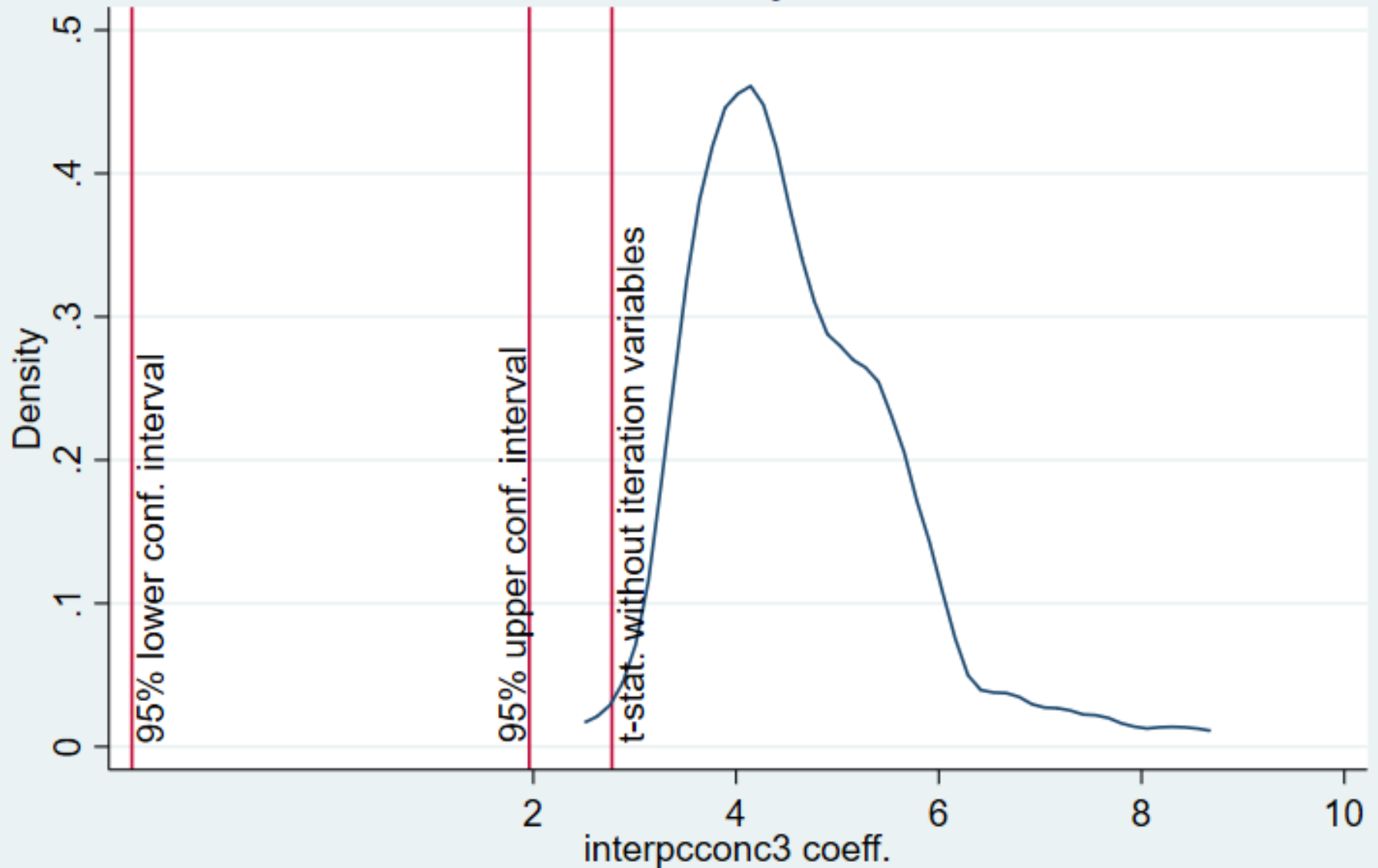
| growthpc | Coefficient | Robust std. err. | t | P> t | [95% conf. interval] | |
|---------------|-------------|---------------------|-------|-------|----------------------|-----------|
| findex | -.0012938 | .0042278 | -0.31 | 0.760 | -.0096956 | .007108 |
| conc3 | .0060528 | .0082428 | 0.73 | 0.465 | -.0103281 | .0224337 |
| interpcconc3 | .0148103 | .0053367 | 2.78 | 0.007 | .0042047 | .0254159 |
| interpcfindex | -.0111973 | .0034387 | -3.26 | 0.002 | -.018031 | -.0043636 |
| proxpc | -.9995443 | .4414987 | -2.26 | 0.026 | -1.87693 | -.1221585 |
| meancost_3 | -.0243985 | .0581 | -0.42 | 0.676 | -.13986 | .091063 |
| _cons | .9572983 | .9217419 | 1.04 | 0.302 | -.87447 | 2.789067 |

Kernel density estimate



kernel = epanechnikov, bandwidth = 0.6028

Kernel density estimate



kernel = epanechnikov, bandwidth = 0.3859

$$fc5 = \beta_0 + \beta_1 ifr + \beta_2 D.ifr + \epsilon$$

```

samregc fc5 ifr d.ifr if EA_LA_TR ==1, it(v1-v23)
cmdoptions(robust) sisters(both) ncomb(3)

```

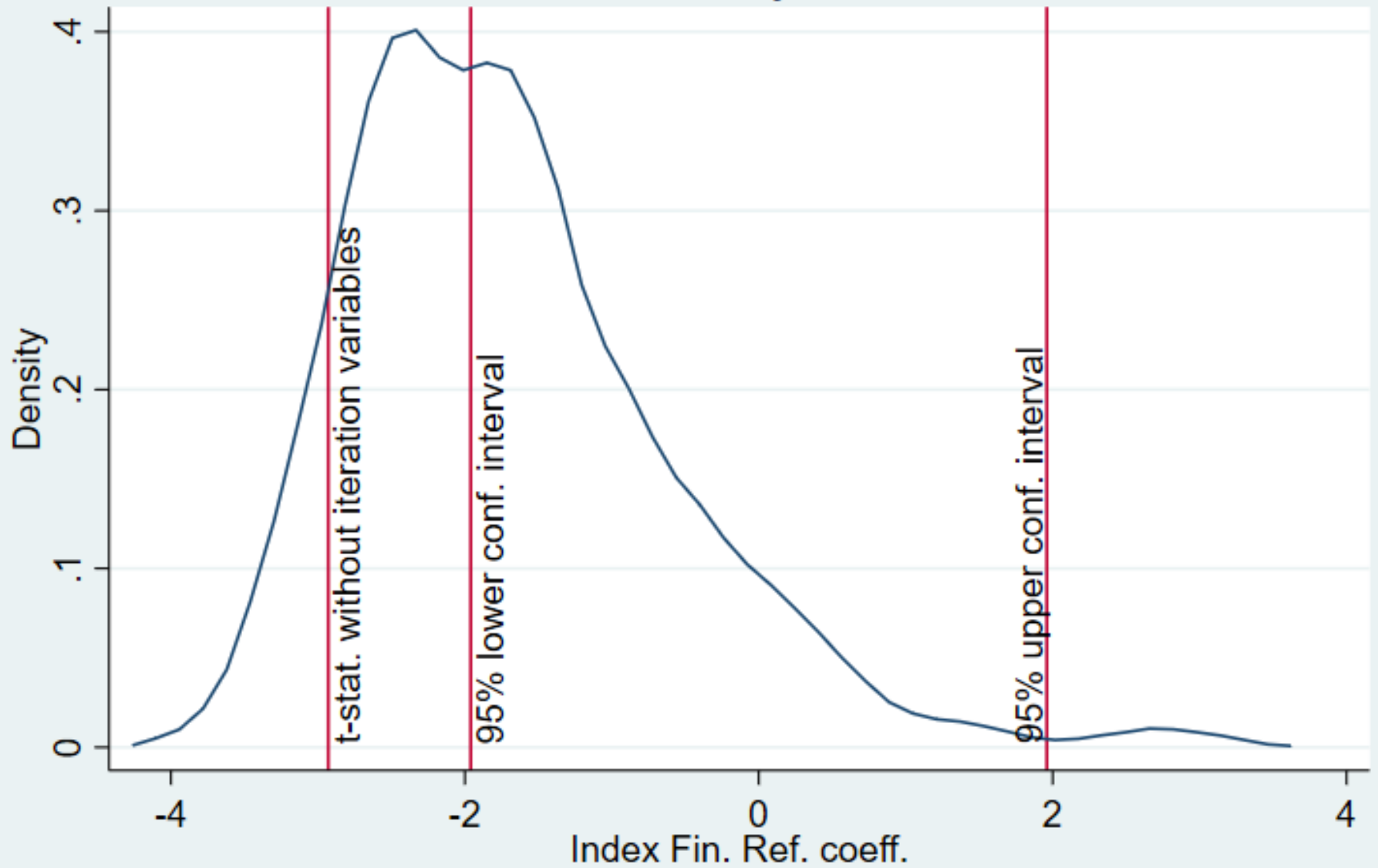
```

Linear regression                               Number of obs   =           928
                                                F(2, 925)       =           13.22
                                                Prob > F        =           0.0000
                                                R-squared       =           0.0293
                                                Root MSE      =           .42669

```

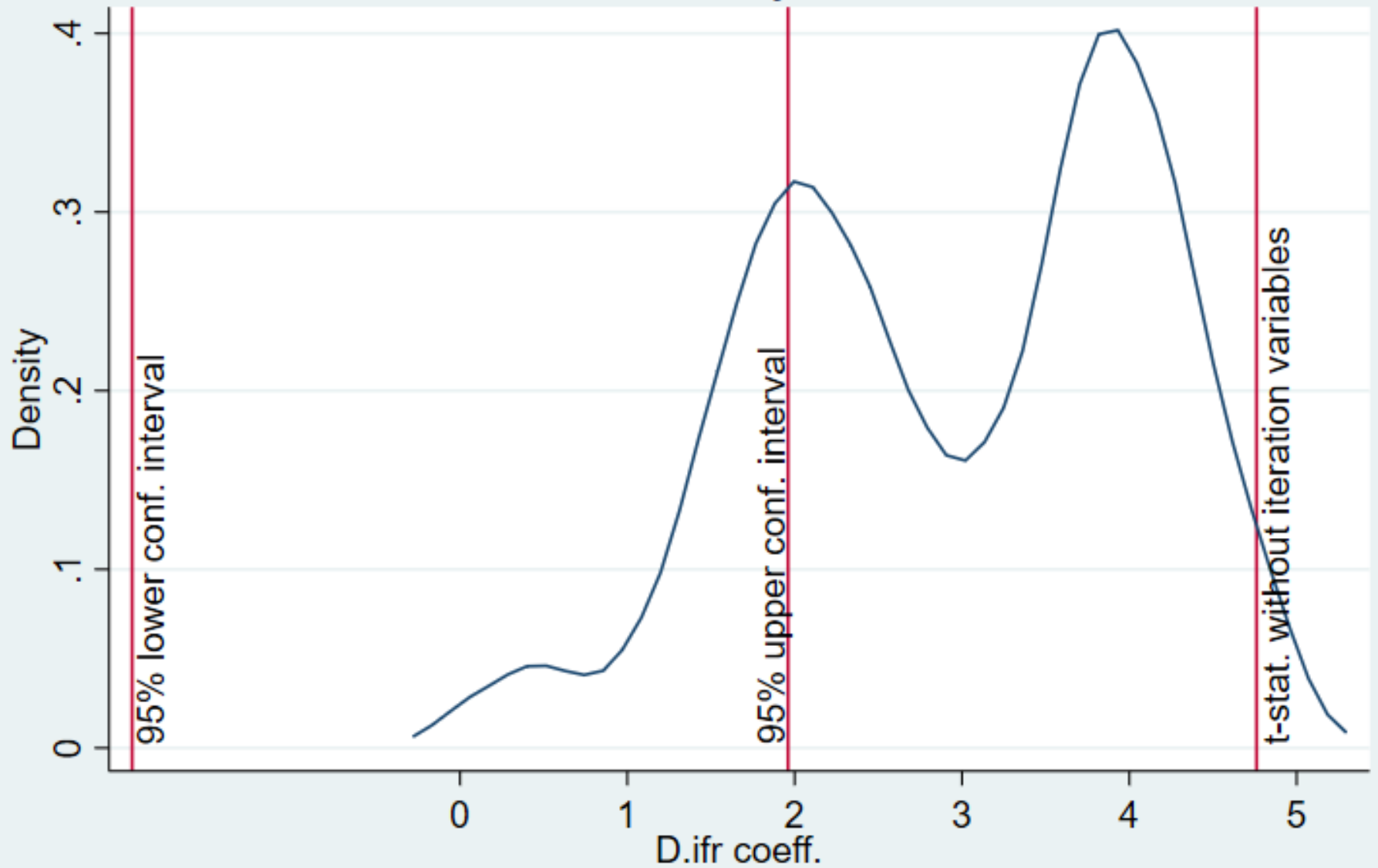
| | | Robust | | | | |
|-------|-------------|-----------|-------|-------|----------------------|-----------|
| fc5 | Coefficient | std. err. | t | P> t | [95% conf. interval] | |
| ifr | | | | | | |
| --. | -.00711 | .0024268 | -2.93 | 0.003 | -.0118727 | -.0023474 |
| D1. | .0549173 | .0115351 | 4.76 | 0.000 | .0322794 | .0775552 |
| _cons | .2793652 | .0253149 | 11.04 | 0.000 | .2296839 | .3290465 |

Kernel density estimate



kernel = epanechnikov, bandwidth = 0.2069

Kernel density estimate



kernel = epanechnikov, bandwidth = 0.2315

Acronyms description:

Pos: Coeff. > 0

Neg: Coeff. < 0

st_Low: Coeff. significantly below the 95% conf. interval

st_Ins: Coeff. inside 95% conf. interval (not significantly diff. from 0)

st_Up: Coeff. significantly above the 95% conf. interval

Total: Total number of valid estimations

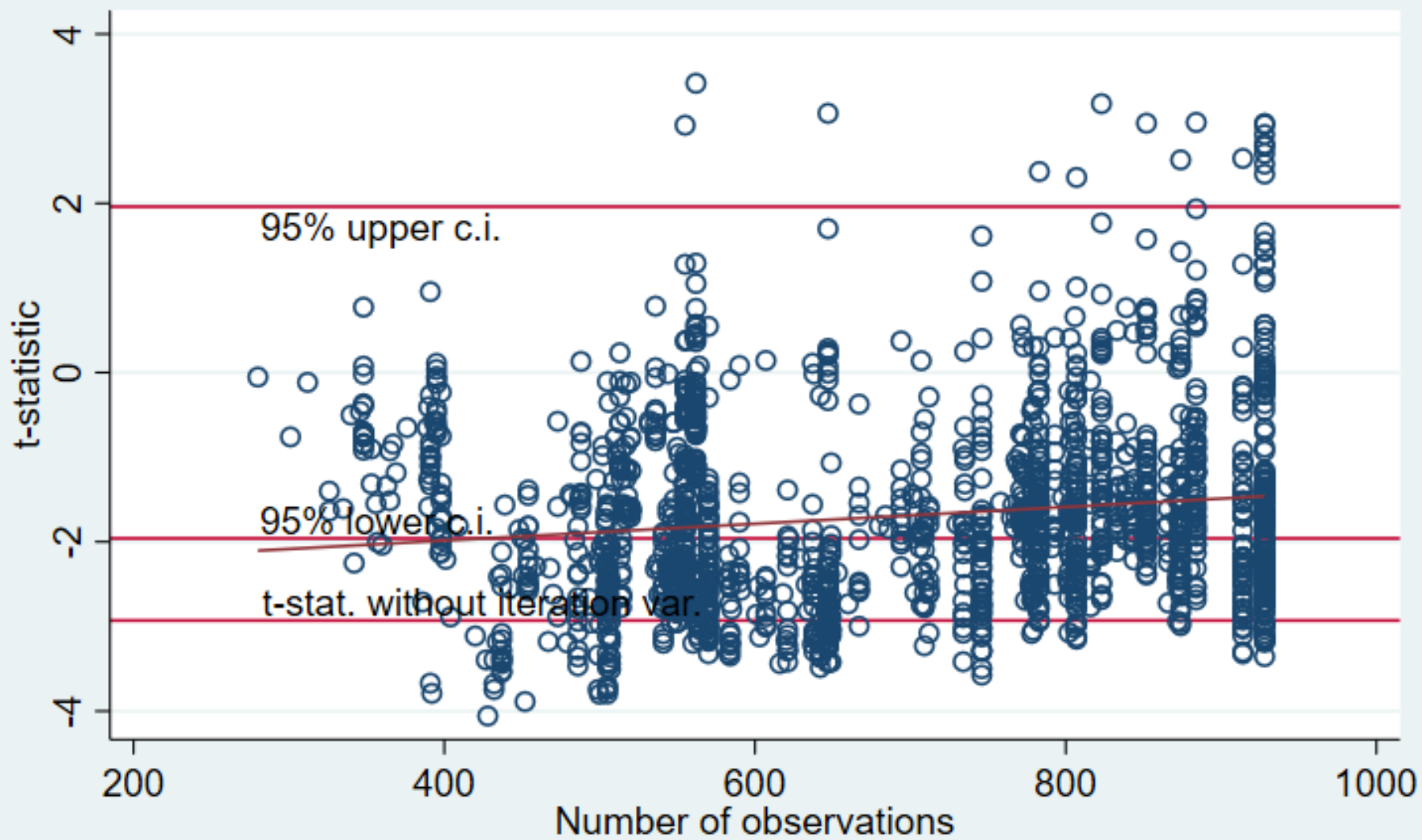
Est_Omit: Number of estimations with omitted variables

Tot_Est: Total number estimations

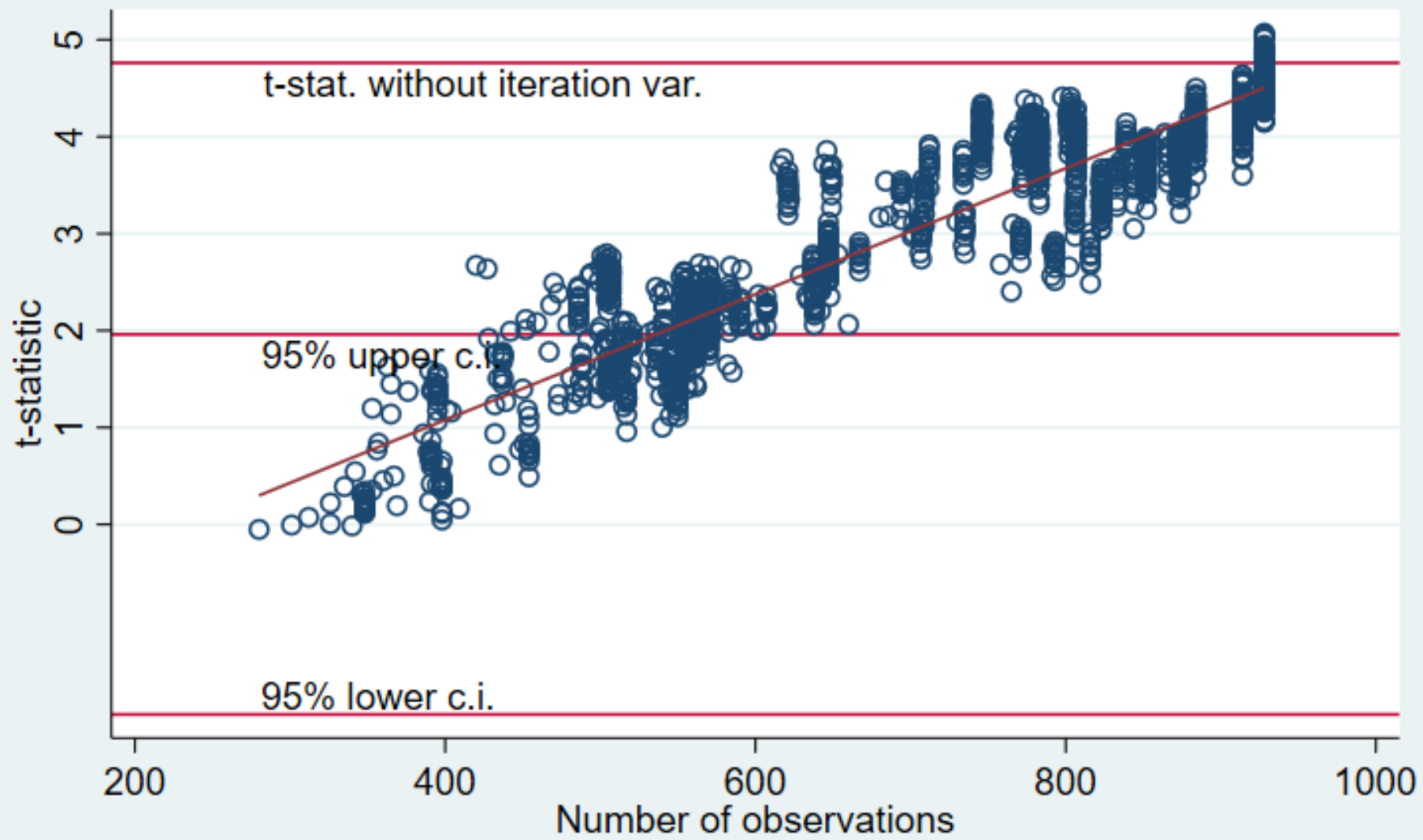
Table 1 (values): Aggregate impact of iteration vars. on each main var.

| varname | Pos | Neg | st_Low | st_Ins | st_Up | Total | Est_Omit | Tot_Est |
|---------|------|------|--------|--------|-------|-------|----------|---------|
| ifr | 137 | 1633 | 817 | 935 | 18 | 1770 | 1 | 1771 |
| D.ifr | 1767 | 3 | 0 | 394 | 1376 | 1770 | 1 | 1771 |

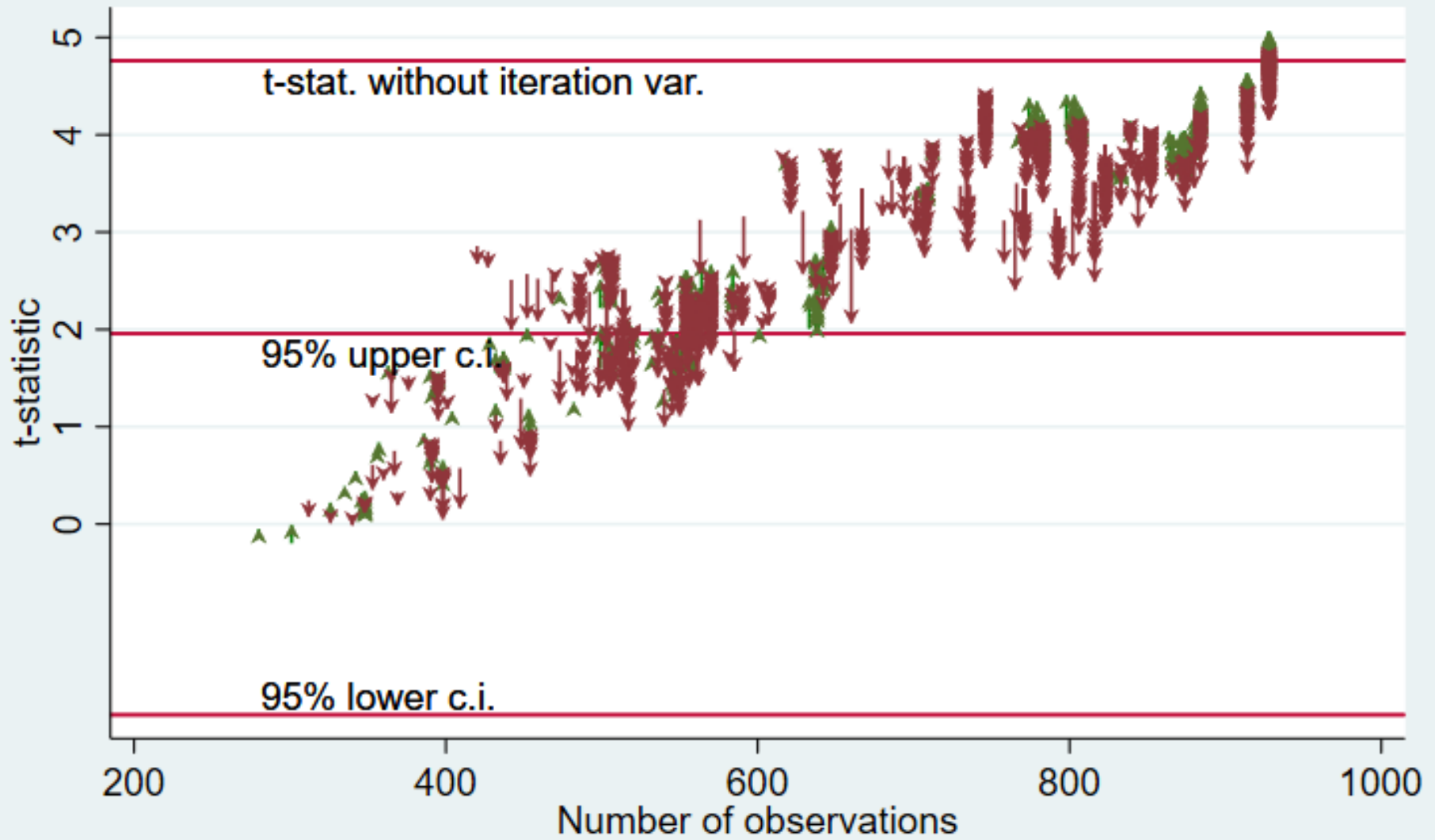
Index Fin. Ref.



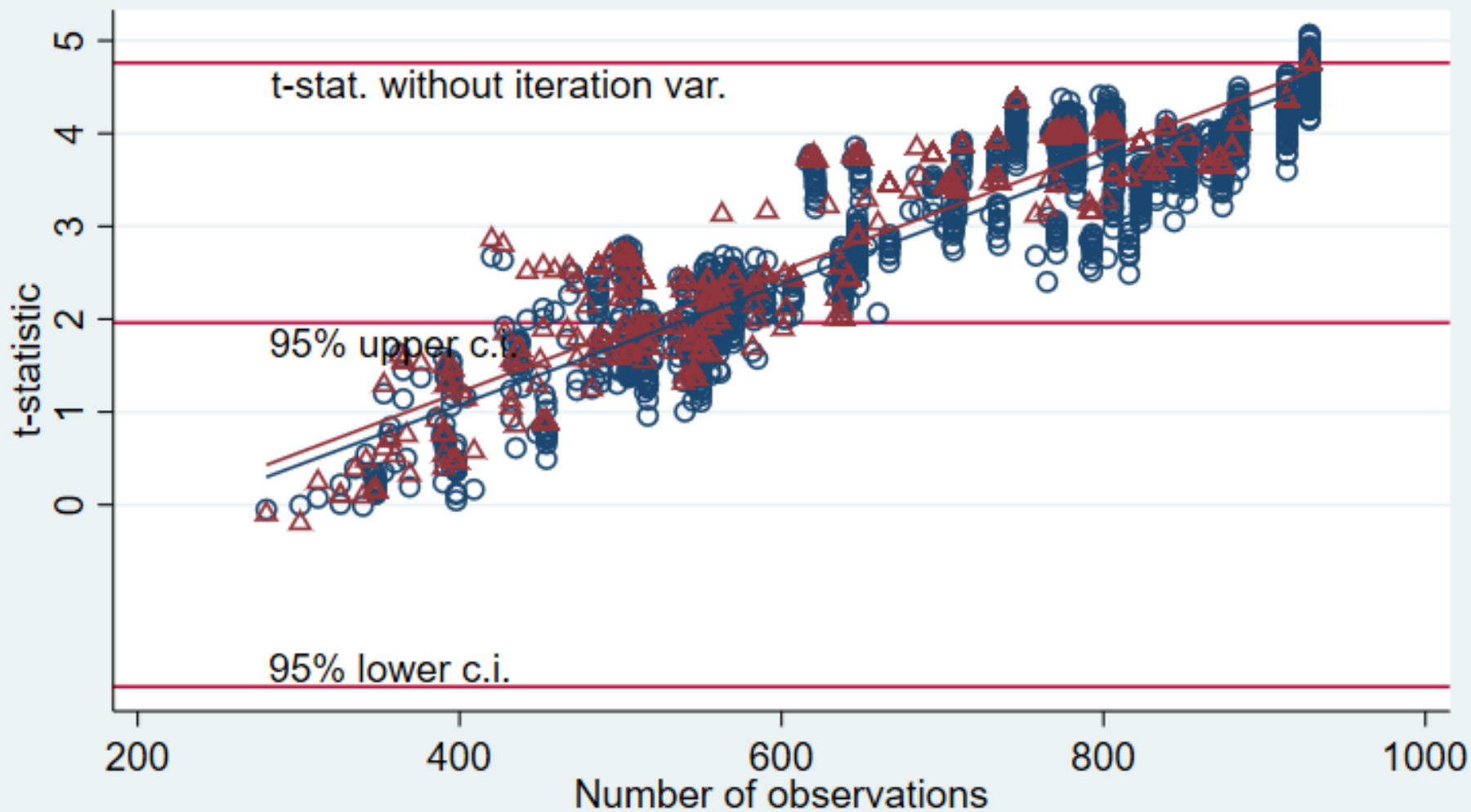
D.ifr



D.ifr



D.ifr



| | | | |
|----------|-------|--------|---|
| v_19_t | float | %10.0g | v17 t-stat. |
| v_20_b | float | %10.0g | v18 coeff. |
| v_20_t | float | %10.0g | v18 t-stat. |
| v_21_b | float | %10.0g | v19 coeff. |
| v_21_t | float | %10.0g | v19 t-stat. |
| v_22_b | float | %10.0g | v20 coeff. |
| v_22_t | float | %10.0g | v20 t-stat. |
| v_23_b | float | %10.0g | v21 coeff. |
| v_23_t | float | %10.0g | v21 t-stat. |
| v_24_b | float | %10.0g | v22 coeff. |
| v_24_t | float | %10.0g | v22 t-stat. |
| v_25_b | float | %10.0g | v23 coeff. |
| v_25_t | float | %10.0g | v23 t-stat. |
| v_26_b | float | %10.0g | Constant coeff. |
| v_26_t | float | %10.0g | Constant t-stat. |
| obs | int | %10.0g | Number of observations |
| nvar | byte | %10.0g | Number of variables |
| rank | byte | %10.0g | Rank (excluding omitted variables) |
| omitted | byte | %9.0g | =1 One or more variables were omitted because of collinearity |
| v_1_bSIS | float | %10.0g | ifr coeff. of Sister Estim. |
| v_1_tSIS | float | %10.0g | ifr t-stat. of Sister Estim. |
| v_2_bSIS | float | %10.0g | D.ifr coeff. of Sister Estim. |
| v_2_tSIS | float | %10.0g | D.ifr t-stat. of Sister Estim. |

Thanks!!!

gluzmann@yahoo.com