```
                                                                  ___  ____  ____  ____  ____(R)
                                                                 /__    /   ____/   /   ____/
                                                                ___/   /   /___/   /   /___/
                                                                  Statistics/Data analysis

                                                                    User: Ralf Elsas
 1 .   gen gvar = cond(effyear == ., 0, effyear)
       name:  <unnamed>
        log:  d:\Projekte\basic_econometrics\Diff_in_Diff\Castle\castleStataLog.smcl
   log type:  smcl
  opened on:   3 Oct 2025, 14:09:22

 2 . use castle, clear

 3 .
 4 . ** -------------Set up variables
 5 . * use effyear to construct treatment indicator from the time point where treatment started   per federal state
 6 . cap drop treated treatPost

 7 .   gen treatPost = 0

 8 .   replace treatPost = 1 if year > effyear & effyear ~= .
  (74 real changes made)

 9 .
10 . * csdid requires grouping variable for treatment cohorts, group = 0 for never treated
11 .   cap drop gvar

12 .   gen gvar = cond(effyear == ., 0, effyear)

13 .
14 . * construct eventTime
15 . bysort sid: gen eventTime = year-effyear if effyear !=0
  (319 missing values generated)

16 .
17 .
18 . ** --------- TWFE (likely biased towards zero, attenuation), clustered at treatment cohorts
19 . xtreg l_homicide treatPost i.year, fe vce(cluster gvar)

Fixed-effects (within) regression               Number of obs     =       550
Group variable: sid                             Number of groups  =        50

R-squared:                                      Obs per group:
     Within  = 0.0843                                         min =        11
     Between = 0.1838                                         avg =      11.0
     Overall = 0.0306                                         max =        11

                                                F(5, 5)           =         .
corr(u_i, Xb) = 0.0869                          Prob > F          =         .

                                    (Std. err. adjusted for 6 clusters in gvar)
------------------------------------------------------------------------------
             |               Robust
  l_homicide |      Coef.   Std. err.      t    P>|t|     [95% conf. interval]
-------------+----------------------------------------------------------------
   treatPost |   .0693984   .0177058     3.92   0.011     .0238842    .1149127
             |
        year |
        2001 |   .0234081   .0238534     0.98   0.371    -.0379089    .0847252
        2002 |    .002241   .0153934     0.15   0.890     -.037329    .0418111
        2003 |   .0476296   .0286264     1.66   0.157     -.025957    .1212161
        2004 |     .04259   .0242293     1.76   0.139    -.0196934    .1048735
        2005 |   .0609827   .0373046     1.63   0.163    -.0349119    .1568774
        2006 |   .0756094   .0333162     2.27   0.072    -.0100327    .1612515
        2007 |   .0614879   .0355456     1.73   0.144    -.0298851    .1528608
        2008 |   .0125426   .0207532     0.60   0.572    -.0408053    .0658905
        2009 |  -.0690221   .0492016    -1.40   0.220    -.1954988    .0574546
        2010 |  -.1271772   .0278347    -4.57   0.006    -.1987284   -.0556259
             |
       _cons |   1.384578   .0233914    59.19   0.000     1.324449    1.444708
-------------+----------------------------------------------------------------
     sigma_u |  .56071273
     sigma_e |  .18743405
         rho |  .89948933   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

```
20 .
21 . ** --------------Bacon Decomposition
22 . bacondecomp l_homicide treatPost, ddetail
Computing decomposition across 6 timing groups
including a never-treated group
```

l_homicide	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
treatPost	**.0693984**	**.0334258**	**2.08**	**0.038**	**.003885**	**.1349118**

Bacon Decomposition

	Beta	TotalWeight
Early_v_Late	**.0420033932**	**.0045102348**
Late_v_Early	**-.0434916914**	**.0030068233**
Early_v_Late	**.0912601873**	**.0027755292**
Late_v_Early	**.0536975749**	**.0013877646**
Early_v_Late	**-.021959696**	**.0210477626**
Late_v_Early	**.0437967181**	**.0090204695**
Early_v_Late	**.0551971309**	**.0020816468**
Late_v_Early	**.1332286149**	**.0006938823**
Early_v_Late	**.0150934393**	**.0210477626**
Late_v_Early	**.1495475471**	**.0060136465**
Early_v_Late	**-.1538487077**	**.0037007056**
Late_v_Early	**-.1497181505**	**.0009251764**
Early_v_Late	**-.0541701168**	**.0013877646**
Late_v_Early	**-.0193550438**	**.0002312941**
Early_v_Late	**-.0710192695**	**.0157858219**
Late_v_Early	**.0065479889**	**.0022551174**
Early_v_Late	**-.218341291**	**.0037007056**
Late_v_Early	**-.2147964537**	**.0004625882**
Early_v_Late	**-.040521238**	**.0010408234**
Late_v_Early	**-.0227897167**	**.000115647**
Never_v_timing	**.0784379909**	**.8988088336**

```
23 . // Compare the coeffcients and weights between never_vs_timing to all the other coefficients from early-vs-late ar
   > here's a lot of heterogeneity and many coeffcients are highly negative - these lead to attenuation bias. Clear inc
   > nous treatment effects.
24 .
25 . ** ----------Staggered estimators
26 . *Regression for estimating time varying treatment effects by cohorts  (STATA 18, same *regression as before, but s
   > ffects and better readable decomposition)
27 .
28 . xtdidregress (l_homicide) (treatPost), group(gvar) time(year)

Treatment and time information

Time variable: year
Control:       treatPost = 0
Treatment:     treatPost = 1
```

	Control	Treatment
Group		
gvar	**1**	**5**
Time		
Minimum	**2000**	**2006**
Maximum	**2000**	**2010**

```
Difference-in-differences regression                    Number of obs = 550
Data type: Longitudinal
```

(Std. err. adjusted for **6** clusters in **gvar**)

l_homicide	Coefficient	Robust std. err.	t	P>|t|	[95% conf. interval]	
ATET						
treatPost (1 vs 0)	**.0693984**	**.0177058**	**3.92**	**0.011**	**.0238842**	**.1149127**

Note: ATET estimate adjusted for panel effects and time effects.
Note: Treatment occurs at different times.

```
29 . estat bdecomp
```

DID treatment-effect decomposition

ATET = **.0693984**

Number of obs = **550**
Number of groups = **50**
Number of cohorts = **6**

ATET decomposition summary	ATET component	Weight
Treated vs never treated	**.07843799**	**0.898809**
Treated earlier vs later	**-.02857716**	**0.077079**
Treated later vs earlier	**.04563468**	**0.024112**

Full ATET decomposition	2x2 coefficient	Weight
Treated vs never treated		
2006 vs never treated	**.14503261**	**0.050306**
2007 vs never treated	**.05925429**	**0.610385**
2008 vs never treated	**.09201016**	**0.160981**
2009 vs never treated	**.18195417**	**0.060368**
2010 vs never treated	**.07398961**	**0.016769**
Treated earlier vs later		
2006 vs 2007	**.04200339**	**0.004510**
2006 vs 2008	**.09126019**	**0.002776**
2006 vs 2009	**.05519713**	**0.002082**
2006 vs 2010	**-.05417012**	**0.001388**
2007 vs 2008	**-.0219597**	**0.021048**
2007 vs 2009	**.01509344**	**0.021048**
2007 vs 2010	**-.07101927**	**0.015786**
2008 vs 2009	**-.15384871**	**0.003701**
2008 vs 2010	**-.21834129**	**0.003701**
2009 vs 2010	**-.04052124**	**0.001041**
Treated later vs earlier		
2007 vs 2006	**-.04349169**	**0.003007**
2008 vs 2006	**.05369758**	**0.001388**
2009 vs 2006	**.13322861**	**0.000694**
2010 vs 2006	**-.01935504**	**0.000231**
2008 vs 2007	**.04379672**	**0.009020**
2009 vs 2007	**.14954754**	**0.006014**
2010 vs 2007	**.00654799**	**0.002255**
2009 vs 2008	**-.14971815**	**0.000925**
2010 vs 2008	**-.21479646**	**0.000463**
2010 vs 2009	**-.02278972**	**0.000116**

Note: Number of cohorts includes never treated.
Note: The ATET reported by **xtdidregress** is a weighted average of the ATET components. If any component is substantia
from the ATET reported by **xtdidregress** and the weight is large, consider accounting for treatment-effect heter
xthdidregress.

```
30 .
31 . * TWFE estimator by Wooldridge 2021 (STATA 18+)
32 . xthdidregress twfe (l_homicide) (treatPost), group(gvar)
note: variable _did_cohort, containing cohort indicators formed by treatment variable treatPost and group variable g
      the dataset.

Treatment and time information

Time variable: year
Time interval: 2000 to 2010
Control:       _did_cohort = 0
Treatment:     _did_cohort > 0
```

	_did_cohort
Number of cohorts	**6**
Number of obs	
Never treated	**319**
2006	**11**
2007	**143**
2008	**44**
2009	**22**
2010	**11**

```
Heterogeneous-treatment-effects regression              Number of obs    = 550
                                                        Number of panels =   6
Estimator:       Two-way fixed effects
Panel variable:  sid
Treatment level: gvar
Control group:   Never treated
Heterogeneity:   Cohort and time
```

(Std. err. adjusted for **6** clusters in **gvar**)

Cohort	ATET	Robust std. err.	t	P>|t|	[95% conf.	interval]
2006						
year						
2006	**.0800059**	**.0238659**	**3.35**	**0.020**	**.0186565**	**.1413553**
2007	**.169865**	**.0203872**	**8.33**	**0.000**	**.117458**	**.2222721**
2008	**.1420123**	**.0183794**	**7.73**	**0.001**	**.0947667**	**.1892579**
2009	**.133178**	**.0212195**	**6.28**	**0.002**	**.0786316**	**.1877245**
2010	**.1133487**	**.0073354**	**15.45**	**0.000**	**.0944924**	**.132205**
2007						
year						
2007	**.0968346**	**.0191824**	**5.05**	**0.004**	**.0475248**	**.1461445**
2008	**-.0002714**	**.0154944**	**-0.02**	**0.987**	**-.0401009**	**.0395582**
2009	**.0643275**	**.0185397**	**3.47**	**0.018**	**.0166697**	**.1119853**
2010	**.0338172**	**.0045251**	**7.47**	**0.001**	**.022185**	**.0454494**
2008						
year						
2008	**-.1044289**	**.0145181**	**-7.19**	**0.001**	**-.141749**	**-.0671089**
2009	**.2285032**	**.0177988**	**12.84**	**0.000**	**.1827501**	**.2742564**
2010	**.1265205**	**.0032023**	**39.51**	**0.000**	**.1182887**	**.1347522**
2009						
year						
2009	**.2654476**	**.0162504**	**16.33**	**0.000**	**.2236747**	**.3072206**
2010	**.086855**	**.001625**	**53.45**	**0.000**	**.0826777**	**.0910323**
2010						
year						
2010	**.0739896**	**8.60e-10**	**8.6e+07**	**0.000**	**.0739896**	**.0739896**

```
33 . estat aggregation, overall
```

Overall ATET Number of obs = **550**

(Std. err. adjusted for **6** clusters in **gvar**)

l_homicide	ATET	Robust std. err.	t	P>|t|	[95% conf.	interval]
treatPost (1 vs 0)	**.0668998**	**.0197237**	**3.39**	**0.019**	**.0161985**	**.1176012**

```
34 . estat aggregation, cohort
```

ATET over cohort Number of obs = **550**

(Std. err. adjusted for **6** clusters in **gvar**)

Cohort	ATET	Robust std. err.	t	P>|t|	[95% conf.	interval]
2006	**.127682**	**.0161379**	**7.91**	**0.001**	**.0861981**	**.1691659**
2007	**.048677**	**.0124441**	**3.91**	**0.011**	**.0166885**	**.0806655**
2008	**.0835316**	**.0117418**	**7.11**	**0.001**	**.0533484**	**.1137147**
2009	**.1761513**	**.0089377**	**19.71**	**0.000**	**.1531762**	**.1991265**
2010	**.0739896**	**1.29e-09**	**5.7e+07**	**0.000**	**.0739896**	**.0739896**

```
35 .
36 . *Callaway / Sant'Anna (no covariates, Stata18+)
37 . xthdidregress ra (l_homicide) (treatPost), group(gvar) controlgroup(notyet)
note: variable _did_cohort, containing cohort indicators formed by treatment variable treatPost and group variable g
      the dataset.

Computing ATET for each cohort and time:
Cohort 2006 (10): ..........10 done
Cohort 2007 (10): ..........10 done
Cohort 2008 (10): ..........10 done
Cohort 2009 (10): ..........10 done
Cohort 2010 (10): ..........10 done

Treatment and time information

Time variable: year
Time interval: 2000 to 2010
Control:       _did_cohort = 2010
Treatment:     _did_cohort < 2010
```

	_did_cohort
Number of cohorts	**6**
Number of obs	
Never treated	**319**
2006	**11**
2007	**143**
2008	**44**
2009	**22**
2010	**11**

```
Heterogeneous-treatment-effects regression              Number of obs    = 550
                                                        Number of panels =   6
Estimator:       Regression adjustment
Panel variable:  sid
Treatment level: gvar
Control group:   Not yet treated
```

(Std. err. adjusted for **6** clusters in **gvar**)

Cohort	ATET	Robust std. err.	z	P>|z|	[95% conf.	interval]
2006						
year						
2001	**-.0839109**	**.0225857**	**-3.72**	**0.000**	**-.1281781**	**-.0396436**
2002	**.0442377**	**.0264098**	**1.68**	**0.094**	**-.0075246**	**.096**
2003	**-.0504138**	**.0253978**	**-1.98**	**0.047**	**-.1001926**	**-.0006351**
2004	**.0065607**	**.0044144**	**1.49**	**0.137**	**-.0020913**	**.0152127**
2005	**-.1123867**	**.0225607**	**-4.98**	**0.000**	**-.156605**	**-.0681685**
2006	**.1937339**	**.033112**	**5.85**	**0.000**	**.1288355**	**.2586323**
2007	**.3016061**	**.0115935**	**26.02**	**0.000**	**.2788834**	**.3243289**
2008	**.2592674**	**.0222386**	**11.66**	**0.000**	**.2156806**	**.3028543**
2009	**.2384125**	**.0316223**	**7.54**	**0.000**	**.1764339**	**.3003911**
2010	**.2322189**	**3.05e-16**	**7.6e+14**	**0.000**	**.2322189**	**.2322189**
2007						
year						
2001	**-.0301364**	**.0338405**	**-0.89**	**0.373**	**-.0964626**	**.0361898**
2002	**-.0171537**	**.0336832**	**-0.51**	**0.611**	**-.0831717**	**.0488642**
2003	**.0070913**	**.0333219**	**0.21**	**0.831**	**-.0582185**	**.0724011**
2004	**.0012684**	**.0061971**	**0.20**	**0.838**	**-.0108777**	**.0134144**
2005	**-.0649882**	**.0244506**	**-2.66**	**0.008**	**-.1129105**	**-.0170658**
2006	**.1122319**	**.0249226**	**4.50**	**0.000**	**.0633845**	**.1610792**
2007	**.0524984**	**.0201808**	**2.60**	**0.009**	**.0129448**	**.092052**
2008	**-.0393989**	**.0058691**	**-6.71**	**0.000**	**-.0509021**	**-.0278957**
2009	**.0181473**	**.0036998**	**4.90**	**0.000**	**.0108959**	**.0253988**
2010	**-.0191522**	**2.37e-17**	**-8.1e+14**	**0.000**	**-.0191522**	**-.0191522**
2008						
year						
2001	**.1618327**	**.0209694**	**7.72**	**0.000**	**.1207334**	**.202932**
2002	**-.1265924**	**.029504**	**-4.29**	**0.000**	**-.1844191**	**-.0687657**
2003	**.0777351**	**.0302636**	**2.57**	**0.010**	**.0184195**	**.1370507**
2004	**-.0211762**	**.0049207**	**-4.30**	**0.000**	**-.0308206**	**-.0115318**
2005	**.1590308**	**.020734**	**7.67**	**0.000**	**.1183928**	**.1996687**
2006	**-.1772518**	**.0237973**	**-7.45**	**0.000**	**-.2238937**	**-.1306099**
2007	**.1638163**	**.0208759**	**7.85**	**0.000**	**.1229003**	**.2047322**
2008	**-.2213671**	**.0164624**	**-13.45**	**0.000**	**-.2536328**	**-.1891015**
2009	**.1101857**	**.0211114**	**5.22**	**0.000**	**.068808**	**.1515633**
2010	**.0141501**	**2.05e-17**	**6.9e+14**	**0.000**	**.0141501**	**.0141501**
2009						
year						
2001	**-.0479682**	**.0240425**	**-2.00**	**0.046**	**-.0950907**	**-.0008457**
2002	**.2713223**	**.0348362**	**7.79**	**0.000**	**.2030445**	**.3396001**
2003	**.090625**	**.0277889**	**3.26**	**0.001**	**.0361597**	**.1450903**
2004	**-.0573326**	**.0005143**	**-111.47**	**0.000**	**-.0583407**	**-.0563246**
2005	**.159707**	**.025018**	**6.38**	**0.000**	**.1106727**	**.2087413**
2006	**-.0794895**	**.0279225**	**-2.85**	**0.004**	**-.1342166**	**-.0247623**
2007	**-.0907718**	**.0174116**	**-5.21**	**0.000**	**-.124898**	**-.0566457**
2008	**.0247873**	**.0164346**	**1.51**	**0.131**	**-.0074239**	**.0569986**
2009	**.2185904**	**.0046768**	**46.74**	**0.000**	**.209424**	**.2277567**
2010	**.0339232**	**2.08e-17**	**1.6e+15**	**0.000**	**.0339232**	**.0339232**
2010						
year						
2001	**.5276058**	**5.55e-16**	**9.5e+14**	**0.000**	**.5276058**	**.5276058**
2002	**-.7644706**	**8.88e-16**	**-8.6e+14**	**0.000**	**-.7644706**	**-.7644706**
2003	**.6098195**	**6.66e-16**	**9.2e+14**	**0.000**	**.6098195**	**.6098195**
2004	**-.0112868**	**2.83e-17**	**-4.0e+14**	**0.000**	**-.0112868**	**-.0112868**
2005	**-.5490114**	**5.55e-16**	**-9.9e+14**	**0.000**	**-.5490114**	**-.5490114**
2006	**.6127512**	**6.66e-16**	**9.2e+14**	**0.000**	**.6127512**	**.6127512**
2007	**-.3820931**	**4.44e-16**	**-8.6e+14**	**0.000**	**-.3820931**	**-.3820931**
2008	**.3606528**	**4.44e-16**	**8.1e+14**	**0.000**	**.3606528**	**.3606528**
2009	**.1026309**	**6.95e-17**	**1.5e+15**	**0.000**	**.1026309**	**.1026309**
2010	**-.210878**	**2.22e-16**	**-9.5e+14**	**0.000**	**-.210878**	**-.210878**

Note: Base time for pretreatment ATETs is the previous period.

```
38 . estat aggregation, cohort
```

ATET over cohort — Number of obs = **550**

(Std. err. adjusted for **6** clusters in **gvar**)

Cohort	ATET	Robust std. err.	z	P>|z|	[95% conf.	interval]
2006	.2450478	.0162025	15.12	0.000	.2132914	.2768041
2007	.0030236	.0051854	0.58	0.560	-.0071395	.0131868
2008	-.0323438	.0125065	-2.59	0.010	-.0568561	-.0078314
2009	.1262568	.0023384	53.99	0.000	.1216736	.13084
2010	-.210878	2.22e-16	-9.5e+14	0.000	-.210878	-.210878

```
39 .
40 . *-> Callaway and Sant'anna (using the csdid external package, s.e. are bootstrapped, default is comparisons only t
   > ts)
41 . csdid l_homicide, ivar(sid) time(year) gvar(gvar)
Program DRDID is outdated, or not installed.
Please install ssc install drdid
.....................................................

Difference-in-difference with Multiple Time Periods

                                                  Number of obs = 550
Outcome model  : regression adjustment
Treatment model: none
```

	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
g2005						
t_2000_2001	-.059336	.0414008	-1.43	0.152	-.1404801	.0218081
t_2001_2002	.0170962	.0429095	0.40	0.690	-.0670049	.1011972
t_2002_2003	-.0139039	.0349864	-0.40	0.691	-.082476	.0546683
t_2003_2004	.0005848	.0333095	0.02	0.986	-.0647005	.0658701
t_2004_2005	-.1202771	.0358476	-3.36	0.001	-.1905371	-.0500171
t_2004_2006	.0989949	.0333031	2.97	0.003	.0337219	.1642679
t_2004_2007	.1768835	.0439028	4.03	0.000	.0908355	.2629314
t_2004_2008	.1496086	.0476892	3.14	0.002	.0561395	.2430776
t_2004_2009	.1412668	.041647	3.39	0.001	.0596401	.2228935
t_2004_2010	.1119418	.050854	2.20	0.028	.0122698	.2116139
g2006						
t_2000_2001	.0024338	.072459	0.03	0.973	-.1395831	.1444508
t_2001_2002	-.0397443	.0642994	-0.62	0.537	-.1657687	.0862802
t_2002_2003	.0417199	.0552849	0.75	0.450	-.0666366	.1500764
t_2003_2004	-.005044	.0610287	-0.08	0.934	-.124658	.1145699
t_2004_2005	-.0556368	.0577676	-0.96	0.335	-.1688591	.0575856
t_2005_2006	.1079942	.0496868	2.17	0.030	.0106099	.2053785
t_2005_2007	.1602847	.059344	2.70	0.007	.0439725	.2765968
t_2005_2008	.0637565	.0804674	0.79	0.428	-.0939566	.2214697
t_2005_2009	.1288478	.0710093	1.81	0.070	-.0103278	.2680235
t_2005_2010	.0888419	.056561	1.57	0.116	-.0220156	.1996995
g2007						
t_2000_2001	.1764216	.1216275	1.45	0.147	-.061964	.4148071
t_2001_2002	-.1351171	.0758254	-1.78	0.075	-.2837322	.013498
t_2002_2003	.1037265	.1468357	0.71	0.480	-.1840662	.3915191
t_2003_2004	-.0251357	.0721712	-0.35	0.728	-.1665886	.1163172
t_2004_2005	.1507121	.0800138	1.88	0.060	-.0061121	.3075362
t_2005_2006	-.1617949	.0861407	-1.88	0.060	-.3306275	.0070378
t_2006_2007	.1454066	.1277041	1.14	0.255	-.1048888	.395702
t_2006_2008	-.0623895	.1274152	-0.49	0.624	-.3121187	.1873396
t_2006_2009	.2710351	.0929428	2.92	0.004	.0888706	.4531996
t_2006_2010	.1595567	.0912909	1.75	0.081	-.0193701	.3384836
g2008						
t_2000_2001	-.0303813	.0857706	-0.35	0.723	-.1984886	.1377259
t_2001_2002	.24584	.0849058	2.90	0.004	.0794276	.4122524
t_2002_2003	.1109523	.0930734	1.19	0.233	-.0714683	.2933729
t_2003_2004	-.0577088	.0352767	-1.64	0.102	-.1268499	.0114323

t_2004_2005	.1414067	.0377014	3.75	0.000	.0675132	.2153001
t_2005_2006	-.0590644	.0468831	-1.26	0.208	-.1509535	.0328247
t_2006_2007	-.1035083	.0774438	-1.34	0.181	-.2552953	.0482788
t_2007_2008	.0368091	.0552831	0.67	0.506	-.0715438	.145162
t_2007_2009	.2588205	.1004223	2.58	0.010	.0619964	.4556447
t_2007_2010	.0707323	.0575821	1.23	0.219	-.0421267	.1835912
g2009						
t_2000_2001	.5276058	.0414008	12.74	0.000	.4464617	.6087498
t_2001_2002	-.7644706	.0429095	-17.82	0.000	-.8485717	-.6803696
t_2002_2003	.6098195	.0349864	17.43	0.000	.5412473	.6783916
t_2003_2004	-.0112868	.0333095	-0.34	0.735	-.0765721	.0539986
t_2004_2005	-.5490114	.0358476	-15.32	0.000	-.6192714	-.4787514
t_2005_2006	.6127512	.0334653	18.31	0.000	.5471605	.6783419
t_2006_2007	-.3820931	.0357753	-10.68	0.000	-.4522113	-.3119748
t_2007_2008	.3606528	.054534	6.61	0.000	.2537682	.4675375
t_2008_2009	.1026309	.0413667	2.48	0.013	.0215536	.1837083
t_2008_2010	-.108247	.0426079	-2.54	0.011	-.1917569	-.0247372

Control: Never Treated

See Callaway and Sant'Anna (2021) for details

```
42 . estat event, estore(est_cs)
```

ATT by Periods Before and After treatment
Event Study:Dynamic effects

	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
Pre_avg	.0580201	.0274829	2.11	0.035	.0041546	.1118857
Post_avg	.1102807	.03667	3.01	0.003	.0384088	.1821527
Tm8	.5276058	.0414008	12.74	0.000	.4464617	.6087498
Tm7	-.2750778	.2076307	-1.32	0.185	-.6820265	.1318709
Tm6	.2581694	.0908255	2.84	0.004	.0801548	.436184
Tm5	-.0149105	.050696	-0.29	0.769	-.1142729	.0844518
Tm4	-.0393112	.0541868	-0.73	0.468	-.1455153	.0668929
Tm3	.0644989	.0444428	1.45	0.147	-.0226074	.1516051
Tm2	.0011024	.0453654	0.02	0.981	-.0878121	.0900169
Tm1	-.057916	.0437708	-1.32	0.186	-.1437052	.0278731
Tp0	.0972154	.0396431	2.45	0.014	.0195162	.1749145
Tp1	.1115491	.0493212	2.26	0.024	.0148814	.2082169
Tp2	.1115662	.0593121	1.88	0.060	-.0046834	.2278157
Tp3	.1368254	.0572429	2.39	0.017	.0246313	.2490195
Tp4	.0925866	.0537054	1.72	0.085	-.0126741	.1978473
Tp5	.1119418	.050854	2.20	0.028	.0122698	.2116139

```
43 .
44 . * Borusiak et al. (2024)
45 . did_imputation l_homicide sid year treatment_date
```

Number of obs = **550**

l_homicide	Coefficient	Std. err.	z	P>|z|	[95% conf.	interval]
tau	.0746777	.0591788	1.26	0.207	-.0413105	.190666

```
46 .
47 . *DID_M (de Chaisemartin/D'Haultfoeuille)
48 . did_multiplegt_dyn l_homicide sid year treatPost
```

Estimation of treatment effects: Event-study effects

	Estimate	SE	LB CI	UB CI	N	Switchers
Effect_1	.0103356	.0680938	-.1231257	.1437969	197	21

Average cumulative (total) effect per treatment unit

	Estimate	SE	LB CI	UB CI	N	Switch	x Periods
Av_tot_eff	**.0103356**	**.0680938**	**-.1231257**	**.1437969**	**197**	**21**	

Average number of time periods over which a treatment's effect is accumulated = 1

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```
49 .
50 . ** ----------------- Upshot
51 .   * - the ATT for treated federal states are quite heterogenous, also over time, most are insignifcant and there a
   > llel trends)
52 .   * - quite generally, however, the staggered introduction and the strong effect diffferences between treated vs n
   > s-late and late-vs-early (as well as the cohort aggregation) show that the TWFE effect of about 0.069 is biased.
53 .
54 . log close
      name:  <unnamed>
       log:  d:\Projekte\basic_econometrics\Diff_in_Diff\Castle\castleStataLog.smcl
  log type:  smcl
 closed on:   3 Oct 2025, 14:09:26
```