

## Codes

```
use data.dta,clear
xtset id year

//Table 1
outreg2 using Depstat.doc, replace sum(log) keep(Growth Temp Htemp Ltemp Prec )
title(Table 1 Descriptive Statistics of Key Variables)

pwcorr Temp Prec

//Poor&Rich definition
*base 2001
gen Poor=0
replace Poor=1 if year == 2001 & GDPPC<0.4285
egen flag = max(cond(year == 2001 & Poor == 1, 1, 0)), by(id)
replace Poor = 1 if flag == 1
drop flag
gen Rich=1
replace Rich=0 if Poor==1
*base 2010
// gen Poor=0
// replace Poor=1 if year == 2010 & GDPPC<0.806
// egen flag = max(cond(year == 2010 & Poor == 1, 1, 0)), by(id)
// replace Poor = 1 if flag == 1
// drop flag
// gen Rich=1
// replace Rich=0 if Poor==1

gen Temp_rich=Temp*Rich
gen Prec_rich=Prec*Rich

gen Temp_poor=Temp*Poor
gen Prec_poor=Prec*Poor

//Table 2
reghdfe Growth Temp,absorb(id year) cluster(county)
    outreg2    using baseline.doc, replace    tstat bdec(3) tdec(3) ctitle(Growth)
addtext(County FE, YES,Year FE,YES) title(Table 2 Baseline regression results)
reghdfe Growth Prec,absorb(id year) cluster(county)
    outreg2    using baseline.doc, append    tstat bdec(3) tdec(3) ctitle(Growth)
addtext(County FE, YES,Year FE,YES)
reghdfe Growth Temp Prec,absorb(id year) cluster(county)
```

```

    outreg2 using baseline.doc, append tstat bdec(3) tdec(3) ctitle(Growth)
addtext(County FE, YES,Year FE,YES)
reghdfe Growth Temp Prec Temp_poor Prec_poor,absorb(id year) cluster(county)
    outreg2 using baseline.doc, append tstat bdec(3) tdec(3) ctitle(Growth)
addtext(County FE, YES,Year FE,YES)

```

//Table3 Robustness

```
gen py=prvn*year
```

\*1 Region by Year

```
reghdfe Growth Temp Prec,absorb(id py) cluster(county)
```

```

    outreg2 using robust.doc, replace tstat bdec(3) tdec(3) ctitle(Region by Year)
addtext(County FE, YES,Year FE,No,RegionXYear FE,YES ) title(Table 3 Robustness checks
results)

```

\*2 Exclude Year 2020

```
reghdfe Growth Temp Prec if year<2020,absorb(id year) cluster(county)
```

```

    outreg2 using robust.doc, append tstat bdec(3) tdec(3) ctitle(Exclude Year 2020)
addtext(County FE, YES,Year FE,YES,RegionXYear FE,NO)

```

\*3 Exclude Municipal Districts

```
reghdfe Growth Temp Prec if CO_TYPE != "市辖区",absorb(id year) cluster(county)
```

```

    outreg2 using robust.doc, append tstat bdec(3) tdec(3) ctitle(Exclude Municipal
district) addtext(County FE, YES,Year FE,YES,RegionXYear FE,NO)

```

\*4 Tobit model

```
xттobit Growth Temp Prec, ll(-15) ul(30)
```

```

    outreg2 using robust.doc, append tstat bdec(3) tdec(3) ctitle(Tobit Model)
addtext(County FE, NO,Year FE,NO,RegionXYear FE,NO) keep(Temp Prec)

```

\*5 Maximum Temperature

```
reghdfe Growth Htemp Prec ,absorb(id year) cluster(county)
```

```

    outreg2 using robust.doc, append tstat bdec(3) tdec(3) ctitle(Maximum Temperature)
addtext(County FE, YES,Year FE,YES,RegionXYear FE,NO)

```

\*6 Minimum Temperature

```
reghdfe Growth Ltemp Prec ,absorb(id year) cluster(county)
```

```

    outreg2 using robust.doc, append tstat bdec(3) tdec(3) ctitle(Minimum Temperature)
addtext(County FE, YES,Year FE,YES,RegionXYear FE,NO)

```

\*7 Alternative Dataset

```
reghdfe Growth mtemp mprec,absorb(id year) cluster(county)
```

```

    outreg2 using robust.doc, append tstat bdec(3) tdec(3) ctitle(Alternative Dataset)
addtext(County FE, YES,Year FE,YES,RegionXYear FE,NO) sortvar(Temp Htemp Ltemp Prec
mtemp mprec )

```

```
drop bind
```

//Channels

\*Table4 Primary Industry

```
reghdfe Gval1 Temp Prec,absorb(id year) cluster(county)
```

```
    outreg2 using primary.doc, replace    tstat bdec(3) tdec(3) ctitle(Val1) addtext(County FE,  
YES,Year FE,YES) title(Table 4 Channels:Primary Industry)
```

```
reghdfe Ggrain Temp Prec,absorb(id year) cluster(county)
```

```
    outreg2 using primary.doc, append    tstat bdec(3) tdec(3) ctitle(Grain Yields)  
addtext(County FE, YES,Year FE,YES) title(Table 4 Channels:Primary Industry)
```

```
reghdfe Goil Temp Prec,absorb(id year) cluster(county)
```

```
    outreg2 using primary.doc, append    tstat bdec(3) tdec(3) ctitle(Oil Yields)  
addtext(County FE, YES,Year FE,YES) title(Table 4 Channels:Primary Industry)
```

```
reghdfe Gcotton Temp Prec,absorb(id year) cluster(county)
```

```
    outreg2 using primary.doc, append    tstat bdec(3) tdec(3) ctitle(Cotton Yields)  
addtext(County FE, YES,Year FE,YES) title(Table 4 Channels:Primary Industry)
```

```
reghdfe Ganimal Temp Prec,absorb(id year) cluster(county)
```

```
    outreg2 using primary.doc, append    tstat bdec(3) tdec(3) ctitle(Animal Husbandry)  
addtext(County FE, YES,Year FE,YES) title(Table 4 Channels:Primary Industry)
```

```
reghdfe Gmeat Temp Prec,absorb(id year) cluster(county)
```

```
    outreg2 using primary.doc, append    tstat bdec(3) tdec(3) ctitle(Meat Production)  
addtext(County FE, YES,Year FE,YES) title(Table 4 Channels: Primary Industry)
```

//Table5

\*Secondary Industry

```
reghdfe Gval2 Temp Prec,absorb(id year) cluster(county)
```

```
    outreg2 using secondary.doc, replace    tstat bdec(3) tdec(3) ctitle(Val2) addtext(County  
FE, YES,Year FE,YES) title(Table 5 Channels: Secondary and Tertiary Industry)
```

```
reghdfe Gind Temp Prec,absorb(id year) cluster(county)
```

```
    outreg2 using secondary.doc, append    tstat bdec(3) tdec(3) ctitle(Industrial Value  
Added) addtext(County FE, YES,Year FE,YES)
```

```
reghdfe Gads Temp Prec,absorb(id year) cluster(county)
```

```
    outreg2 using secondary.doc, append    tstat bdec(3) tdec(3) ctitle(Output of Large-scale  
Enterprises) addtext(County FE, YES,Year FE,YES) title(Table 5 Channels: Secondary and  
Tertiary Industry)
```

\*Tertiary Industry

```
reghdfe Gval3 Temp Prec,absorb(id year) cluster(county)
```

```
    outreg2 using secondary.doc, append    tstat bdec(3) tdec(3) ctitle(Val3) addtext(County  
FE, YES,Year FE,YES) title(Table 5 Channels: Secondary and Tertiary Industry)
```

```
reghdfe Gretail Temp Prec,absorb(id year) cluster(county)
```

```
    outreg2 using secondary.doc, append    tstat bdec(3) tdec(3) ctitle(Total retail sales of  
consumer goods) addtext(County FE, YES,Year FE,YES) title(Table 5 Channels: Secondary and  
Tertiary Industry)
```

//Table6

//Investment

```

reghdfe Ginvest Temp Prec,absorb(id year) cluster(county)
    outreg2 using fac.doc, replace    tstat bdec(3) tdec(3) ctitle(Investment) addtext(County
FE, YES,Year FE,YES) title(Table 6 Channels: Investment)
reghdfe Guinvest Temp Prec,absorb(id year) cluster(county)
    outreg2 using fac.doc, append    tstat bdec(3) tdec(3) ctitle(uinvest) addtext(County FE,
YES,Year FE,YES) title(Table 6 Channels: Investment)
reghdfe Gestate Temp Prec,absorb(id year) cluster(county)
    outreg2 using fac.doc, append    tstat bdec(3) tdec(3) ctitle(estate) addtext(County FE,
YES,Year FE,YES) title(Table 6 Channels: Investment)
*Labor Input
reghdfe Gemp Temp Prec if Growth !=.,absorb(id year) cluster(county)
    outreg2 using fac.doc, append    tstat bdec(3) tdec(3) ctitle(Employees) addtext(County
FE, YES,Year FE,YES) title(Table 6 Channels: Investment)
reghdfe Gworker1 Temp Prec if Growth !=.,absorb(id year) cluster(county)
    outreg2 using fac.doc, append    tstat bdec(3) tdec(3) ctitle(Employees in primary
industry) addtext(County FE, YES,Year FE,YES) title(Table 6 Channels: Investment)
reghdfe Gworker2 Temp Prec if Growth !=.,absorb(id year) cluster(county)
    outreg2 using fac.doc, append    tstat bdec(3) tdec(3) ctitle(Employees in secondary
industry) addtext(County FE, YES,Year FE,YES) title(Table 6 Channels: Investment)
reghdfe Gworker3 Temp Prec if Growth !=.,absorb(id year) cluster(county)
    outreg2 using fac.doc, append    tstat bdec(3) tdec(3) ctitle(Employees in tertiary industry)
addtext(County FE, YES,Year FE,YES) title(Table 6 Channels: Investment)

//Table7
reghdfe Gwage Temp Prec,absorb(id year) cluster(county)
    outreg2 using Prd.doc, replace    tstat bdec(3) tdec(3) ctitle(Wage) addtext(County FE,
YES,Year FE,YES) title(Table 7 Channels: Economic Productivity)
reghdfe Gloan Temp Prec,absorb(id year) cluster(county)
    outreg2 using Prd.doc, append    tstat bdec(3) tdec(3) ctitle(Gloan) addtext(County FE,
YES,Year FE,YES) title(Table 7 Channels: Economic Productivity)
reghdfe Ggpa Temp Prec,absorb(id year) cluster(county)
    outreg2 using Prd.doc, append    tstat bdec(3) tdec(3) ctitle(Ggpa) addtext(County FE,
YES,Year FE,YES) title(Table 7 Channels: Economic Productivity)
*TFP
use "/Users/www/Desktop/regwetfp.dta",clear
xtset id year
reghdfe Gtfp_tfe Temp Prec,absorb(id year) cluster(city)
    outreg2 using tfp.doc, replace    tstat bdec(3) tdec(3) ctitle(TFP) addtext(County FE,
YES,Year FE,YES) title(Table 7 Channels: Economic Productivity)

```

## codes-Figures

\*Figure1.Temperature Trend

```
egen avt=mean(Temp) ,by(year)
```

```
format avt %6.1f
```

```
twoway (scatter Temp year,m(circle_hollow) msize(vsmall)) ///
```

```
(scatter avt year,msize(vsmall) mcolor(red) mlabel(avt) mlabp(1) mlabs(vsmall)) ///
```

```
(line avt year,sort lc(black)) , ///
```

```
legend(label(1 "Average temperature(county-level)") label(2 "Average  
temperature(country-level)") label(3 "Trend of average temperature") position(6))
```

```
xlabel(2001(1)2020,angle(30) nogrid) ylabel(,nogrid) xtitle("Year") ytitle("Temperature(°C)")
```

```
graph export /Users/ww/Desktop/Weather&Growth/Fig1.png,replace
```

\*Figure2.Precipitation Trend

```
egen avp=mean(Prec) ,by(year)
```

```
format avp %6.1f
```

```
twoway (scatter Prec year,m(circle_hollow) msize(vsmall)) ///
```

```
(scatter avp year,msize(vsmall) mcolor(red) mlabel(avp) mlabp(1) mlabs(vsmall))
```

```
///
```

```
(line avp year,sort lc(black)) , ///
```

```
legend(label(1 "Average precipitation(county-level)") label(2 "Average  
precipitation(country-level)") label(3 "Trend of average precipitation") position(6))
```

```
xlabel(2001(1)2020,angle(25) nogrid) ylabel(,nogrid) xtitle("Year") ytitle("Precipitation(mm)")
```

```
graph export /Users/ww/Desktop/Weather&Growth/Fig2.png,replace
```

\*Figure 3

\* Generating density distribution

```
kdensity Growth if Temp < 0, generate(density1 G1) nodraw
```

```
kdensity Growth if Temp >=0 & mtemp<5, generate(density2 G2) nodraw
```

```
kdensity Growth if Temp >=5 & mtemp<10, generate(density3 G3) nodraw
```

```
kdensity Growth if Temp >=10 & mtemp<15, generate(density4 G4) nodraw
```

```
kdensity Growth if Temp >=15 & mtemp<20, generate(density5 G5) nodraw
```

```
kdensity Growth if Temp >=20, generate(density6 G6) nodraw
```

\* Translate the horizontal coordinate to avoid overlapping the distribution

```
replace G2=G2+0.1
```

```
replace G3=G3+0.2
```

```
replace G4=G4+0.3
```

```
replace G5=G5+0.4
```

```
replace G6=G6+0.5
```

\*Find the abscissa corresponding to the highest point

```
egen m1=max(G1)
```

```
egen m2=max(G2)
```

```
egen m3=max(G3)
```

```
egen m4=max(G4)
```

```
egen m5=max(G5)
```

```

egen m6=max(G6)
format m1 m2 m3 m4 m5 m6 %10.0g
*Find the ordinate corresponding to the highest point
gen y1=density1 if abs(G1-m1)<0.0000001
gen y2=density2 if abs(G2-m2)<0.0000001
gen y3=density3 if abs(G3-m3)<0.0000001
gen y4=density4 if abs(G4-m4)<0.0000001
gen y5=density5 if abs(G5-m5)<0.0000001
gen y6=density6 if abs(G6-m6)<0.0000001

```

\*Enter the horizontal and vertical coordinates of the highest value points into the new variable

```

input B //y1-y6
11.66967
10.22892
9.858686
8.396263
8.4249
7.517014
end
input A //m1-m6
0.0459322
0.15229633
0.25017294
0.36190763
0.47530714
0.57109582
end

```

\*Draw the kernel density map and the corresponding point plot

```

twoway (area density1 G1, color( ltblue )) ///
      (area density2 G2, color( ltblue )) ///
      (area density3 G3, color( ltblue )) ///
      (area density4 G4, color( ltblue )) ///
      (area density5 G5, color( ltblue )) ///
      (area density6 G6, color( ltblue )) ///
      (scatter y1 m1,m(circle) msize(tiny) color(red)) ///
      (scatter y2 m2,m(circle) msize(tiny) color(red)) ///
      (scatter y3 m3,m(circle) msize(tiny) color(red)) ///
      (scatter y4 m4,m(circle) msize(tiny) color(red)) ///
      (scatter y5 m5,m(circle) msize(tiny) color(red)) ///
      (scatter y6 m6,m(circle) msize(tiny) color(red)) ///
      (function y=11.66967,range(0 0.0459322) lp(dash) lc(red) lw(vthin)) ///
      (function y=10.22892,range(0.1 0.15229633) lp(dash) lc(red) lw(vthin)) ///
      (function y=9.858686,range(0.2 0.25017294) lp(dash) lc(red) lw(vthin)) ///

```

```

(function y=8.396263,range(0.3 0.36190763) lp(dash) lc(red) lw(vthin)) ///
(function y=8.4249,range(0.4 0.47530714) lp(dash) lc(red) lw(vthin)) ///
(function y=7.517014,range(0.5 0.57109582) lp(dash) lc(red) lw(vthin)) ///
(line B A,lp(solid) lc(red) lw(thin)) ///
,legend(off) xlabel(0 "(-5,0)" 0.1 "[0,5)" 0.2 "[5,10)" 0.3 "[10,15)" 0.4 "[15,20)" 0.5
"[20,30)") ylabel(,nogrid) xtitle("Average Temperature") ytitle("real GDP per capita growth
rate(%)")

```

```

graph export /Users/ww/Desktop/Weather&Growth/Fig3.png,replace

```

\* Figure 4a & 4b

```

gen binu=bin30+bin35

```

```

label var binu "[25,40)"

```

```

gen binl=_bin30+_bin25

```

```

label var binl "[-40,-25)"

```

```

//Figure 4a

```

```

reghdfe Growth binl _bin20 _bin15 _bin5 bin0 bin5 bin10 bin15 bin20 bin25 binu
Prec,absorb(id year) cluster(county)

```

```

estimates store All

```

```

coefplot All,drop(Prec _cons) vertical yline(0, lp(dash) lcolor(gs10)) recast(connect) lpattern(-)
ciopts(recast(rcap)) msize(vsmall) graphregion(color(white)) levels(90) ylabel(, format(%7.2f))
xlabel(,angle(30)) ytitle("Coefficient") xtitle("Temperature(°C) ")

```

```

graph export /Users/ww/Desktop/Weather&Growth/Fig4a.png,replace

```

```

//Figure 4b

```

```

reghdfe Growth binl _bin20 _bin15 _bin5 bin0 bin5 bin10 bin15 bin20 bin25 binu Prec if
Poor==1,absorb(id year) cluster(county)

```

```

estimates store Poor_Counties

```

```

reghdfe Growth binl _bin20 _bin15 _bin5 bin0 bin5 bin10 bin15 bin20 bin25 binu Prec if
Poor==0,absorb(id year) cluster(county)

```

```

estimates store Rich_Counties

```

```

coefplot Poor_Counties Rich_Counties,drop(Prec _cons) vertical yline(0, lp(dash) lcolor(gs10))
recast(connect) lpattern(-) msize(vsmall) graphregion(color(white)) levels(90)
legend(position(2) ring(0)) ylabel(, format(%7.2f)) xlabel(,angle(30)) ytitle("Coefficient")
xtitle("Temperature(°C) ")

```

```

graph export /Users/ww/Desktop/Weather&Growth/Fig4b.png,replace

```