--------------------------------------------------------------------------------

name: <unnamed>

log: /Users/yueqian/Downloads/analysis/Lee, Qian, and Wu\_Socius\_Log.log

log type: text

opened on: 16 Jul 2022, 00:09:35

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. /\*

> Task: STATA do file to replicate the main analyses found in the paper, titled

> "Coethnic concentration and Asians’ perceived discrimination across US countie

> s during COVID-19."

>

> Data: We use publicly available data from https://uasdata.usc.edu/index.php. W

> e have merged the data with county level information we obtained from the USC

> that are for restricted use only.

>

> Program: Lee, Qian, and Wu\_Socius.do

>

> Authors: Rennie Lee, Yue Qian, and Cary Wu

> \*/

.

.

. \*\*version control

. version 16.1

. clear all

. set more off

. matrix drop \_all

. set linesize 80

.

.

.

.

.

. \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

. \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*clean data\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

. \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

.

. \*\*use data

. use "merged827.dta", clear

.

.

. \*\*keep Asian sample only

. keep if asian==1

(14 observations deleted)

. count

12,240

.

.

. \*\*create dependent variable - perceived discrimination

. recode dcm\_afraid (1=2)(2=0)(3=1), gen(dcm1)

(11205 differences between dcm\_afraid and dcm1)

. recode dcm\_service(1=2)(2=0)(3=1), gen(dcm2)

(11202 differences between dcm\_service and dcm2)

. recode dcm\_threat (1=2)(2=0)(3=1), gen(dcm3)

(11204 differences between dcm\_threat and dcm3)

. recode dcm\_treat (1=2)(2=0)(3=1), gen(dcm4)

(11202 differences between dcm\_treat and dcm4)

. gen dcm=dcm1+dcm2+dcm3+dcm4

(1,040 missing values generated)

.

.

. \*\*create person ID for multilevel analysis

. encode uasid, gen(pid)

.

.

. \*\*code demographics

. recode maritalstatus (1 2=1)(3 4 5=3)(6=2), gen(mstatus)

(6015 differences between maritalstatus and mstatus)

. gen foreignborn = 1 - bornus

. recode gender (0=1)(1=0), gen(female)

(12240 differences between gender and female)

. gen lostjob=0

. replace lostjob=1 if lr001==2|lr001==3|lr001==4|lr001==5|lr001==6|lr001==7

(211 real changes made)

.

.

. \*\*code county level COVID-19 per capita

. /\*

> case725\_t: case number in thousand

> pop\_tt: population in ten thousand

> \*/

. gen crate725=((case725\_t\*1000)/(pop\_tt\*10000))\*1000

(200 missing values generated)

.

.

. \*\*missing data

. global control female education age hhincome lostjob i.mstatus foreignborn

. mark nomiss

. markout nomiss $control i.statereside ginicoefficient medianhouseholdincome c

> rate725 unemploymentrate20

. keep if dcm!=. & countyasian!=. & nomiss==1

(1,264 observations deleted)

. count

10,976

. codebook pid // 575 persons

--------------------------------------------------------------------------------

pid uasid

--------------------------------------------------------------------------------

type: numeric (long)

label: pid

range: [1,590] units: 1

unique values: 575 missing .: 0/10,976

examples: 109 160800228

217 180201625

329 190402816

439 190503662

. keep if stateid == statereside

(210 observations deleted)

. count

10,766

. codebook pid // 569 persons

--------------------------------------------------------------------------------

pid uasid

--------------------------------------------------------------------------------

type: numeric (long)

label: pid

range: [1,590] units: 1

unique values: 569 missing .: 0/10,766

examples: 112 160800596

219 180201641

328 190402733

439 190503662

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.

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.

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. \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*descriptive analysis\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

. \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

.

. \*\*create table 1

. tabstat dcm countyasian crate725 unemploymentrate20 ///

> education age hhincome ///

> ginicoefficient medianhouseholdincome\_tt, stat(mean sd min max n) form

> at(%9.2f) col(stat)

variable | mean sd min max N

-------------+--------------------------------------------------

dcm | 0.61 1.54 0.00 8.00 10766.00

countyasian | 13.81 8.46 0.10 41.90 10766.00

crate725 | 106.70 29.73 14.29 166.67 10766.00

unemploym~20 | 10.54 2.64 4.00 18.00 10766.00

education | 12.56 2.15 2.00 16.00 10766.00

age | 44.34 15.40 18.00 97.00 10766.00

hhincome | 11.79 4.37 1.00 16.00 10766.00

ginicoeffi~t | 0.48 0.01 0.44 0.51 10766.00

medianhous~t | 6.54 1.45 3.00 11.00 10766.00

----------------------------------------------------------------

.

. foreach v in female lostjob foreignborn mstatus{

2. tab `v', m

3. }

RECODE of |

gender |

(MyHH: |

Gender) | Freq. Percent Cum.

------------+-----------------------------------

0 | 4,657 43.26 43.26

1 | 6,109 56.74 100.00

------------+-----------------------------------

Total | 10,766 100.00

lostjob | Freq. Percent Cum.

------------+-----------------------------------

0 | 10,586 98.33 98.33

1 | 180 1.67 100.00

------------+-----------------------------------

Total | 10,766 100.00

foreignborn | Freq. Percent Cum.

------------+-----------------------------------

0 | 4,714 43.79 43.79

1 | 6,052 56.21 100.00

------------+-----------------------------------

Total | 10,766 100.00

RECODE of |

maritalstat |

us (MyHH: |

Marital |

status) | Freq. Percent Cum.

------------+-----------------------------------

1 | 5,685 52.81 52.81

2 | 3,905 36.27 89.08

3 | 1,176 10.92 100.00

------------+-----------------------------------

Total | 10,766 100.00

.

. tab statereside, m

MyHH: State residence - FIPS |

coding | Freq. Percent Cum.

-------------------------------+-----------------------------------

1 Alabama | 27 0.25 0.25

4 Arizona | 43 0.40 0.65

5 Arkansas | 27 0.25 0.90

6 California | 8,112 75.35 76.25

8 Colorado | 21 0.20 76.44

9 Connecticut | 33 0.31 76.75

10 Delaware | 7 0.07 76.82

12 Florida | 159 1.48 78.29

13 Georgia | 73 0.68 78.97

15 Hawaii | 130 1.21 80.18

17 Illinois | 122 1.13 81.31

18 Indiana | 246 2.28 83.60

19 Iowa | 3 0.03 83.62

20 Kansas | 11 0.10 83.73

24 Maryland | 17 0.16 83.88

25 Massachusetts | 146 1.36 85.24

26 Michigan | 112 1.04 86.28

27 Minnesota | 1 0.01 86.29

29 Missouri | 39 0.36 86.65

32 Nevada | 26 0.24 86.89

34 New Jersey | 113 1.05 87.94

36 New York | 108 1.00 88.95

37 North Carolina | 53 0.49 89.44

39 Ohio | 221 2.05 91.49

40 Oklahoma | 73 0.68 92.17

41 Oregon | 98 0.91 93.08

42 Pennsylvania | 24 0.22 93.30

44 Rhode Island | 16 0.15 93.45

45 South Carolina | 48 0.45 93.90

47 Tennessee | 101 0.94 94.84

48 Texas | 283 2.63 97.46

51 Virginia | 84 0.78 98.24

53 Washington | 76 0.71 98.95

55 Wisconsin | 113 1.05 100.00

-------------------------------+-----------------------------------

Total | 10,766 100.00

. /\*

> 6 California 75.35%

> 15 Hawaii 1.21%

> \*/

.

.

. \*\*test for nbreg or poisson - figure 2

. nbvargr dcm

Obtaining Parameter Estimates

Observed Proportions

+--------------+

| k oprob |

|--------------|

| 0 .8215679 |

| 1 .0261007 |

| 2 .0493219 |

| 3 .0131897 |

| 4 .0566599 |

|--------------|

| 5 .0051087 |

| 6 .013747 |

| 7 .0018577 |

| 8 .0124466 |

+--------------+

Negative Binomial Probabilities

with mean = .6115549 & overdispersion = 9.387842

+-----------------------------+

| k nbprob nbcum |

|-----------------------------|

1. | 0 0.81606062 0.81606060 |

2. | 1 0.07403241 0.89009303 |

3. | 2 0.03488323 0.92497629 |

4. | 3 0.02086058 0.94583684 |

5. | 4 0.01379768 0.95963454 |

|-----------------------------|

6. | 5 0.00965106 0.96928561 |

7. | 6 0.00699543 0.97628099 |

8. | 7 0.00519727 0.98147827 |

9. | 8 0.00393195 0.98541021 |

+-----------------------------+

Poisson Probabilities for lambda = .6115549

+-----------------------------+

| k pprob pcum |

|-----------------------------|

1. | 0 0.54250669 0.54250669 |

2. | 1 0.33177263 0.87427932 |

3. | 2 0.10144858 0.97572792 |

4. | 3 0.02068046 0.99640834 |

5. | 4 0.00316181 0.99957019 |

|-----------------------------|

6. | 5 0.00038672 0.99995691 |

7. | 6 0.00003942 0.99999630 |

8. | 7 0.00000344 0.99999976 |

9. | 8 0.00000026 1.00e+00 |

+-----------------------------+

. nbvargr dcm, scheme(s2color) ///

> legend(rows(3) order(1 "Observed proportion" 2 "Negative binomial prob

> ability" 3 "Poisson probability")) ///

> graphregion(color(white)) ///

> xtitle("Perceived discrimination (0–8)") b1title("mean = 0.61; overdis

> persion = 9.39") ///

> ylabel(, nogrid)

Obtaining Parameter Estimates

Observed Proportions

+--------------+

| k oprob |

|--------------|

| 0 .8215679 |

| 1 .0261007 |

| 2 .0493219 |

| 3 .0131897 |

| 4 .0566599 |

|--------------|

| 5 .0051087 |

| 6 .013747 |

| 7 .0018577 |

| 8 .0124466 |

+--------------+

Negative Binomial Probabilities

with mean = .6115549 & overdispersion = 9.387842

+-----------------------------+

| k nbprob nbcum |

|-----------------------------|

1. | 0 0.81606062 0.81606060 |

2. | 1 0.07403241 0.89009303 |

3. | 2 0.03488323 0.92497629 |

4. | 3 0.02086058 0.94583684 |

5. | 4 0.01379768 0.95963454 |

|-----------------------------|

6. | 5 0.00965106 0.96928561 |

7. | 6 0.00699543 0.97628099 |

8. | 7 0.00519727 0.98147827 |

9. | 8 0.00393195 0.98541021 |

+-----------------------------+

Poisson Probabilities for lambda = .6115549

+-----------------------------+

| k pprob pcum |

|-----------------------------|

1. | 0 0.54250669 0.54250669 |

2. | 1 0.33177263 0.87427932 |

3. | 2 0.10144858 0.97572792 |

4. | 3 0.02068046 0.99640834 |

5. | 4 0.00316181 0.99957019 |

|-----------------------------|

6. | 5 0.00038672 0.99995691 |

7. | 6 0.00003942 0.99999630 |

8. | 7 0.00000344 0.99999976 |

9. | 8 0.00000026 1.00e+00 |

+-----------------------------+

. graph export "figure2.pdf"

(file /Users/yueqian/Downloads/analysis/figure2.pdf written in PDF format)

.

.

. \*\*create figure 3

. by statereside, sort: egen pdcm=mean(dcm)

. \*Hawaii

. tab percentasian if statereside==15

percent |

Asian | Freq. Percent Cum.

------------+-----------------------------------

37 | 130 100.00 100.00

------------+-----------------------------------

Total | 130 100.00

. tab pdcm if statereside==15

pdcm | Freq. Percent Cum.

------------+-----------------------------------

.4 | 130 100.00 100.00

------------+-----------------------------------

Total | 130 100.00

. \*figure 3A state level scatterplot, with Hawaii excluded

. twoway (scatter pdcm percentasian if statereside!=15, msize(vsmall) mcolor(ora

> nge) mlab(stateabbreviation) mlabcolor(gray) mlabsize(vsmall)) || ///

> qfit pdcm percentasian if statereside!=15, ///

> ylabel(0(2)6, nogrid) scheme(s2color) ///

> graphregion(color(white)) ///

> title("A") xtitle("% Asians by US state") ytitle("Perceived discrimina

> tion (0–8)") ///

> legend(off)

. graph save f31.gph

(file f31.gph saved)

.

. \*figure 3B

. by countyasian, sort: egen pdcmasian=mean(dcm)

. twoway (scatter pdcmasian countyasian, msize(vsmall) mcolor(orange) mlab(state

> abbreviation) mlabcolor(gray) mlabsize(vsmall)) || ///

> qfit pdcmasian countyasian, ///

> ylabel(0(2)6, nogrid) scheme(s2color) ///

> graphregion(color(white)) ///

> title("B") xtitle("% Asians by US county") ytitle("Perceived discrimin

> ation (0–8)") ///

> legend(off)

. graph save f32.gph

(file f32.gph saved)

.

. \*figure 3

. graph combine "f31.gph" "f32.gph"

. graph export "figure3.pdf"

(file /Users/yueqian/Downloads/analysis/figure3.pdf written in PDF format)

.

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. \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

. \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*regression analysis\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

. \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

.

. \*\*negative binomal models

. menbreg dcm c.countyasian##c.countyasian || pid:

Fitting fixed-effects model:

Iteration 0: log likelihood = -11687.227

Iteration 1: log likelihood = -10015.196 (backed up)

Iteration 2: log likelihood = -9890.9472

Iteration 3: log likelihood = -9318.8104

Iteration 4: log likelihood = -9279.3252

Iteration 5: log likelihood = -9279.301

Iteration 6: log likelihood = -9279.301

Refining starting values:

Grid node 0: log likelihood = -8928.862

Fitting full model:

Iteration 0: log likelihood = -8928.862

Iteration 1: log likelihood = -8507.4642

Iteration 2: log likelihood = -8465.6762

Iteration 3: log likelihood = -8464.326

Iteration 4: log likelihood = -8464.3156

Iteration 5: log likelihood = -8464.3156

Mixed-effects nbinomial regression Number of obs = 10,766

Overdispersion: mean

Group variable: pid Number of groups = 569

Obs per group:

min = 1

avg = 18.9

max = 27

Integration method: mvaghermite Integration pts. = 7

Wald chi2(2) = 12.74

Log likelihood = -8464.3156 Prob > chi2 = 0.0017

-------------------------------------------------------------------------------

dcm | Coef. Std. Err. z P>|z| [95% Conf. Interval]

--------------+----------------------------------------------------------------

countyasian | .1115377 .0323112 3.45 0.001 .048209 .1748664

|

c. |

countyasian#|

c.countyasian | -.003059 .0008592 -3.56 0.000 -.004743 -.0013749

|

\_cons | -2.346799 .262414 -8.94 0.000 -2.861121 -1.832477

--------------+----------------------------------------------------------------

/lnalpha | 1.042281 .0457315 .9526492 1.131913

--------------+----------------------------------------------------------------

pid |

var(\_cons)| 3.223279 .296763 2.691094 3.860707

-------------------------------------------------------------------------------

LR test vs. nbinomial model: chibar2(01) = 1629.97 Prob >= chibar2 = 0.0000

. est store m1

. margins, at(countyasian=(0(2)40))

Adjusted predictions Number of obs = 10,766

Model VCE : OIM

Expression : Marginal predicted mean, predict()

1.\_at : countyasian = 0

2.\_at : countyasian = 2

3.\_at : countyasian = 4

4.\_at : countyasian = 6

5.\_at : countyasian = 8

6.\_at : countyasian = 10

7.\_at : countyasian = 12

8.\_at : countyasian = 14

9.\_at : countyasian = 16

10.\_at : countyasian = 18

11.\_at : countyasian = 20

12.\_at : countyasian = 22

13.\_at : countyasian = 24

14.\_at : countyasian = 26

15.\_at : countyasian = 28

16.\_at : countyasian = 30

17.\_at : countyasian = 32

18.\_at : countyasian = 34

19.\_at : countyasian = 36

20.\_at : countyasian = 38

21.\_at : countyasian = 40

------------------------------------------------------------------------------

| Delta-method

| Margin Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

\_at |

1 | .4794289 .1352282 3.55 0.000 .2143866 .7444712

2 | .5919576 .1387623 4.27 0.000 .3199885 .8639267

3 | .7132291 .1408897 5.06 0.000 .4370903 .9893678

4 | .8385703 .1444576 5.80 0.000 .5554387 1.121702

5 | .9621038 .1524198 6.31 0.000 .6633666 1.260841

6 | 1.077151 .1660224 6.49 0.000 .7517526 1.402549

7 | 1.176801 .1838337 6.40 0.000 .8164932 1.537108

8 | 1.254589 .2025821 6.19 0.000 .8575352 1.651643

9 | 1.305185 .2187371 5.97 0.000 .876468 1.733902

10 | 1.324996 .2296688 5.77 0.000 .8748535 1.775139

11 | 1.31259 .2341968 5.60 0.000 .8535729 1.771608

12 | 1.268866 .2326749 5.45 0.000 .8128317 1.724901

13 | 1.196946 .2266928 5.28 0.000 .7526359 1.641255

14 | 1.101806 .2184356 5.04 0.000 .67368 1.529932

15 | .9897096 .2098289 4.72 0.000 .5784524 1.400967

16 | .867526 .2017937 4.30 0.000 .4720176 1.263034

17 | .7420432 .1940201 3.82 0.000 .3617708 1.122316

18 | .6193669 .1853912 3.34 0.001 .2560067 .982727

19 | .5044739 .1747178 2.89 0.004 .1620333 .8469146

20 | .4009604 .1613166 2.49 0.013 .0847858 .7171351

21 | .3109828 .1452211 2.14 0.032 .0263546 .595611

------------------------------------------------------------------------------

. marginsplot, ylabel(0(0.5)2, nogrid) scheme(s2color) ///

> graphregion(color(white)) ///

> title("A: Model 1") xtitle("% Asians in the county") ///

> ytitle("Perceived discrimination (0–8)") noci ///

> xlabel(, labsize(small))

Variables that uniquely identify margins: countyasian

. graph save "f41.gph"

(file f41.gph saved)

.

. gen ca = statereside==6

. gen hi = statereside==15

. tab statereside if ca==1, m

MyHH: State residence - FIPS |

coding | Freq. Percent Cum.

-------------------------------+-----------------------------------

6 California | 8,112 100.00 100.00

-------------------------------+-----------------------------------

Total | 8,112 100.00

. tab statereside if hi==1, m

MyHH: State residence - FIPS |

coding | Freq. Percent Cum.

-------------------------------+-----------------------------------

15 Hawaii | 130 100.00 100.00

-------------------------------+-----------------------------------

Total | 130 100.00

. menbreg dcm c.countyasian##c.countyasian $control ///

> ginicoefficient medianhouseholdincome\_tt ca hi wave || pid:

Fitting fixed-effects model:

Iteration 0: log likelihood = -11142.26

Iteration 1: log likelihood = -9469.3278

Iteration 2: log likelihood = -9215.1997

Iteration 3: log likelihood = -9157.0912

Iteration 4: log likelihood = -9157.0875

Iteration 5: log likelihood = -9157.0875

Refining starting values:

Grid node 0: log likelihood = -8811.6314

Fitting full model:

Iteration 0: log likelihood = -8811.6314

Iteration 1: log likelihood = -8471.4209

Iteration 2: log likelihood = -8365.6503

Iteration 3: log likelihood = -8363.8635

Iteration 4: log likelihood = -8363.8417

Iteration 5: log likelihood = -8363.8417

Mixed-effects nbinomial regression Number of obs = 10,766

Overdispersion: mean

Group variable: pid Number of groups = 569

Obs per group:

min = 1

avg = 18.9

max = 27

Integration method: mvaghermite Integration pts. = 7

Wald chi2(15) = 204.88

Log likelihood = -8363.8417 Prob > chi2 = 0.0000

-------------------------------------------------------------------------------

dcm | Coef. Std. Err. z P>|z| [95% Conf. Interval]

--------------+----------------------------------------------------------------

countyasian | .0903174 .0486384 1.86 0.063 -.0050122 .185647

|

c. |

countyasian#|

c.countyasian | -.0024096 .0011466 -2.10 0.036 -.0046569 -.0001622

|

female | -.1520385 .1728829 -0.88 0.379 -.4908828 .1868058

education | -.0532629 .0385285 -1.38 0.167 -.1287774 .0222516

age | -.0139277 .0065774 -2.12 0.034 -.0268192 -.0010361

hhincome | -.0544537 .0159626 -3.41 0.001 -.0857399 -.0231674

lostjob | .2757978 .1872731 1.47 0.141 -.0912508 .6428464

|

mstatus |

2 | .3524939 .206013 1.71 0.087 -.0512842 .756272

3 | .9970031 .2659932 3.75 0.000 .4756661 1.51834

|

foreignborn | .1257927 .180764 0.70 0.486 -.2284982 .4800835

ginicoeffic~t | 8.723334 11.95537 0.73 0.466 -14.70875 32.15542

medianhouse~t | .0216631 .0921365 0.24 0.814 -.1589211 .2022472

ca | -.1465862 .3897041 -0.38 0.707 -.9103922 .6172198

hi | .8037754 1.034676 0.78 0.437 -1.224151 2.831702

wave | -.0394652 .0033486 -11.79 0.000 -.0460283 -.0329022

\_cons | -4.273539 5.563683 -0.77 0.442 -15.17816 6.63108

--------------+----------------------------------------------------------------

/lnalpha | .9817319 .045842 .8918833 1.071581

--------------+----------------------------------------------------------------

pid |

var(\_cons)| 3.162341 .2932536 2.636782 3.792655

-------------------------------------------------------------------------------

LR test vs. nbinomial model: chibar2(01) = 1586.49 Prob >= chibar2 = 0.0000

. est store m2

. margins, at(countyasian=(0(2)40))

Predictive margins Number of obs = 10,766

Model VCE : OIM

Expression : Marginal predicted mean, predict()

1.\_at : countyasian = 0

2.\_at : countyasian = 2

3.\_at : countyasian = 4

4.\_at : countyasian = 6

5.\_at : countyasian = 8

6.\_at : countyasian = 10

7.\_at : countyasian = 12

8.\_at : countyasian = 14

9.\_at : countyasian = 16

10.\_at : countyasian = 18

11.\_at : countyasian = 20

12.\_at : countyasian = 22

13.\_at : countyasian = 24

14.\_at : countyasian = 26

15.\_at : countyasian = 28

16.\_at : countyasian = 30

17.\_at : countyasian = 32

18.\_at : countyasian = 34

19.\_at : countyasian = 36

20.\_at : countyasian = 38

21.\_at : countyasian = 40

------------------------------------------------------------------------------

| Delta-method

| Margin Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

\_at |

1 | .5862139 .2606956 2.25 0.025 .0752599 1.097168

2 | .6955351 .2520765 2.76 0.006 .2014742 1.189596

3 | .8094877 .2362099 3.43 0.001 .3465249 1.272451

4 | .9241232 .2167641 4.26 0.000 .4992734 1.348973

5 | 1.034851 .1999187 5.18 0.000 .6430175 1.426684

6 | 1.136722 .1932977 5.88 0.000 .757865 1.515578

7 | 1.224782 .2019018 6.07 0.000 .8290615 1.620502

8 | 1.294469 .224091 5.78 0.000 .855259 1.733679

9 | 1.342002 .2534799 5.29 0.000 .8451902 1.838813

10 | 1.364718 .2835896 4.81 0.000 .8088921 1.920543

11 | 1.361322 .3100437 4.39 0.000 .7536473 1.968996

12 | 1.332009 .3306987 4.03 0.000 .6838517 1.980167

13 | 1.278445 .3451347 3.70 0.000 .6019932 1.954896

14 | 1.203608 .3539939 3.40 0.001 .5097927 1.897423

15 | 1.111518 .3582924 3.10 0.002 .4092779 1.813758

16 | 1.006877 .3588338 2.81 0.005 .3035754 1.710178

17 | .8946734 .3558796 2.51 0.012 .1971622 1.592185

18 | .7797961 .3491526 2.23 0.026 .0954696 1.464123

19 | .666693 .3381093 1.97 0.049 .004011 1.329375

20 | .5591124 .3223057 1.73 0.083 -.0725953 1.19082

21 | .4599395 .3016894 1.52 0.127 -.1313608 1.05124

------------------------------------------------------------------------------

. marginsplot, ylabel(0(0.5)2, nogrid) scheme(s2color) ///

> graphregion(color(white)) ///

> title("B: Model 2") xtitle("% Asians in the county") ///

> ytitle("Perceived discrimination (0–8)") noci ///

> xlabel(, labsize(small))

Variables that uniquely identify margins: countyasian

. graph save "f42.gph"

(file f42.gph saved)

.

. menbreg dcm c.countyasian##c.countyasian $control ///

> crate725 ///

> ginicoefficient medianhouseholdincome\_tt ca hi wave || pid:

Fitting fixed-effects model:

Iteration 0: log likelihood = -11124.745

Iteration 1: log likelihood = -9433.8603

Iteration 2: log likelihood = -9196.8894

Iteration 3: log likelihood = -9152.2133

Iteration 4: log likelihood = -9152.2034

Iteration 5: log likelihood = -9152.2034

Refining starting values:

Grid node 0: log likelihood = -8806.6093

Fitting full model:

Iteration 0: log likelihood = -8806.6093

Iteration 1: log likelihood = -8466.9206

Iteration 2: log likelihood = -8362.8265

Iteration 3: log likelihood = -8361.1625

Iteration 4: log likelihood = -8361.1434

Iteration 5: log likelihood = -8361.1435

Mixed-effects nbinomial regression Number of obs = 10,766

Overdispersion: mean

Group variable: pid Number of groups = 569

Obs per group:

min = 1

avg = 18.9

max = 27

Integration method: mvaghermite Integration pts. = 7

Wald chi2(16) = 209.99

Log likelihood = -8361.1435 Prob > chi2 = 0.0000

-------------------------------------------------------------------------------

dcm | Coef. Std. Err. z P>|z| [95% Conf. Interval]

--------------+----------------------------------------------------------------

countyasian | .0725358 .0489741 1.48 0.139 -.0234516 .1685232

|

c. |

countyasian#|

c.countyasian | -.0017404 .0011746 -1.48 0.138 -.0040426 .0005617

|

female | -.1486097 .1719907 -0.86 0.388 -.4857053 .1884859

education | -.0546533 .0383403 -1.43 0.154 -.1297989 .0204924

age | -.0126882 .0065694 -1.93 0.053 -.025564 .0001876

hhincome | -.0558698 .0159287 -3.51 0.000 -.0870896 -.0246501

lostjob | .2800869 .1872265 1.50 0.135 -.0868702 .6470441

|

mstatus |

2 | .3174263 .2055176 1.54 0.122 -.0853808 .7202334

3 | .9575284 .2650281 3.61 0.000 .4380829 1.476974

|

foreignborn | .0864053 .1805028 0.48 0.632 -.2673736 .4401843

crate725 | .0105657 .0045117 2.34 0.019 .001723 .0194084

ginicoeffic~t | 4.391572 12.03032 0.37 0.715 -19.18743 27.97057

medianhouse~t | .1357372 .1039967 1.31 0.192 -.0680925 .339567

ca | -.2192929 .3890398 -0.56 0.573 -.981797 .5432112

hi | 1.082819 1.033024 1.05 0.295 -.941871 3.107509

wave | -.0394302 .0033478 -11.78 0.000 -.0459917 -.0328687

\_cons | -3.910846 5.535598 -0.71 0.480 -14.76042 6.938728

--------------+----------------------------------------------------------------

/lnalpha | .981487 .0458423 .8916377 1.071336

--------------+----------------------------------------------------------------

pid |

var(\_cons)| 3.119221 .2894367 2.600531 3.741366

-------------------------------------------------------------------------------

LR test vs. nbinomial model: chibar2(01) = 1582.12 Prob >= chibar2 = 0.0000

. est store m3

. margins, at(countyasian=(0(2)40))

Predictive margins Number of obs = 10,766

Model VCE : OIM

Expression : Marginal predicted mean, predict()

1.\_at : countyasian = 0

2.\_at : countyasian = 2

3.\_at : countyasian = 4

4.\_at : countyasian = 6

5.\_at : countyasian = 8

6.\_at : countyasian = 10

7.\_at : countyasian = 12

8.\_at : countyasian = 14

9.\_at : countyasian = 16

10.\_at : countyasian = 18

11.\_at : countyasian = 20

12.\_at : countyasian = 22

13.\_at : countyasian = 24

14.\_at : countyasian = 26

15.\_at : countyasian = 28

16.\_at : countyasian = 30

17.\_at : countyasian = 32

18.\_at : countyasian = 34

19.\_at : countyasian = 36

20.\_at : countyasian = 38

21.\_at : countyasian = 40

------------------------------------------------------------------------------

| Delta-method

| Margin Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

\_at |

1 | .6294985 .2793148 2.25 0.024 .0820516 1.176945

2 | .7227283 .2605483 2.77 0.006 .2120631 1.233394

3 | .8182926 .2365842 3.46 0.001 .3545962 1.281989

4 | .9136827 .211326 4.32 0.000 .4994914 1.327874

5 | 1.006086 .1907642 5.27 0.000 .6321954 1.379977

6 | 1.092517 .182033 6.00 0.000 .7357393 1.449296

7 | 1.16997 .1895736 6.17 0.000 .7984122 1.541527

8 | 1.235589 .2114703 5.84 0.000 .8211147 1.650063

9 | 1.286846 .2416545 5.33 0.000 .8132119 1.76048

10 | 1.321698 .2743656 4.82 0.000 .7839516 1.859445

11 | 1.338725 .3059342 4.38 0.000 .7391047 1.938345

12 | 1.337221 .3346851 4.00 0.000 .6812508 1.993192

13 | 1.317251 .3603938 3.66 0.000 .6108923 2.02361

14 | 1.279638 .38368 3.34 0.001 .5276387 2.031637

15 | 1.22591 .4053869 3.02 0.002 .4313663 2.020454

16 | 1.158199 .4260273 2.72 0.007 .3232013 1.993198

17 | 1.079099 .4454298 2.42 0.015 .2060727 1.952125

18 | .9914993 .462681 2.14 0.032 .0846612 1.898337

19 | .8984143 .4763391 1.89 0.059 -.0351931 1.832022

20 | .8028125 .4847949 1.66 0.098 -.1473681 1.752993

21 | .7074646 .486637 1.45 0.146 -.2463264 1.661256

------------------------------------------------------------------------------

. marginsplot, ylabel(0(0.5)2, nogrid) scheme(s2color) ///

> graphregion(color(white)) ///

> title("C: Model 3") xtitle("% Asians in the county") ///

> ytitle("Perceived discrimination (0–8)") noci ///

> xlabel(, labsize(small))

Variables that uniquely identify margins: countyasian

. graph save "f43.gph"

(file f43.gph saved)

.

. menbreg dcm c.countyasian##c.countyasian $control ///

> crate725 unemploymentrate20 ///

> ginicoefficient medianhouseholdincome\_tt ca hi wave || pid:

Fitting fixed-effects model:

Iteration 0: log likelihood = -11115.54

Iteration 1: log likelihood = -9412.3138

Iteration 2: log likelihood = -9186.507

Iteration 3: log likelihood = -9148.9886

Iteration 4: log likelihood = -9148.9637

Iteration 5: log likelihood = -9148.9637

Refining starting values:

Grid node 0: log likelihood = -8804.2266

Fitting full model:

Iteration 0: log likelihood = -8804.2266

Iteration 1: log likelihood = -8464.3035

Iteration 2: log likelihood = -8362.7022

Iteration 3: log likelihood = -8361.0623

Iteration 4: log likelihood = -8361.0438

Iteration 5: log likelihood = -8361.0438

Mixed-effects nbinomial regression Number of obs = 10,766

Overdispersion: mean

Group variable: pid Number of groups = 569

Obs per group:

min = 1

avg = 18.9

max = 27

Integration method: mvaghermite Integration pts. = 7

Wald chi2(17) = 210.21

Log likelihood = -8361.0438 Prob > chi2 = 0.0000

-------------------------------------------------------------------------------

dcm | Coef. Std. Err. z P>|z| [95% Conf. Interval]

--------------+----------------------------------------------------------------

countyasian | .0637659 .0526855 1.21 0.226 -.0394957 .1670275

|

c. |

countyasian#|

c.countyasian | -.0015536 .0012459 -1.25 0.212 -.0039955 .0008884

|

female | -.1497035 .1719496 -0.87 0.384 -.4867186 .1873115

education | -.054146 .0383483 -1.41 0.158 -.1293074 .0210153

age | -.0127062 .0065668 -1.93 0.053 -.0255769 .0001645

hhincome | -.055747 .0159258 -3.50 0.000 -.086961 -.0245331

lostjob | .2803265 .1872396 1.50 0.134 -.0866565 .6473094

|

mstatus |

2 | .3143184 .2055423 1.53 0.126 -.0885371 .7171738

3 | .9637379 .2653854 3.63 0.000 .4435921 1.483884

|

foreignborn | .0861355 .1804393 0.48 0.633 -.2675191 .4397901

crate725 | .0095239 .0050684 1.88 0.060 -.0004099 .0194577

unemployme~20 | .0278055 .061753 0.45 0.653 -.0932282 .1488393

ginicoeffic~t | 3.013757 12.4037 0.24 0.808 -21.29705 27.32457

medianhouse~t | .1554726 .1127222 1.38 0.168 -.0654589 .376404

ca | -.2364392 .3908091 -0.60 0.545 -1.002411 .5295326

hi | .8527169 1.151572 0.74 0.459 -1.404322 3.109756

wave | -.0394285 .0033477 -11.78 0.000 -.0459898 -.0328672

\_cons | -3.471675 5.617204 -0.62 0.537 -14.48119 7.537843

--------------+----------------------------------------------------------------

/lnalpha | .9814497 .0458426 .8915998 1.0713

--------------+----------------------------------------------------------------

pid |

var(\_cons)| 3.116634 .28926 2.59827 3.738412

-------------------------------------------------------------------------------

LR test vs. nbinomial model: chibar2(01) = 1575.84 Prob >= chibar2 = 0.0000

. est store m4

. margins, at(countyasian=(0(2)40))

Predictive margins Number of obs = 10,766

Model VCE : OIM

Expression : Marginal predicted mean, predict()

1.\_at : countyasian = 0

2.\_at : countyasian = 2

3.\_at : countyasian = 4

4.\_at : countyasian = 6

5.\_at : countyasian = 8

6.\_at : countyasian = 10

7.\_at : countyasian = 12

8.\_at : countyasian = 14

9.\_at : countyasian = 16

10.\_at : countyasian = 18

11.\_at : countyasian = 20

12.\_at : countyasian = 22

13.\_at : countyasian = 24

14.\_at : countyasian = 26

15.\_at : countyasian = 28

16.\_at : countyasian = 30

17.\_at : countyasian = 32

18.\_at : countyasian = 34

19.\_at : countyasian = 36

20.\_at : countyasian = 38

21.\_at : countyasian = 40

------------------------------------------------------------------------------

| Delta-method

| Margin Std. Err. z P>|z| [95% Conf. Interval]

-------------+----------------------------------------------------------------

\_at |

1 | .6769133 .3219123 2.10 0.035 .0459769 1.30785

2 | .7642239 .2939253 2.60 0.009 .1881409 1.340307

3 | .8521393 .2607565 3.27 0.001 .341066 1.363213

4 | .9384323 .2267209 4.14 0.000 .4940676 1.382797

5 | 1.020699 .1983857 5.15 0.000 .6318702 1.409528

6 | 1.096465 .183869 5.96 0.000 .7360887 1.456842

7 | 1.163307 .1884924 6.17 0.000 .793869 1.532746

8 | 1.21898 .2098175 5.81 0.000 .8077448 1.630214

9 | 1.261539 .2403089 5.25 0.000 .7905427 1.732536

10 | 1.289459 .273148 4.72 0.000 .754099 1.824819

11 | 1.301718 .3042385 4.28 0.000 .7054212 1.898014

12 | 1.297862 .3318539 3.91 0.000 .6474399 1.948283

13 | 1.278034 .3559348 3.59 0.000 .5804147 1.975653

14 | 1.242965 .37743 3.29 0.001 .5032155 1.982714

15 | 1.193927 .3976458 3.00 0.003 .4145551 1.973298

16 | 1.132658 .4176233 2.71 0.007 .3141314 1.951185

17 | 1.061262 .4376744 2.42 0.015 .2034355 1.919088

18 | .9820836 .4572121 2.15 0.032 .0859644 1.878203

19 | .8975877 .4748983 1.89 0.059 -.0331958 1.828371

20 | .8102288 .4889995 1.66 0.098 -.1481925 1.76865

21 | .7223388 .497789 1.45 0.147 -.2533097 1.697987

------------------------------------------------------------------------------

. marginsplot, ylabel(0(0.5)2, nogrid) scheme(s2color) ///

> graphregion(color(white)) ///

> title("D: Model 4") xtitle("% Asians in the county") ///

> ytitle("Perceived discrimination (0–8)") noci ///

> xlabel(, labsize(small))

Variables that uniquely identify margins: countyasian

. graph save "f44.gph"

(file f44.gph saved)

.

. \*\*including dummies for all states doesn't improve the model fit - prefer m4 o

> ver m5

. menbreg dcm c.countyasian##c.countyasian $control ///

> crate725 unemploymentrate20 ///

> ginicoefficient medianhouseholdincome\_tt ib6.statereside wave || pid:

note: 55.statereside omitted because of collinearity

Fitting fixed-effects model:

Iteration 0: log likelihood = -10941.957

Iteration 1: log likelihood = -9257.8689

Iteration 2: log likelihood = -9098.4155

Iteration 3: log likelihood = -9087.9742

Iteration 4: log likelihood = -9087.7458

Iteration 5: log likelihood = -9087.7121

Iteration 6: log likelihood = -9087.7083

Iteration 7: log likelihood = -9087.7075

Iteration 8: log likelihood = -9087.7073

Iteration 9: log likelihood = -9087.7073

Iteration 10: log likelihood = -9087.7073

Refining starting values:

Grid node 0: log likelihood = -8754.6275

Fitting full model:

Iteration 0: log likelihood = -8754.6275

Iteration 1: log likelihood = -8415.3236

Iteration 2: log likelihood = -8348.5681

Iteration 3: log likelihood = -8347.4193

Iteration 4: log likelihood = -8347.4107

Iteration 5: log likelihood = -8347.4107

Mixed-effects nbinomial regression Number of obs = 10,766

Overdispersion: mean

Group variable: pid Number of groups = 569

Obs per group:

min = 1

avg = 18.9

max = 27

Integration method: mvaghermite Integration pts. = 7

Wald chi2(47) = 224.36

Log likelihood = -8347.4107 Prob > chi2 = 0.0000

-------------------------------------------------------------------------------

dcm | Coef. Std. Err. z P>|z| [95% Conf. Interval]

--------------+----------------------------------------------------------------

countyasian | .0554668 .0546023 1.02 0.310 -.0515518 .1624854

|

c. |

countyasian#|

c.countyasian | -.0011805 .0013135 -0.90 0.369 -.003755 .0013939

|

female | -.1871295 .1723109 -1.09 0.277 -.5248526 .1505937

education | -.051518 .0393608 -1.31 0.191 -.1286638 .0256279

age | -.0131413 .006711 -1.96 0.050 -.0262946 .0000119

hhincome | -.0568258 .0158736 -3.58 0.000 -.0879376 -.0257141

lostjob | .2811941 .1872076 1.50 0.133 -.085726 .6481143

|

mstatus |

2 | .2086387 .2078642 1.00 0.316 -.1987676 .6160451

3 | .887278 .2665054 3.33 0.001 .3649371 1.409619

|

foreignborn | .1042918 .1832161 0.57 0.569 -.2548052 .4633887

crate725 | .010664 .0061566 1.73 0.083 -.0014028 .0227308

unemployme~20 | -.0204227 .0810433 -0.25 0.801 -.1792646 .1384192

ginicoeffic~t | 7.701062 19.76698 0.39 0.697 -31.04151 46.44364

medianhouse~t | .0580859 .1411494 0.41 0.681 -.2185618 .3347337

|

statereside |

1 Alabama | -21.10994 12072.82 -0.00 0.999 -23683.4 23641.18

4 Arizona | 2.506698 1.34006 1.87 0.061 -.1197714 5.133167

5 Arkansas | -20.75677 12074.57 -0.00 0.999 -23686.48 23644.96

8 Colorado | 1.231563 1.864992 0.66 0.509 -2.423755 4.88688

9 Connecti.. | .8229612 1.41504 0.58 0.561 -1.950467 3.596389

10 Delaware | .6983953 2.081004 0.34 0.737 -3.380297 4.777088

12 Florida | -.669726 .8240122 -0.81 0.416 -2.28476 .9453082

13 Georgia | -.0326411 .9721627 -0.03 0.973 -1.938045 1.872763

15 Hawaii | 1.364944 1.452357 0.94 0.347 -1.481624 4.211512

17 Illinois | 1.464461 .6655659 2.20 0.028 .1599759 2.768946

18 Indiana | .0027182 .9240954 0.00 0.998 -1.808475 1.813912

19 Iowa | 1.422042 2.481187 0.57 0.567 -3.440995 6.285079

20 Kansas | -.4128756 2.010339 -0.21 0.837 -4.353067 3.527316

24 Maryland | .3594946 2.082747 0.17 0.863 -3.722615 4.441604

25 Massach.. | .7325126 .7377555 0.99 0.321 -.7134616 2.178487

26 Michigan | .630628 1.016454 0.62 0.535 -1.361585 2.622841

27 Minnesota | -20.36915 65324.16 -0.00 1.000 -128053.4 128012.6

29 Missouri | 1.204666 1.322649 0.91 0.362 -1.387678 3.797011

32 Nevada | -21.40183 12249.15 -0.00 0.999 -24029.3 23986.5

34 New Jer.. | .5775888 .8424949 0.69 0.493 -1.073671 2.228848

36 New York | -.2274674 1.159616 -0.20 0.844 -2.500272 2.045338

37 North C.. | -.8757749 1.521087 -0.58 0.565 -3.857051 2.105501

39 Ohio | -.2456315 .8722836 -0.28 0.778 -1.955276 1.464013

40 Oklahoma | -.8739172 1.173472 -0.74 0.456 -3.173881 1.426046

41 Oregon | -.3228613 1.12897 -0.29 0.775 -2.535602 1.889879

42 Pennsyl.. | 1.137005 1.731284 0.66 0.511 -2.25625 4.53026

44 Rhode I.. | -.5496666 1.938971 -0.28 0.777 -4.349979 3.250646

45 South C.. | -.4589584 1.296513 -0.35 0.723 -3.000078 2.082161

47 Tennessee | -.2364752 .9934305 -0.24 0.812 -2.183563 1.710613

48 Texas | -.1358086 .5858657 -0.23 0.817 -1.284084 1.012467

51 Virginia | -2.129249 1.27403 -1.67 0.095 -4.626302 .3678034

53 Washing.. | .9621036 1.17166 0.82 0.412 -1.334309 3.258516

55 Wisconsin | 0 (omitted)

|

wave | -.0394058 .0033499 -11.76 0.000 -.0459714 -.0328402

\_cons | -4.836196 9.20132 -0.53 0.599 -22.87045 13.19806

--------------+----------------------------------------------------------------

/lnalpha | .9828218 .0458414 .8929743 1.072669

--------------+----------------------------------------------------------------

pid |

var(\_cons)| 2.930131 .2736328 2.44004 3.518659

-------------------------------------------------------------------------------

LR test vs. nbinomial model: chi2(3) = 1480.59 Prob > chi2 = 0.0000

Note: LR test is conservative and provided only for reference.

. est store m5

. lrtest m4 m5

Likelihood-ratio test LR chi2(30) = 27.27

(Assumption: m4 nested in m5) Prob > chi2 = 0.6093

.

.

. \*\*create table 2

. esttab m1 m2 m3 m4 using "menbreg.rtf", b(3) se(3) star(+ 0.1 \* 0.05 \*\* 0.01 \*

> \*\* 0.001)

(output written to menbreg.rtf)

.

.

. \*\*create figure 4

. graph combine f41.gph f42.gph f43.gph f44.gph

. graph export "figure4.pdf"

(file /Users/yueqian/Downloads/analysis/figure4.pdf written in PDF format)

.

.

.

.

.

. \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

. \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*appendix\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

. \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

. \*\*create figure A1 boxplot

. graph box countyasian, box(1, color(white) lcolor(black)) mark(1, msymbol(x) m

> lab(stateabbreviation)) ///

> scheme(s2color) ///

> graphregion(color(white)) ///

> ytitle("% Asians by US county") ylabel(, nogrid)

. graph export "figure a1.pdf"

(file /Users/yueqian/Downloads/analysis/figure a1.pdf written in PDF format)

.

.

. \*\*create figure A3

. twoway (scatter crate725 countyasian, msize(vsmall) mcolor(orange) mlab(statea

> bbreviation) mlabcolor(gray) mlabsize(vsmall)) || ///

> qfit crate725 countyasian, ///

> scheme(s2color) ///

> graphregion(color(white)) ///

> xtitle("% Asians by US county") ///

> ytitle("COVID-19 cases per 1,000 population") ///

> legend(off) ylabel(, nogrid)

. graph export "figure a3.pdf"

(file /Users/yueqian/Downloads/analysis/figure a3.pdf written in PDF format)

.

. /\*

> supplementary analysis

> poisson models and linear models generate substantive the same results as nega

> tive binomal models

> \*/

. \*\*mixed-effects Poisson models

. mepoisson dcm c.countyasian##c.countyasian || pid:

Fitting fixed-effects model:

Iteration 0: log likelihood = -40273.551

Iteration 1: log likelihood = -15414.591

Iteration 2: log likelihood = -15036.554

Iteration 3: log likelihood = -15034.784

Iteration 4: log likelihood = -15034.783

Refining starting values:

Grid node 0: log likelihood = -10136.281

Fitting full model:

Iteration 0: log likelihood = -10136.281

Iteration 1: log likelihood = -9942.5038

Iteration 2: log likelihood = -9881.8615

Iteration 3: log likelihood = -9867.5423

Iteration 4: log likelihood = -9863.9589

Iteration 5: log likelihood = -9863.8134

Iteration 6: log likelihood = -9863.8136

Mixed-effects Poisson regression Number of obs = 10,766

Group variable: pid Number of groups = 569

Obs per group:

min = 1

avg = 18.9

max = 27

Integration method: mvaghermite Integration pts. = 7

Wald chi2(2) = 13.13

Log likelihood = -9863.8136 Prob > chi2 = 0.0014

-------------------------------------------------------------------------------

dcm | Coef. Std. Err. z P>|z| [95% Conf. Interval]

--------------+----------------------------------------------------------------

countyasian | .1082013 .0306334 3.53 0.000 .048161 .1682416

|

c. |

countyasian#|

c.countyasian | -.0029386 .0008152 -3.60 0.000 -.0045364 -.0013408

|

\_cons | -2.42248 .2491131 -9.72 0.000 -2.910733 -1.934228

--------------+----------------------------------------------------------------

pid |

var(\_cons)| 3.453725 .2990619 2.914616 4.092553

-------------------------------------------------------------------------------

LR test vs. Poisson model: chibar2(01) = 10341.94 Prob >= chibar2 = 0.0000

. est store m6

.

. mepoisson dcm c.countyasian##c.countyasian $control ///

> ginicoefficient medianhouseholdincome\_tt ca hi wave || pid:

Fitting fixed-effects model:

Iteration 0: log likelihood = -36087.343

Iteration 1: log likelihood = -14585.495

Iteration 2: log likelihood = -14277.868

Iteration 3: log likelihood = -14275.73

Iteration 4: log likelihood = -14275.73

Refining starting values:

Grid node 0: log likelihood = -10033.06

Fitting full model:

Iteration 0: log likelihood = -10033.06

Iteration 1: log likelihood = -9818.8134

Iteration 2: log likelihood = -9752.1031

Iteration 3: log likelihood = -9743.8421

Iteration 4: log likelihood = -9742.6467

Iteration 5: log likelihood = -9742.6439

Iteration 6: log likelihood = -9742.6449

Iteration 7: log likelihood = -9742.6449

Mixed-effects Poisson regression Number of obs = 10,766

Group variable: pid Number of groups = 569

Obs per group:

min = 1

avg = 18.9

max = 27

Integration method: mvaghermite Integration pts. = 7

Wald chi2(15) = 258.09

Log likelihood = -9742.6449 Prob > chi2 = 0.0000

-------------------------------------------------------------------------------

dcm | Coef. Std. Err. z P>|z| [95% Conf. Interval]

--------------+----------------------------------------------------------------

countyasian | .0787333 .0456937 1.72 0.085 -.0108247 .1682913

|

c. |

countyasian#|

c.countyasian | -.002129 .0010733 -1.98 0.047 -.0042327 -.0000253

|

female | -.1918804 .1545698 -1.24 0.214 -.4948315 .1110708

education | -.0621784 .0342032 -1.82 0.069 -.1292155 .0048587

age | -.0122242 .0060553 -2.02 0.044 -.0240924 -.000356

hhincome | -.0332838 .0091459 -3.64 0.000 -.0512095 -.0153581

lostjob | -.059834 .0712425 -0.84 0.401 -.1994667 .0797987

|

mstatus |

2 | .4218814 .1876744 2.25 0.025 .0540463 .7897164

3 | 1.05944 .2034934 5.21 0.000 .6606007 1.45828

|

foreignborn | .1365541 .1683913 0.81 0.417 -.1934868 .4665949

ginicoeffic~t | 9.050625 11.19422 0.81 0.419 -12.88964 30.99089

medianhouse~t | .0101837 .086212 0.12 0.906 -.1587888 .1791562

ca | -.0742742 .3649583 -0.20 0.839 -.7895794 .641031

hi | .7410344 .9795596 0.76 0.449 -1.178867 2.660936

wave | -.0202691 .0015672 -12.93 0.000 -.0233407 -.0171975

\_cons | -4.879016 5.207141 -0.94 0.349 -15.08482 5.326792

--------------+----------------------------------------------------------------

pid |

var(\_cons)| 3.240053 .2831654 2.729991 3.845415

-------------------------------------------------------------------------------

LR test vs. Poisson model: chibar2(01) = 9066.17 Prob >= chibar2 = 0.0000

. est store m7

.

. mepoisson dcm c.countyasian##c.countyasian $control ///

> crate725 ///

> ginicoefficient medianhouseholdincome\_tt ca hi wave || pid:

Fitting fixed-effects model:

Iteration 0: log likelihood = -35905.069

Iteration 1: log likelihood = -14554.372

Iteration 2: log likelihood = -14251.343

Iteration 3: log likelihood = -14249.196

Iteration 4: log likelihood = -14249.195

Refining starting values:

Grid node 0: log likelihood = -10030.034

Fitting full model:

Iteration 0: log likelihood = -10030.034

Iteration 1: log likelihood = -9814.3746

Iteration 2: log likelihood = -9748.9113

Iteration 3: log likelihood = -9740.8581

Iteration 4: log likelihood = -9739.7381

Iteration 5: log likelihood = -9739.7369

Iteration 6: log likelihood = -9739.7378

Mixed-effects Poisson regression Number of obs = 10,766

Group variable: pid Number of groups = 569

Obs per group:

min = 1

avg = 18.9

max = 27

Integration method: mvaghermite Integration pts. = 7

Wald chi2(16) = 264.44

Log likelihood = -9739.7378 Prob > chi2 = 0.0000

-------------------------------------------------------------------------------

dcm | Coef. Std. Err. z P>|z| [95% Conf. Interval]

--------------+----------------------------------------------------------------

countyasian | .06077 .0460135 1.32 0.187 -.0294149 .1509548

|

c. |

countyasian#|

c.countyasian | -.0014504 .001099 -1.32 0.187 -.0036044 .0007035

|

female | -.1896001 .1539085 -1.23 0.218 -.4912552 .1120549

education | -.0639923 .0340663 -1.88 0.060 -.1307611 .0027764

age | -.011023 .0060581 -1.82 0.069 -.0228966 .0008507

hhincome | -.0337308 .0091385 -3.69 0.000 -.051642 -.0158196

lostjob | -.0590643 .0712453 -0.83 0.407 -.1987024 .0805739

|

mstatus |

2 | .3901396 .1872098 2.08 0.037 .0232151 .757064

3 | 1.035978 .2033433 5.09 0.000 .6374322 1.434523

|

foreignborn | .099209 .1681774 0.59 0.555 -.2304126 .4288306

crate725 | .0106606 .0042425 2.51 0.012 .0023453 .0189758

ginicoeffic~t | 4.73927 11.25632 0.42 0.674 -17.32272 26.80126

medianhouse~t | .1245209 .0975319 1.28 0.202 -.066638 .3156798

ca | -.1467018 .3645028 -0.40 0.687 -.8611142 .5677106

hi | 1.02512 .9770334 1.05 0.294 -.8898306 2.94007

wave | -.0203025 .001567 -12.96 0.000 -.0233739 -.0172311

\_cons | -4.544469 5.179031 -0.88 0.380 -14.69518 5.606246

--------------+----------------------------------------------------------------

pid |

var(\_cons)| 3.193834 .2793011 2.690758 3.790967

-------------------------------------------------------------------------------

LR test vs. Poisson model: chibar2(01) = 9018.91 Prob >= chibar2 = 0.0000

. est store m8

.

. mepoisson dcm c.countyasian##c.countyasian $control ///

> crate725 unemploymentrate20 ///

> ginicoefficient medianhouseholdincome\_tt ca hi wave || pid:

Fitting fixed-effects model:

Iteration 0: log likelihood = -35787.964

Iteration 1: log likelihood = -14540.273

Iteration 2: log likelihood = -14238.964

Iteration 3: log likelihood = -14236.724

Iteration 4: log likelihood = -14236.723

Refining starting values:

Grid node 0: log likelihood = -10029.07

Fitting full model:

Iteration 0: log likelihood = -10029.07

Iteration 1: log likelihood = -9814.0408

Iteration 2: log likelihood = -9748.7397

Iteration 3: log likelihood = -9740.7291

Iteration 4: log likelihood = -9739.6187

Iteration 5: log likelihood = -9739.6176

Iteration 6: log likelihood = -9739.6185

Mixed-effects Poisson regression Number of obs = 10,766

Group variable: pid Number of groups = 569

Obs per group:

min = 1

avg = 18.9

max = 27

Integration method: mvaghermite Integration pts. = 7

Wald chi2(17) = 264.76

Log likelihood = -9739.6185 Prob > chi2 = 0.0000

-------------------------------------------------------------------------------

dcm | Coef. Std. Err. z P>|z| [95% Conf. Interval]

--------------+----------------------------------------------------------------

countyasian | .0512017 .0496047 1.03 0.302 -.0460218 .1484252

|

c. |

countyasian#|

c.countyasian | -.0012472 .0011681 -1.07 0.286 -.0035365 .0010422

|

female | -.1903346 .1538651 -1.24 0.216 -.4919047 .1112354

education | -.0635115 .0340695 -1.86 0.062 -.1302866 .0032636

age | -.0110436 .0060556 -1.82 0.068 -.0229123 .0008251

hhincome | -.0336969 .0091372 -3.69 0.000 -.0516055 -.0157883

lostjob | -.0590961 .0712451 -0.83 0.407 -.1987339 .0805417

|

mstatus |

2 | .3860727 .1872622 2.06 0.039 .0190455 .7530999

3 | 1.039656 .2033931 5.11 0.000 .6410124 1.438299

|

foreignborn | .0987003 .1681193 0.59 0.557 -.2308075 .4282081

crate725 | .0095609 .0047581 2.01 0.044 .0002352 .0188866

unemployme~20 | .0294876 .0574799 0.51 0.608 -.0831709 .1421461

ginicoeffic~t | 3.257355 11.60526 0.28 0.779 -19.48854 26.00325

medianhouse~t | .1457784 .1058008 1.38 0.168 -.0615873 .3531442

ca | -.1628428 .3658648 -0.45 0.656 -.8799246 .5542391

hi | .7823236 1.086173 0.72 0.471 -1.346536 2.911184

wave | -.0203023 .001567 -12.96 0.000 -.0233736 -.0172309

\_cons | -4.068134 5.256606 -0.77 0.439 -14.37089 6.234625

--------------+----------------------------------------------------------------

pid |

var(\_cons)| 3.190913 .2790757 2.688248 3.78757

-------------------------------------------------------------------------------

LR test vs. Poisson model: chibar2(01) = 8994.21 Prob >= chibar2 = 0.0000

. est store m9

.

. \*create table A1

. esttab m6 m7 m8 m9 using "mepoisson.rtf" ,b(3) se(3) star(+ 0.1 \* 0.05 \*\* 0.01

> \*\*\* 0.001)

(output written to mepoisson.rtf)

.

.

. \*\*create figure A2

. clear

. use "County cases July 25 2020.dta", clear

. keep county cases

. rename cases cases20

. save covidcases20julyto21july.dta

file covidcases20julyto21july.dta saved

.

. clear

. use "County cases July 25 2021.dta", clear

. keep altfipscode cases725 county

. rename county countyname

. rename altfipscode county

. rename cases725 cases21

. merge 1:1 county using covidcases20julyto21july

(note: variable county was long, now double to accommodate using data's

values)

Result # of obs.

-----------------------------------------

not matched 88

from master 0 (\_merge==1)

from using 88 (\_merge==2)

matched 3,132 (\_merge==3)

-----------------------------------------

. keep if \_merge==3

(88 observations deleted)

.

. gen log21cases = ln(cases21)

. gen log20cases = ln(cases20)

(55 missing values generated)

. corr log21cases log20cases

(obs=3,077)

| log21c~s log20c~s

-------------+------------------

log21cases | 1.0000

log20cases | 0.9038 1.0000

. scatter log21cases log20cases, mcolor(black) mlab(countyname) mlabcolor(black)

> || lfit log21cases log20case, ///

> scheme(s2color) ///

> graphregion(color(white)) ///

> xtitle("COVID-19 cases as of July 25, 2020 (logged)") ytitle("COVID-19

> cases as of July 25, 2021 (logged)") ///

> legend(off) note("r = 0.90", position(1)) ylabel(, nogrid)

. graph export "figure a2.pdf"

(file /Users/yueqian/Downloads/analysis/figure a2.pdf written in PDF format)

.

.

. log close

name: <unnamed>

log: /Users/yueqian/Downloads/analysis/Lee, Qian, and Wu\_Socius\_Log.log

log type: text

closed on: 16 Jul 2022, 00:22:59

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