Codebook for State\_Econ\_Quarterly2012\_07\_02.xls

year

Year, four digits

quar

Quarter of year (1, 2, 3 or 4) or 2.5 = annual data, or measured July 1st.

stateno

Number of state in alphabetical list.

DC is given a code of 8.5, the United States as a whole is given a code of 0.

region\_census

The following codes do not reflect the numeric codes that the Census uses, but the states that are coded with these codes correspond to the four Census regions.

South = 1

West = 2

Midwest = 3

Northeast = 4

is\_a\_quarter

0 = quarter is 2.5. 1 = else.

is\_a\_state

1 = is a state. 0 = DC and national data.

nation\_dummy

1 = stateno=0, 0 = stateno=else.

odd\_even\_year

1 = state is an odd-year election state, 2 = state is an even-year election state, 3 = Louisiana.

Years available: 1929q1 to 2016q4

election\_year\_biennium

For all eight quarters prior to an election, puts in the year of that election. Special allowance is made for the five odd-year states. Special allowance is made for Louisiana’s non-November elections in 1972 and before.

Years available: the preceding eight quarters for the elections from 1931 to 2010.

Note: only has non-missing cases when is\_a\_quarter=1.

personal\_income1000s\_quar

When is\_a\_quarter = 1, this variable is the total personal income in the state, measured quarterly, seasonally adjusted, and reported at annual rates ($1,000s), in current dollars. Blank when is\_a\_quarter=0.

Years available: 1948(1) to 2012(1)

Source: <http://www.bea.gov/>. Then click on “state and local area personal income” under “regional.” Then under “data” click on “state quarterly personal income.” Then, under “Quarterly State Personal Income” you click on “Personal Income (SQ1)”. This only yields total personal income, not per capita.

Note at bottom of table of source: “Millions of dollars, seasonally adjusted at annual rates. All state dollar estimates are in current dollars (not adjusted for inflation). Detail may not add to totals because of rounding. (NA) Data not available for this quarter. Last updated: March 28, 2012 - new estimates for 2011:IV; revised estimates for 2008:I-2011:III.”

Note: these data were multiplied by 1000 after downloading to make them comparable to the other income data.

Comparison with last download (late May 2012 or early June 2012): only 2008 to 2010 were different, 1948 to 2007 were identical.

Comparison with last download (July 2, 2012 with two months ago): only 2011q1 and on was different.

personal\_income1000s\_annual

Total personal income in the state, measured annually ($1,000s), in current dollars.

Years available: 1929-2011

Source: <http://www.bea.gov/>. Then click on “state and local area personal income” under “regional.” Then under “data” click on “state annual personal income and employment.” Then, under “Annual State Personal Income and Employment” click “Personal income, per capita personal income, disposable personal income, and population (SA1-3, SA51-53).” Then click on Table ID “Personal Income Summary.” This yields both personal income ($1,000s), population (persons), and per capita personal income (dollars) (the latter was a perfect function of the two former (after rounding) so wasn’t retained).

Note on differences with last download: figures for 2008, 2009 and 2010 were different. The absolute value of the percentage difference was 5% or greater for four states (max=7.8% dif). I’m not going to get more into this. The fact that 1929 to 2007 were exactly identical indicates there weren’t any dumb mistakes with downloading.

These data (going up to 2011) were put out on March 28th, 2012.

Personal\_income1000s

Combines the variables personal\_income1000s\_quar (when is\_a\_quarter=1) and personal\_income1000s\_annual (when quar=2.5).

pop\_annual

Total population in the state, measured annually.

Years available: 1929-2012

Source (beginning to 2011): same as personal\_income1000s\_annual

Source (2012): <http://www.bizjournals.com/bizjournals/on-numbers/scott-thomas/2012/06/californias-population-passes-38.html?appSession=10897383915145&RecordID=&PageID=2&PrevPageID=&cpipage=3&CPISortType=&CPIorderBy>= accessed July 3, 2012. These projects were done by a private corporation.

Note on differences with last download (not counting 2012 data): only 2000 and 2010 had slightly different figures. The fact that 1929 to 1999 were exactly identical indicates there weren’t any dumb mistakes with downloading.

Data validity test: regressing proportion change in population (+1) between 2011 and 2012 on proportion change in population beween 2010 and 2011 (+1) yields and R-squared of .84, and an SEE of .00192. A scatterplot of the two indicates a tight fit.

disposable\_personal\_income1000s\_annual

Total disposable personal income in the state, measured annually.

Years available: 1948-2011

Source: <http://www.bea.gov/>. Then click on “state and local area personal income” under “regional.” Then under “data” click on “state annual personal income and employment.” Then, under “Annual State Personal Income and Employment” click “Personal income, per capita personal income, disposable personal income, and population (SA1-3, SA51-53).” Then click on Table ID “SA51-53 Disposable Personal Income Summary.” This yields both personal income ($1,000s), population (persons), and per capita personal income (dollars) (the latter was a perfect function of the two former (after rounding) so wasn’t retained).

Comparison with last download: only 2008 to 2010 were different, 1948 to 2007 were identical.

pop\_growth

For Q=2.5, this is the amount that last year’s annual population has to be multiplied by to get this year’s population.

Computed by:{ [ pop\_annual (time t) - pop\_annual (time t-1) ] / pop\_annual (time t-1) } + 1

Years available for q=2.5: 1930 – 2012

For quarters, it is the estimated amount of population growth since the last quarter (or in the case of Q=3, since 2.5’s value on July 1st).

For quarters, this is equal to 2.5’s amount in the future, altered by the following amounts: ^(1/8) for Qs 3, and ^(1/4) for Qs 4, 1 and 2. Rationale: The midpoint of the year is July 1st. The midpoint of q3 is August 15th, 1.5 months later, and therefore 1/8th of a year later. The quarters that come after that have midpoints that are three months later than the last quarter’s, and therefore 1/4th of the year later.

Note: when I did this for the last version of this dataset, I made a mistake in how I computed q2. I put in ^(1/8), but it should have been ^(1/4) like above.

Note: When I did this for 2010q3 and 2010q4, when I only had up to 2010-annual, I computed ^(1/8) 2010q2.5’s amount for 2010q3 and ^(1/4) 2010q2.5’s amount for 2010q4. This time around, I ran two regressions to test how effective that method of interpolation was (one regression for 2010q3 and one for 2010q4). In both, Y = pop\_growth, X=pop\_growth\_old. For both q3 and q4, R-squared was .52 (it would be identical by design in both equations) and SSE was .00037 for q3 and .00075 for q4. Interpolating out like that into the future isn’t very effective. I could build some type of prediction model utilizing quarterly total income, but I’m afraid that might build bias into the model, and I’m not willing to spend the time on this. The low R-squareds may not be that big of a deal, since population growth is fairly constant across states (SD of 1.07% in growth rates across the 50 states for one quarter of growth).

pop\_quar

My estimate of state population in the quarter.

For quarters, this is computed by multiplying last quarter’s amount (or Q2.5’s amount for Q3) by pop\_growth.

For Q=2.5, this is equal to “pop\_annual.”

Years available (continental states and U.S.): 1929q2.5 to 2012q2.5

Years available AK and HI: 1950q2.5 to 2012q2.5

pc\_inc\_ann

Per capita income, annual data ($1s).

Years available: 1929 to 2011

Source: (personal\_income1000s\_annual\*1000)/ pop\_annual

state\_cpi\_bfh

Berry, Fording and Hanson state and year specific consumer price index, measured in July.

The median state in 2007 = 1 (=100 in the original source, so was divided by 100 here).

Years available: 1960 - 2007

Source: <http://www.uky.edu/~rford/replicationdata.html>, accessed April 30, 2011. As of June 1, 2012 these data haven’t been updated past 2007 on Fording’s Web site.

Note: only has cases for Q=2.5

regional\_cpi\_bls\_quar

Bureau of Labor Statistics consumer price index for the Census region the state is in (1982-1984=1) (the original data has 1982-1984=100, and so was divided by 100).

National statistics are put in for stateno=0, otherwise, the CPI from the four Census regions is put in.

Not seasonally adjusted.

When “is\_a\_quarter”=1, this is quarterly data, when quar=2.5, this is monthly data aggregated to the calendar year.

It’s not clear to me whether the indexes from the four different regions (or nationally) are equivalent with each other, although I’d guess they are. There isn’t one month of one year when they all have the same score (like state housing prices below) so that’s a good sign.

Years available for regional data: 1967q1 to 2012q1.

Years available for national data: 1929q1 to 2012q1.

Source: aggregated from monthly data from the variable “cpi\_bls\_quar\_interpolated” from the file BLS\_Regional\_CPI\_2012\_06\_04.xls. Before that <ftp://ftp.bls.gov/pub/special.requests/cpi/cpiai.txt> for the national CPI data and <http://data.bls.gov/pdq/querytool.jsp?survey=cu> for the regional CPI data, both accessed June 4, 2012.

nat\_cpi\_bls\_quar

National consumer price index (1982-1984=1) (the original data has 1982-1984=100, and so was divided by 100) for the year, same value for all states within a quarter.

This took the monthly data posted on the Bureau of Labor Statistics Web site, and averaged them within quarters, and applied them to all the states (not just to stateno=0, like in regional\_cpi\_bls\_quar above) when “is\_a\_quarter”=1. The months were averaged across a calendar year when quar=2.5.

Years available: 1929q1 to 2012q1.

Source: the variable “cpi\_bls\_quar\_interpolated” (although none of the national data were interpolated) from the file BLS\_Regional\_CPI\_2012\_06\_04.xls. Before that <ftp://ftp.bls.gov/pub/special.requests/cpi/cpiai.txt>

housing\_prices\_quar

When “is\_a\_quarter”=1, this represents quarterly housing price index (1980q1=1 for all states). All-transaction index estimated using sales prices and appraisal data. Data isn’t seasonally adjusted.

When quar=2.5, this represents the average from the same indicator for the four quarters of the calendar year.

Source for quarterly data: Federal Housing Finance Agency. <http://www.fhfa.gov/Default.aspx?Page=87>. “States through 2012q1 (not seasonally adjusted) [CSV].” Accessed June 4, 2012.

Years available: 1975q1 to 2012q1.

Note: In the original source, 1980q1=100, and so was divided by 100 here. In the original source, all states are given a score of “100” in 1980q1, so apparently the index isn’t comparable across states.

state\_cpi\_bfh\_est

Berry, Fording and Hanson state and year specific consumer price index, measured in July, with estimated values for 2008 through 2010.

The median state in 2007 = 100.

Source (1960 – 2007): <http://www.uky.edu/~rford/replicationdata.html>, accessed April 30, 2011

Source (2008): predicted values from the first regression reported in Appendix A.

Source (2009): predicted values from the second regression reported in Appendix A.

Source (2010): predicted values from the third regression reported in Appendix A.

Years available: 1960 - 2010

bfh\_cpi\_multiplier

Change between years was established with the following formula.

{[State\_cpi\_bfh\_est (time t) - State\_cpi\_bfh\_est (time t-1)] / State\_cpi\_bfh\_est (time t-1)}+1

Then amounts were put into the quarters as follows.

Q3 from the year before Q2.5 gets a ^(1/12) of the amount in the next q2.5.

Q4 from the year before Q2.5 gets a ^(1/4) of the amount in the next q2.5.

Q1 from the year of Q2.5 gets a ^(1/4) of the amount in the next q2.5.

Q2 from the year of Q2.5 gets a ^(1/4) of the amount in the next q2.5.

Since the annual CPI data is measured in the entire month of July, Q3 (July, August, September) is just one month different at its midpoint (July 15th versus August 15th), and Q2 is two months different (May 15th versus July 15th). The period not seen (between Q2 / May 15th and annual / July 15th) is 1/6, because it’s two months. The other amounts build up from the base.

Q3 of 2010 gets ^(1/12) of the amount in 2010q2.5.

Q4 of 2010 gets ^(1/4) of the amount in 2010q2.5.

state\_cpi\_bfh\_est\_quar

Puts interpolated values into quarters.

Multiplies the last period’s state\_cpi with bfh\_cpi\_multiplier.

Inc\_multiplier

Amount last period has to be multiplied by to get the next period.

Years available: 1929q3 to 1948q1.

The purpose of this variable is to impute quarterly income before such data were available.

The growth rate is the following roots of the following formula.

Computed by:{ [personal\_income1000s\_Annual (time t) - personal\_income1000s\_Annual (time t-1) ] / personal\_income1000s\_Annual (time t-1) } + 1

Q3 from the year before Q2.5 gets a ^(1/8) of the next q2.5.

Q4 from the year before Q2.5 gets a ^(1/4) of the next q2.5.

Q1 from the year of Q2.5 gets a ^(1/4) of the next q2.5.

Q2 from the year of Q2.5 gets a ^(1/4) of the next q2.5.

1947q3 and 1947q4 used a somewhat different adjustment, but about the same.

personal\_income1000s\_b

Personal income in $1,000s.

For Q=2.5, it’s equal to personal\_income1000s\_Annual.

For Qs=1, 2, 3 and 4, and years 1948q1 to 2011q4, it’s equal to personal\_income1000s\_quar.

For Qs=1, 2, 3 and 4, and years 1929q3 to 1947q4, it’s equal to the “last value” (q2.5 in the same year for q3, or the last quarter for other quarters) times the growth rate given in inc\_multiplier.

Years available (continental states, DC and nation): 1929q2.5 to 2012q1

Years available (AK and HI): 1950q1 to 2012q1

Note: was called “Inc1000s\_quar” in the 2012\_06\_12 version of the dataset.

Personal\_income1000s\_b\_exists

Dummy: 1 = there is a value for “Personal\_income1000s\_b.” Blank = else.

Note: was called “Inc1000s\_quar\_exists” in the 2012\_06\_12 version of the dataset.

real\_inc1000s\_quar

Real personal income (2007$s, 1,000s), deflated with Berry, Fording and Hanson cost of living index.

computed by: personal\_income1000s\_b / state\_cpi\_bfh\_est\_quar

real\_inc1000s\_quar\_exists

Dummy: 1 = there is a value for “real\_inc1000s\_quar.” Blank = else.

Years available: 1960q2.5 to 2010q4

real\_pc\_inc\_quar

Real per capita personal income (2007$s), deflated with Berry, Fording and Hanson cost of living index.

Note: not in $1,000s, but in $1s.

Computed by: (real\_inc1000s\_quar\*1000) / pop\_quar

Years available: 1960q2.5 to 2010q4

real\_pc\_inc\_quar\_exists

1 = real\_pc\_inc\_quar has a non-missing case. Blank = else.

real\_pc\_inc\_quar\_exists2

2 = real\_pc\_inc\_quar has a non-missing case and is the earliest time a case appears for that state (or the nation). If q=2.5, this is the first time a case appears for cases with q=2.5 for that state. If “is\_a\_quarter”=1, this is the first time a case appears for cases with is\_a\_quarter=1 for that state. 1 = real\_pc\_inc\_q has a non-missing case. Blank = else.

pc\_inc\_quar

Personal income per capita ($1s).

Note: not in $1,000s, but in $1s.

Computed by: (Personal\_income1000s\*1000) / pop\_quar

Years available: 1929q2.5 to 2012q1

pc\_inc\_quar\_exists

1 = pc\_inc has a non-missing case. Blank = else.

gsp\_NAICS\_ann

Gross state product, NAICS system of classification (millions of current dollars).

Source: <http://www.bea.gov/regional/gsp/> (downloaded June 4, 2012)

Years available: 1997 – 2010, quar=2.5 only

Comparison with data downloaded in April 2011: identical for 1997 to 2006, largely the same for 2007 and 2008, but some big differences in 2009 although very similar overall (data only went to 2009 in earlier download).

gsp\_NAICS\_ann\_exists

Dummy: 1 = gsp\_NAICS\_ann exists, 0 = else.

gsp\_NAICS\_ann\_exists2

Dummy: 1 = gsp\_NAICS\_ann exists (for the both quar=2.5 and for all quarters between the middle of the year that gsp\_NAICS\_ann exists for. In other words, since gsp\_NAICS\_ann exists for 1997 to 2010, this is coded “1” for 1997q3 to 2010q2), blank = else.

gsp\_SIC\_ann

Gross state product, SIC system of classification (millions of current dollars).

Source: <http://www.bea.gov/regional/gsp/> (downloaded June 4, 2012)

Years available: 1963 - 1997

From what I can tell, 1963 is the first year these data are available at the state level.

Note: these figures coexist for 1997. For those 52 observations, they vary from gsp\_naics\_ann being 10.5% less, to gsp\_naics\_ann being 8.1% more. Gsp\_naics\_ann is 1.0% lower on average. The average of the absolute value percent difference is 2.1%. The biggest differences tend to be in small states (WY, DE, AK, LA, and ID are the five states with more than a 5% difference).

Comparison with data downloaded in April 2011: identical.

gsp\_SIC\_ann\_exists

Dummy: 1 = gsp\_SIC\_ann exists (quar=2.5 only), 0 = else.

gsp\_SIC\_ann\_exists2

Dummy: 1 = gsp\_SIC\_ann exists (for the both quar=2.5 and for all quarters between the middle of the year that gsp\_SIC\_ann exists for. In other words, since gsp\_SIC\_ann exists for 1997 to 2010, this is coded “1” for 1997q3 to 2010q2), blank = else.

gsp\_naics\_ann\_multiplier

gsp\_sic\_ann\_multiplier

For Q=2.5: amount that last year’s figure needs to be multiplied by to equal this year’s figure.

For Q=1, 2, 3 or 4: figure in Q=2.5, but altered as follows.

Q3 from the year before Q2.5 gets a ^(1/8)

Q4 from the year before Q2.5 gets a ^(1/4)

Q1 from the year of Q2.5 gets a ^(1/4)

Q2 from the year of Q2.5 gets a ^(1/4)

gsp\_naics\_q

gsp\_sic\_q

Millions of current dollars.

For Q=2.5, this equals gsp\_naics\_ann or gsp\_sic\_ann as appropriate.

For Qs=1, 2, 3 and 4, it equals the figure from the last quarter (or Q=2.5, for Q=3), times the multipliers gsp\_naics\_ann\_multiplier or gsp\_sics\_ann\_multiplier above as appropriate.

Note: although these data were put into quarters, they were not divided by 4.

Comparison with earlier dataset: identical for early years, extremely similar for later year.

gsp\_q

Millions of current dollars.

Uses gsp\_naics\_q for 1997q2.5 to 2010. Uses gsp\_sic\_q for up to 1996q2.5. For 1996q3 to 1997q2, it connects the values between 1996q2.5 and 1997q2.5 with the multiplier.

For the following three states only, 2010q2.5 was put into 2010q3: AL, MI, and TX.

Years available: 1963q2.5 to 2010q2.5, except for AL, MI and TX, which goes until 2010q3.

gov\_fin\_fy

Fiscal year that the quarter in question belongs to (when is\_a\_quarter=1) or simply the fiscal year in question when quar=2.5.

Only observed when the six state government finances variables below are observed when is\_a\_quarter=1, but is always observed within the available time period when quar=2.5.

Years available: beginning through FY2010. Most states are available annually starting in 1950, and biennially for 1942, 1944, 1946, and 1948. See the variable state\_gov\_finance\_exists for quarters and years of coverage for each state.

Note: takes the four plus states with irregular fiscal year beginnings into account. According to the State Government Finances Database, these are the following states and fiscal years (asterisks indicate when the beginning date is also the first observed case in the database):

AL (September 30: 1941\*-2008)

AK (March 31: 1957\*-1959)

DC (September 30: 1977-2007)

ID (December 31: 1942\* only)

LA (December 31: 1941\* only)

MD (September 30: 1941\* only)

MA (September 30: 1941\* only)

MI (September 30: 1976 to 2008)

MO (December 31: 1941\* to 1943)

NY (March 31: 1944 to 2008)

OH (December 31: 1941\* to 1947)

PA (May 31: 1942\* to 1961)

TX (August 31: 1941\* to 2008)

WA (March 31: 1942\* to 1953)

WY (September 30: 1941\* to 1952)

budg\_lag\_from\_fy\_end

0 = last quarter of the fiscal year the budget finance data is for. 1 = second to last quarter of fiscal year. 2 = third to last quarter of fiscal year. 3 = first quarter of fiscal year.

Only has values when is\_a\_quarter=1

Years available: beginning through FY2010. Most states are available annually starting in 1950, and biennially for 1942, 1944, 1946, and 1948. See the variable state\_gov\_finance\_exists for quarters and years of coverage for each state.

Source: gov\_fin\_fy

total\_debt\_outstanding

total\_revenue

general\_revenue

taxes

total\_expenditure

general\_expenditure

All state government finance data are in $1,000s of current dollars.

Note: these are annual amounts put into quarters.

Years available (most states): FY1950-FY2010 annual, FY1942-FY1948 biennially.

Source (beginning to 2006): Figures exactly as they appear in the Census database file State\_Govt\_Finances, with the same column heading. Note on merge: when the “year of survey” year didn’t match the year in “FY\_Year\_End\_Date” I went with the latter to place the data.

Source (2007-2010): [http://www.census.gov/govs/state/](https://swowa.indstate.edu/owa/redir.aspx?C=a2c820204b2a4c97a3004c2fbbac4f5d&URL=http%3a%2f%2fwww.census.gov%2fgovs%2fstate%2f), accessed June 4, 2012.

Note for data put into quarters 1, 2, 3 and 4: although these data were put into quarters, they were not divided by 4. There are always four cases that have the same exact numbers. These sets of four are within the same state fiscal year.

Note for data put into quarter 2.5: data for the fiscal year that matches the year of the case is put into 2.5. For example, Indiana’s FY1986 (which goes from July 1st 1985, to June 30th, 1986) is put into 1986q2.5.

Comparison with last download: the 2006 data I downloaded June 2012 time were identical with that downloaded in April 2011. Around the following number of states were identical for the following years (exact number depended on the variable): 2007 (30), 2008 (12), and 2009 (10). The Excel sheets for those three years say they were last revised December 14, 2011.

There were so many problems with merging that I brought the data in twice from the database that goes up to 2008 (although the 2007 and 2008 values weren’t used from that database, as stated above). The data matched perfectly.

state\_gov\_finance\_exists

Dummy: 1 = all six of the state government finance variables listed above are observed. Blank = not observed.

Note: if one of the state government finances variables is observed, the other five are also.

Fy\_end\_month

Number of month that the state fiscal year ends in.

Fy\_end\_day

Day of the month that the state fiscal year ends in.

Fy\_end\_quar

Last quarter of the state fiscal year.

Non\_june\_30\_fy\_end\_date

1 = state fiscal year doesn’t end on June 30th, 0 = state fiscal year ends on June 30th. blank = non-observed.

legislative\_current\_op\_exp

legislative\_construction\_exp

legislative\_other\_capital\_exp

legislative\_equipment\_exp

Note: these are annual amounts put into quarters.

Years available: FY2006 to FY2010 only.

Source (fy2006 to fy2010): [http://www.census.gov/govs/state/](https://swowa.indstate.edu/owa/redir.aspx?C=a2c820204b2a4c97a3004c2fbbac4f5d&URL=http%3a%2f%2fwww.census.gov%2fgovs%2fstate%2f), accessed June 4, 2012.

Note: legislative\_equipment\_exp is often the same figure as legislative\_other\_capital\_exp. When they differ, legislative\_other\_capital\_exp is always larger.

Note: when legislative\_current\_op\_exp was non-zero, I pasted in “0” into the other variables if there was no data there.

legislative\_total\_exp1

Total amount of money spent on the legislature (current $1s).

Note: these are annual amounts put into quarters.

Timing of variable: data put into the four quarters of the fiscal year the data are from.

Note: the data aren’t divided by four, even though they’re put into quarters.

Note: the four component parts of legislative expenditure are 1) current operations, legislative services (code E26), 2) construction, legislative (code F26), 3) other capital outlay, legislative (code G26), and 4) equipment only, legislative (code K26).

Note: the original data from the file sent to me by the Census were multiplied by 1,000, they were in $1,000s before.

Source (fy1951-fy2006: State Government Finances file sent to me from the Census.

Legislative\_Total\_Exp1\_exists

1 = Legislative\_Total\_Exp has a non-missing value, and it is one of the cases that state\_gov\_finance\_exists=1 for. 0 = Legislative\_Total\_Exp has a missing value, and it is one of the cases that state\_gov\_finance\_exists=1 for. Blank = else.

Years available: to FY2006

legislative\_total\_exp1\_note

Note about Legislative\_Total\_Exp.

legislative\_total\_exp2

Total amount of money spent on the legislature (current $1s).

Note: these are annual amounts put into quarters.

Source (fy2006 to fy2010): [http://www.census.gov/govs/state/](https://swowa.indstate.edu/owa/redir.aspx?C=a2c820204b2a4c97a3004c2fbbac4f5d&URL=http%3a%2f%2fwww.census.gov%2fgovs%2fstate%2f), accessed June 4, 2012.

Comparison with prior download: comparing the additions of the four variables mentioned below (legislative\_current\_op\_exp, legislative\_construction\_exp, legislative\_other\_capital\_exp and legislative\_equipment\_exp) with legislative\_total\_exp from the database in 2006 resulted in the decisions of how to add those four variables to get the total for legislative expenditures. When you add all four components, you get an amount that is almost always way too high. When you add all four except for legislative\_equipment\_exp, you get an amount that is very slightly different than legislative\_total\_exp (less than .1% off, never more than $40K (and that in a big state), usually much less. It’s not due to rounding error either.) (legislative\_equipment\_exp and legislative\_other\_capital\_exp are usually the same, see below, but when they aren’t, using legislative\_other\_capital\_exp instead of legislative\_equipment\_exp yields a more similar number).

Legislative\_Total\_Exp2\_exists

1 = Legislative\_Total\_Exp2 has a non-missing value, and it is one of the cases that state\_gov\_finance\_exists=1 for. 0 = Legislative\_Total\_Exp has a missing value, and it is one of the cases that state\_gov\_finance\_exists=1 for. Blank = else.

Years available: FY2006 – FY2010

legislative\_total\_exp

Total amount of money spent on the legislature (current $1s).

Note: these are annual amounts put into quarters.

Source (fy1951-fy2005): legislative\_total\_exp1

Source (fy2006-fy2010): legislative\_total\_exp2

Legislative\_Total\_Exp\_exists

1 = Legislative\_Total\_Exp has a non-missing value, and it is one of the cases that state\_gov\_finance\_exists=1 for. 0 = Legislative\_Total\_Exp has a missing value, and it is one of the cases that state\_gov\_finance\_exists=1 for. Blank = else.

Budget\_surplus

Computed by: General\_revenue – general\_expenditure.

Note: this is not a good measure of a state’s budget surplus in one year.

STATA CODE

gen budget\_surplus= general\_revenue- general\_expenditure

total\_debt\_outstanding\_gsp

total\_revenue\_gsp

general\_revenue\_gsp

taxes\_gsp

total\_expenditure\_gsp

general\_expenditure\_gsp

budget\_surplus\_gsp

State government finance variables as a percent of gross state product.

STATA CODE

gen total\_debt\_outstanding\_gsp= (total\_debt\_outstanding/(gsp\_q\*1000))\*100

gen total\_revenue\_gsp= (total\_revenue/(gsp\_q\*1000))\*100

gen general\_revenue\_gsp= (general\_revenue/(gsp\_q\*1000))\*100

gen taxes\_gsp= (taxes/(gsp\_q\*1000))\*100

gen total\_expenditure\_gsp= (total\_expenditure/(gsp\_q\*1000))\*100

gen general\_expenditure\_gsp= (general\_expenditure/(gsp\_q\*1000))\*100

gen budget\_surplus\_gsp= (budget\_surplus/(gsp\_q\*1000))\*100

total\_debt\_outstanding\_inc

total\_revenue\_inc

general\_revenue\_inc

taxes\_inc

total\_expenditure\_inc

general\_expenditure\_inc

budget\_surplus\_inc

State government finance variables as a percent of state personal income.

Years available, every other year: 1941q3 to 1948q2

Years available every year: 1949q3 to 2009q2

STATA CODE

gen total\_debt\_outstanding\_inc= (total\_debt\_outstanding/personal\_income1000s\_b)\*100

gen total\_revenue\_inc= (total\_revenue/personal\_income1000s\_b)\*100

gen general\_revenue\_inc= (general\_revenue/personal\_income1000s\_b)\*100

gen taxes\_inc= (taxes/personal\_income1000s\_b)\*100

gen total\_expenditure\_inc= (total\_expenditure/personal\_income1000s\_b)\*100

gen general\_expenditure\_inc= (general\_expenditure/personal\_income1000s\_b)\*100

gen budget\_surplus\_inc= (budget\_surplus/personal\_income1000s\_b)\*100

real\_leg\_tot\_exp

Total expenditures on the legislature deflated by the Berry, Fording and Hansen state and year specific cost of living indicator.

STATA CODE

gen real\_leg\_tot\_exp=legislative\_total\_exp / state\_cpi\_bfh\_est\_quar

real2\_leg\_tot\_exp

Total expenditures on the legislature deflated by the national level cost of living indicator.

STATA CODE

gen real2\_leg\_tot\_exp=legislative\_total\_exp / nat\_cpi\_bls\_quar

RECOMPUTING FROM HERE, THE FIRST VARS TO TEST

s\_real\_pc\_inc\_chgL0

Percent change in real\_pc\_inc\_quar.

Deflated by: Berry, Fording and Hanson

Note: only exists for quarters

Source: real\_pc\_inc\_quar

STATA CODE

gen temp\_quar=quar

replace temp\_quar=. if quar==2.5

gen year\_quar=(year\*10)+temp\_quar

tsset stateno year\_quar

gen temp=real\_pc\_inc\_quar

replace temp=. if quar==2.5

by stateno: gen temp2=temp[\_n-1]

gen s\_real\_pc\_inc\_chgL0=((temp-temp2)/temp2)\*100

s\_real\_pc\_inc\_chgL1

s\_real\_pc\_inc\_chgL2

s\_real\_pc\_inc\_chgL3

s\_real\_pc\_inc\_chgL4

s\_real\_pc\_inc\_chgL0 lagged one, two, three or four quarters, respectively.

Note: only exists for quarters

Deflated by: Berry, Fording and Hanson

Source: real\_pc\_inc\_quar

STATA CODE

by stateno: gen s\_real\_pc\_inc\_chgL1=s\_real\_pc\_inc\_chgL0[\_n-1]

by stateno: gen s\_real\_pc\_inc\_chgL2=s\_real\_pc\_inc\_chgL0[\_n-2]

by stateno: gen s\_real\_pc\_inc\_chgL3=s\_real\_pc\_inc\_chgL0[\_n-3]

by stateno: gen s\_real\_pc\_inc\_chgL4=s\_real\_pc\_inc\_chgL0[\_n-4]

s\_real\_pc\_inc\_chg\_whtd\_ave

Weighted average of percent change in real per capita income in the last four quarters.

Gives weight of “4,” to last period, a weight of “3” to the second to last period, a weight of “2” to the third to last period, and a weight of “1” for the fourth to last period.

Note: only exists for quarters

Deflated by: Berry, Fording and Hanson

Source: real\_pc\_inc\_quar

STATA CODE

gen s\_real\_pc\_inc\_chg\_whtd\_ave=((s\_real\_pc\_inc\_chgL0\*4)+(s\_real\_pc\_inc\_chgL1\*3)+(s\_real\_pc\_inc\_chgL2\*2)+(s\_real\_pc\_inc\_chgL3))/10

s\_real\_pc\_inc\_chg\_whtd\_ave2

Weighted average of percent change in real per capita income in the first two of the last three quarters.

Gives weight of “3,” to the second to last last period, and a weight of “2” to the third to last period.

Note: only exists for quarters

Deflated by: Berry, Fording and Hanson

Source: real\_pc\_inc\_quar

STATA CODE

gen s\_real\_pc\_inc\_chg\_whtd\_ave2=((s\_real\_pc\_inc\_chgL1\*3)+(s\_real\_pc\_inc\_chgL2\*2))/5

s\_real\_pc\_inc\_chg2L0

Percent change in real per capita income from two quarters ago.

Deflated by: Berry, Fording and Hanson

s\_real\_pc\_inc\_chg3L0

Percent change in real per capita income from three quarters ago.

Deflated by: Berry, Fording and Hanson

s\_real\_pc\_inc\_chg4L0

Percent change in real per capita income from four quarters ago.

Deflated by: Berry, Fording and Hanson

STATA CODE

by stateno: gen temp3=temp[\_n-2]

by stateno: gen temp4=temp[\_n-3]

by stateno: gen temp5=temp[\_n-4]

gen s\_real\_pc\_inc\_chg2L0=((temp-temp3)/temp3)\*100

gen s\_real\_pc\_inc\_chg3L0=((temp-temp4)/temp4)\*100

gen s\_real\_pc\_inc\_chg4L0=((temp-temp5)/temp5)\*100

drop temp temp2 temp3 temp4 temp5 temp\_quar year\_quar

real2\_inc\_quar

RECOMPUTE

Real personal income, in 1,000s of current dollars, deflated with the national CPI (1982-1984$s, 1,000s).

STATA CODE

gen real2\_inc\_quar= personal\_income1000s\_b / nat\_cpi\_bls\_quar

real2\_pc\_inc\_quar

RECOMPUTE

Real per capita personal income, deflated with the national CPI (1982-1984$s, 1,000s).

STATA CODE

gen real2\_pc\_inc\_quar= real2\_inc\_quar/pop\_quar

s\_real2\_pc\_inc\_chgL0

RECOMPUTE

Percent change in real2\_pc\_inc\_quar.

Note: only exists for quarters

Deflated by: BLS National CPI

Source: real2\_pc\_inc\_quar

STATA CODE

gen temp\_quar=quar

replace temp\_quar=. if quar==2.5

gen year\_quar=(year\*10)+temp\_quar

tsset stateno year\_quar

gen temp= real2\_pc\_inc\_quar

replace temp=. if quar==2.5

by stateno: gen temp2=temp[\_n-1]

gen s\_real2\_pc\_inc\_chgL0=((temp-temp2)/temp2)\*100

s\_real2\_pc\_inc\_chgL1

s\_real2\_pc\_inc\_chgL2

s\_real2\_pc\_inc\_chgL3

s\_real2\_pc\_inc\_chgL4

RECOMPUTE

s\_real2\_pc\_inc\_chgL0 lagged one, two, three or four quarters, respectively.

Note: only exists for quarters

Deflated by: BLS National CPI

Source: real2\_pc\_inc\_quar

STATA CODE

by stateno: gen s\_real2\_pc\_inc\_chgL1=s\_real2\_pc\_inc\_chgL0[\_n-1]

by stateno: gen s\_real2\_pc\_inc\_chgL2=s\_real2\_pc\_inc\_chgL0[\_n-2]

by stateno: gen s\_real2\_pc\_inc\_chgL3=s\_real2\_pc\_inc\_chgL0[\_n-3]

by stateno: gen s\_real2\_pc\_inc\_chgL4=s\_real2\_pc\_inc\_chgL0[\_n-4]

s\_real2\_pc\_inc\_chg\_whtd\_ave

RECOMPUTE

Weighted average of percent change in real per capita income in the last four quarters.

Gives weight of “4,” to last period, a weight of “3” to the second to last period, a weight of “2” to the third to last period, and a weight of “1” for the fourth to last period.

Note: only exists for quarters

Deflated by: BLS National CPI

Source: real2\_pc\_inc\_quar

STATA CODE

gen s\_real2\_pc\_inc\_chg\_whtd\_ave=((s\_real2\_pc\_inc\_chgL0\*4)+(s\_real2\_pc\_inc\_chgL1\*3)+(s\_real2\_pc\_inc\_chgL2\*2)+(s\_real2\_pc\_inc\_chgL3))/10

s\_real2\_pc\_inc\_chg\_whtd\_ave2

RECOMPUTE

Weighted average of percent change in real per capita income in the first two of the last three quarters.

Gives weight of “3,” to the second to last period, and a weight of “2” to the third to last period.

Note: only exists for quarters

Deflated by: BLS National CPI

Source: real2\_pc\_inc\_quar

STATA CODE

gen s\_real2\_pc\_inc\_chg\_whtd\_ave2=((s\_real2\_pc\_inc\_chgL1\*3)+(s\_real2\_pc\_inc\_chgL2\*2))/5

s\_real2\_pc\_inc\_chg2L0

Percent change in real per capita income from two quarters ago.

Deflated by: BLS National CPI

s\_real2\_pc\_inc\_chg3L0

Percent change in real per capita income from three quarters ago.

Deflated by: BLS National CPI

s\_real2\_pc\_inc\_chg4L0

Percent change in real per capita income from four quarters ago.

Deflated by: BLS National CPI

STATA CODE

by stateno: gen temp3=temp[\_n-2]

by stateno: gen temp4=temp[\_n-3]

by stateno: gen temp5=temp[\_n-4]

gen s\_real2\_pc\_inc\_chg2L0=((temp-temp3)/temp3)\*100

gen s\_real2\_pc\_inc\_chg3L0=((temp-temp4)/temp4)\*100

gen s\_real2\_pc\_inc\_chg4L0=((temp-temp5)/temp5)\*100

drop temp temp2 temp3 temp4 temp5 temp\_quar year\_quar

Appendix A: state CPI imputation regressions.

A trial run was done using Berry, Fording and Hansen data up to 2004, and doing the same imputation for 2005, 2006 and 2007 that is then done for 2008, 2009 and 2010. I then plotted the imputed values against the actual values for 2005, 2006 and 2007. The r-squared of the regressions of the imputed values predicting the actual values indicated it was better to not use state housing price data as predictor variables (they only go back to 1975, whereas otherwise the data used for the imputation go back to 1967) (the ones from the housing prices equations were actually slightly better for three years out, but not by much, and the ones without housing prices were much better for one and two years out). The r-squareds that resulted from regressing the actual values on the imputed values were .9993 for one year out (SEE=.0026), .9990 for two years out (SEE=.00334), and .9778 for three years out (SEE=.01721).

I was concerned state fixed effects would “pull down” the estimates and bias them, since these are non-stationary time series and the values to be imputed are at the end of the time series. The estimates seemed to be so accurate from the “dry run” at 2005, 2006 and 2007, that I’m not going to worry about building slightly better models.

STATA code follows

keep if quar==2.5

tsset stateno year

by stateno: gen state\_cpi\_bfh\_l1= state\_cpi\_bfh[\_n-1]

by stateno: gen state\_cpi\_bfh\_l2= state\_cpi\_bfh[\_n-2]

by stateno: gen state\_cpi\_bfh\_l3= state\_cpi\_bfh[\_n-3]

by stateno: gen regional\_cpi\_bls\_l1= regional\_cpi\_bls\_quar[\_n-1]

by stateno: gen regional\_cpi\_bls\_l2= regional\_cpi\_bls\_quar[\_n-2]

by stateno: gen regional\_cpi\_bls\_l3= regional\_cpi\_bls\_quar[\_n-3]

by stateno: gen regional\_cpi\_bls\_d1= [(regional\_cpi\_bls\_quar-regional\_cpi\_bls\_l1)/regional\_cpi\_bls\_l1]\*100

by stateno: gen regional\_cpi\_bls\_d2= [(regional\_cpi\_bls\_quar-regional\_cpi\_bls\_l2)/regional\_cpi\_bls\_l2]\*100

by stateno: gen regional\_cpi\_bls\_d3= [(regional\_cpi\_bls\_quar-regional\_cpi\_bls\_l3)/regional\_cpi\_bls\_l3]\*100

by stateno: gen pc\_inc\_ann\_l1= pc\_inc\_ann[\_n-1]

by stateno: gen pc\_inc\_ann\_l2= pc\_inc\_ann[\_n-2]

by stateno: gen pc\_inc\_ann\_l3= pc\_inc\_ann[\_n-3]

by stateno: gen pc\_inc\_ann\_d1= ((pc\_inc\_ann-pc\_inc\_ann\_l1)/pc\_inc\_ann\_l1)\*100

by stateno: gen pc\_inc\_ann\_d2= ((pc\_inc\_ann-pc\_inc\_ann\_l2)/pc\_inc\_ann\_l2)\*100

by stateno: gen pc\_inc\_ann\_d3= ((pc\_inc\_ann-pc\_inc\_ann\_l3)/pc\_inc\_ann\_l3)\*100

by stateno: gen pop\_growth\_l1=pop\_growth[\_n-1]

by stateno: gen pop\_growth\_l2=pop\_growth[\_n-2]

by stateno: gen housing\_prices\_quar\_l1= housing\_prices\_quar[\_n-1]

by stateno: gen housing\_prices\_quar\_l2= housing\_prices\_quar[\_n-2]

by stateno: gen housing\_prices\_quar\_l3= housing\_prices\_quar[\_n-3]

by stateno: gen housing\_prices\_quar\_d1= ((housing\_prices\_quar-housing\_prices\_quar\_l1)/housing\_prices\_quar\_l1)\*100

by stateno: gen housing\_prices\_quar\_d2= ((housing\_prices\_quar-housing\_prices\_quar\_l2)/housing\_prices\_quar\_l2)\*100

by stateno: gen housing\_prices\_quar\_d3= ((housing\_prices\_quar-housing\_prices\_quar\_l3)/housing\_prices\_quar\_l3)\*100

\*For next year

\*No housing prices

reg state\_cpi\_bfh\_b state\_cpi\_bfh\_l1 state\_cpi\_bfh\_l2 state\_cpi\_bfh\_l3 regional\_cpi\_bls\_quar regional\_cpi\_bls\_l1 regional\_cpi\_bls\_l2 regional\_cpi\_bls\_l3 regional\_cpi\_bls\_d1 regional\_cpi\_bls\_d2 regional\_cpi\_bls\_d3 pc\_inc\_ann pc\_inc\_ann\_l1 pc\_inc\_ann\_l2 pc\_inc\_ann\_l3 pc\_inc\_ann\_d1 pc\_inc\_ann\_d2 pc\_inc\_ann\_d3 pop\_growth pop\_growth\_l1 pop\_growth\_l2

predict predicted\_run1\_t1

\*has housing prices

reg state\_cpi\_bfh\_b state\_cpi\_bfh\_l1 state\_cpi\_bfh\_l2 state\_cpi\_bfh\_l3 regional\_cpi\_bls\_quar regional\_cpi\_bls\_l1 regional\_cpi\_bls\_l2 regional\_cpi\_bls\_l3 regional\_cpi\_bls\_d1 regional\_cpi\_bls\_d2 regional\_cpi\_bls\_d3 pc\_inc\_ann pc\_inc\_ann\_l1 pc\_inc\_ann\_l2 pc\_inc\_ann\_l3 pc\_inc\_ann\_d1 pc\_inc\_ann\_d2 pc\_inc\_ann\_d3 pop\_growth pop\_growth\_l1 pop\_growth\_l2 housing\_prices\_quar housing\_prices\_quar\_l1 housing\_prices\_quar\_l2 housing\_prices\_quar\_l3 housing\_prices\_quar\_d1 housing\_prices\_quar\_d2 housing\_prices\_quar\_d3

predict predicted\_run2\_t1

\*For two years in the future

\*No housing prices

reg state\_cpi\_bfh\_b state\_cpi\_bfh\_l2 state\_cpi\_bfh\_l3 regional\_cpi\_bls\_quar regional\_cpi\_bls\_l1 regional\_cpi\_bls\_l2 regional\_cpi\_bls\_l3 regional\_cpi\_bls\_d1 regional\_cpi\_bls\_d2 regional\_cpi\_bls\_d3 pc\_inc\_ann pc\_inc\_ann\_l1 pc\_inc\_ann\_l2 pc\_inc\_ann\_l3 pc\_inc\_ann\_d1 pc\_inc\_ann\_d2 pc\_inc\_ann\_d3 pop\_growth pop\_growth\_l1 pop\_growth\_l2

predict predicted\_run1\_t2

\*has housing prices

reg state\_cpi\_bfh\_b state\_cpi\_bfh\_l2 state\_cpi\_bfh\_l3 regional\_cpi\_bls\_quar regional\_cpi\_bls\_l1 regional\_cpi\_bls\_l2 regional\_cpi\_bls\_l3 regional\_cpi\_bls\_d1 regional\_cpi\_bls\_d2 regional\_cpi\_bls\_d3 pc\_inc\_ann pc\_inc\_ann\_l1 pc\_inc\_ann\_l2 pc\_inc\_ann\_l3 pc\_inc\_ann\_d1 pc\_inc\_ann\_d2 pc\_inc\_ann\_d3 pop\_growth pop\_growth\_l1 pop\_growth\_l2 housing\_prices\_quar housing\_prices\_quar\_l1 housing\_prices\_quar\_l2 housing\_prices\_quar\_l3 housing\_prices\_quar\_d1 housing\_prices\_quar\_d2 housing\_prices\_quar\_d3

predict predicted\_run2\_t2

\*For three years in the future

\*No housing prices

reg state\_cpi\_bfh\_b state\_cpi\_bfh\_l3 regional\_cpi\_bls\_quar regional\_cpi\_bls\_l1 regional\_cpi\_bls\_l2 regional\_cpi\_bls\_l3 regional\_cpi\_bls\_d1 regional\_cpi\_bls\_d2 regional\_cpi\_bls\_d3 pc\_inc\_ann pc\_inc\_ann\_l1 pc\_inc\_ann\_l2 pc\_inc\_ann\_l3 pc\_inc\_ann\_d1 pc\_inc\_ann\_d2 pc\_inc\_ann\_d3 pop\_growth pop\_growth\_l1 pop\_growth\_l2

predict predicted\_run1\_t3

\*has housing prices

reg state\_cpi\_bfh\_b state\_cpi\_bfh\_l3 regional\_cpi\_bls\_quar regional\_cpi\_bls\_l1 regional\_cpi\_bls\_l2 regional\_cpi\_bls\_l3 regional\_cpi\_bls\_d1 regional\_cpi\_bls\_d2 regional\_cpi\_bls\_d3 pc\_inc\_ann pc\_inc\_ann\_l1 pc\_inc\_ann\_l2 pc\_inc\_ann\_l3 pc\_inc\_ann\_d1 pc\_inc\_ann\_d2 pc\_inc\_ann\_d3 pop\_growth pop\_growth\_l1 pop\_growth\_l2 housing\_prices\_quar housing\_prices\_quar\_l1 housing\_prices\_quar\_l2 housing\_prices\_quar\_l3 housing\_prices\_quar\_d1 housing\_prices\_quar\_d2 housing\_prices\_quar\_d3

predict predicted\_run2\_t3

reg state\_cpi\_bfh predicted\_run1\_t1 if year==2005

reg state\_cpi\_bfh predicted\_run2\_t1 if year==2005

reg state\_cpi\_bfh predicted\_run1\_t2 if year==2006

reg state\_cpi\_bfh predicted\_run2\_t2 if year==2006

reg state\_cpi\_bfh predicted\_run1\_t3 if year==2007

reg state\_cpi\_bfh predicted\_run2\_t3 if year==2007

scatter state\_cpi\_bfh predicted\_run1\_t3 if year==2007

scatter state\_cpi\_bfh predicted\_run2\_t3 if year==2007

. do "C:\Users\cklarner\AppData\Local\Temp\STD01000000.tmp"

. \*For next year

. \*No housing prices

. reg state\_cpi\_bfh\_b state\_cpi\_bfh\_l1 state\_cpi\_bfh\_l2 state\_cpi\_bfh\_l3 regional\_cpi\_bls\_quar regional\_cpi\_bls\_l1 regio

> nal\_cpi\_bls\_l2 regional\_cpi\_bls\_l3 regional\_cpi\_bls\_d1 regional\_cpi\_bls\_d2 regional\_cpi\_bls\_d3 pc\_inc\_ann pc\_inc\_ann\_l1

> pc\_inc\_ann\_l2 pc\_inc\_ann\_l3 pc\_inc\_ann\_d1 pc\_inc\_ann\_d2 pc\_inc\_ann\_d3 pop\_growth pop\_growth\_l1 pop\_growth\_l2

Source | SS df MS Number of obs = 1750

-------------+------------------------------ F( 20, 1729) = .

Model | 90.7638468 20 4.53819234 Prob > F = 0.0000

Residual | .022157794 1729 .000012815 R-squared = 0.9998

-------------+------------------------------ Adj R-squared = 0.9998

Total | 90.7860046 1749 .051907378 Root MSE = .00358

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

state\_cpi\_~b | Coef. Std. Err. t P>|t| [95% Conf. Interval]

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

state\_cpi\_~1 | 1.630242 .0277087 58.84 0.000 1.575896 1.684588

state\_cpi\_~2 | -.5161326 .0495564 -10.42 0.000 -.6133293 -.4189359

state\_cpi\_~3 | -.1097652 .0294047 -3.73 0.000 -.1674376 -.0520927

regional\_c~r | .2265767 .0183347 12.36 0.000 .1906162 .2625371

regional\_~l1 | -.3924915 .0354813 -11.06 0.000 -.4620822 -.3229008

regional\_~l2 | .0239464 .0361942 0.66 0.508 -.0470425 .0949353

regional\_~l3 | .1457302 .0191898 7.59 0.000 .1080926 .1833677

regional\_~d1 | .0011209 .0002884 3.89 0.000 .0005553 .0016865

regional\_~d2 | -.0011184 .0002568 -4.36 0.000 -.001622 -.0006148

regional\_~d3 | .000699 .0001166 5.99 0.000 .0004703 .0009277

pc\_inc\_ann | 1.38e-06 3.81e-07 3.61 0.000 6.31e-07 2.13e-06

pc\_inc\_an~l1 | -3.02e-06 6.03e-07 -5.00 0.000 -4.20e-06 -1.83e-06

pc\_inc\_an~l2 | 1.58e-06 6.33e-07 2.49 0.013 3.36e-07 2.82e-06

pc\_inc\_an~l3 | 1.64e-07 4.12e-07 0.40 0.691 -6.45e-07 9.73e-07

pc\_inc\_an~d1 | .0005017 .0000835 6.01 0.000 .0003379 .0006655

pc\_inc\_an~d2 | -.000158 .0000813 -1.94 0.052 -.0003176 1.51e-06

pc\_inc\_an~d3 | .0000289 .0000497 0.58 0.561 -.0000686 .0001265

pop\_growth | .0214555 .0175299 1.22 0.221 -.0129264 .0558375

pop\_growth~1 | -.0105429 .0245877 -0.43 0.668 -.0587677 .0376818

pop\_growth~2 | -.0160659 .0173082 -0.93 0.353 -.050013 .0178813

\_cons | .0004257 .0084389 0.05 0.960 -.0161258 .0169772

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

. predict predicted\_run1\_t1

(option xb assumed; fitted values)

(650 missing values generated)

.

. \*has housing prices

. reg state\_cpi\_bfh\_b state\_cpi\_bfh\_l1 state\_cpi\_bfh\_l2 state\_cpi\_bfh\_l3 regional\_cpi\_bls\_quar regional\_cpi\_bls\_l1 regio

> nal\_cpi\_bls\_l2 regional\_cpi\_bls\_l3 regional\_cpi\_bls\_d1 regional\_cpi\_bls\_d2 regional\_cpi\_bls\_d3 pc\_inc\_ann pc\_inc\_ann\_l1

> pc\_inc\_ann\_l2 pc\_inc\_ann\_l3 pc\_inc\_ann\_d1 pc\_inc\_ann\_d2 pc\_inc\_ann\_d3 pop\_growth pop\_growth\_l1 pop\_growth\_l2 housing\_p

> rices\_quar housing\_prices\_quar\_l1 housing\_prices\_quar\_l2 housing\_prices\_quar\_l3 housing\_prices\_quar\_d1 housing\_prices\_q

> uar\_d2 housing\_prices\_quar\_d3

Source | SS df MS Number of obs = 1350

-------------+------------------------------ F( 27, 1322) = .

Model | 40.6475784 27 1.50546587 Prob > F = 0.0000

Residual | .017227895 1322 .000013032 R-squared = 0.9996

-------------+------------------------------ Adj R-squared = 0.9996

Total | 40.6648063 1349 .030144408 Root MSE = .00361

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

state\_cpi\_~b | Coef. Std. Err. t P>|t| [95% Conf. Interval]

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

state\_cpi\_~1 | 1.556729 .0311 50.06 0.000 1.495718 1.617739

state\_cpi\_~2 | -.4294246 .0523279 -8.21 0.000 -.5320794 -.3267697

state\_cpi\_~3 | -.1258374 .0320774 -3.92 0.000 -.1887657 -.0629092

regional\_c~r | .3094791 .0278581 11.11 0.000 .2548281 .36413

regional\_~l1 | -.6259258 .05621 -11.14 0.000 -.7361963 -.5156553

regional\_~l2 | .2958368 .0567318 5.21 0.000 .1845427 .4071309

regional\_~l3 | .0232102 .0291563 0.80 0.426 -.0339874 .0804078

regional\_~d1 | -.0023626 .0005766 -4.10 0.000 -.0034939 -.0012314

regional\_~d2 | .0022804 .0005231 4.36 0.000 .0012542 .0033067

regional\_~d3 | -.0005568 .0002237 -2.49 0.013 -.0009957 -.0001179

pc\_inc\_ann | 4.55e-07 5.23e-07 0.87 0.384 -5.70e-07 1.48e-06

pc\_inc\_an~l1 | -2.68e-06 7.71e-07 -3.47 0.001 -4.19e-06 -1.17e-06

pc\_inc\_an~l2 | 2.26e-06 7.74e-07 2.92 0.004 7.44e-07 3.78e-06

pc\_inc\_an~l3 | 8.32e-08 5.23e-07 0.16 0.873 -9.42e-07 1.11e-06

pc\_inc\_an~d1 | .0004244 .0001234 3.44 0.001 .0001822 .0006665

pc\_inc\_an~d2 | .0000342 .0001148 0.30 0.766 -.0001911 .0002595

pc\_inc\_an~d3 | -.0000464 .0000759 -0.61 0.541 -.0001954 .0001026

pop\_growth | .0089512 .0252218 0.35 0.723 -.0405278 .0584302

pop\_growth~1 | -.0244217 .0345646 -0.71 0.480 -.0922291 .0433857

pop\_growth~2 | -.0044894 .0231948 -0.19 0.847 -.049992 .0410133

housing\_pr~r | .0296022 .0042527 6.96 0.000 .0212595 .0379449

housing\_p~l1 | -.045214 .0100892 -4.48 0.000 -.0650066 -.0254213

housing\_p~l2 | .0112041 .0104425 1.07 0.283 -.0092816 .0316899

housing\_p~l3 | .0038513 .0049644 0.78 0.438 -.0058877 .0135903

housing\_p~d1 | -.0004502 .0001229 -3.66 0.000 -.0006913 -.0002091

housing\_p~d2 | .0002012 .0001076 1.87 0.062 -9.82e-06 .0004123

housing\_p~d3 | .0000217 .00005 0.43 0.665 -.0000765 .0001198

\_cons | .0195347 .010909 1.79 0.074 -.0018662 .0409356

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

. predict predicted\_run2\_t1

(option xb assumed; fitted values)

(1050 missing values generated)

.

. \*For two years in the future

. \*No housing prices

. reg state\_cpi\_bfh\_b state\_cpi\_bfh\_l2 state\_cpi\_bfh\_l3 regional\_cpi\_bls\_quar regional\_cpi\_bls\_l1 regional\_cpi\_bls\_l2 re

> gional\_cpi\_bls\_l3 regional\_cpi\_bls\_d1 regional\_cpi\_bls\_d2 regional\_cpi\_bls\_d3 pc\_inc\_ann pc\_inc\_ann\_l1 pc\_inc\_ann\_l2 pc

> \_inc\_ann\_l3 pc\_inc\_ann\_d1 pc\_inc\_ann\_d2 pc\_inc\_ann\_d3 pop\_growth pop\_growth\_l1 pop\_growth\_l2

Source | SS df MS Number of obs = 1750

-------------+------------------------------ F( 19, 1730) = .

Model | 90.7194856 19 4.77470977 Prob > F = 0.0000

Residual | .066519033 1730 .00003845 R-squared = 0.9993

-------------+------------------------------ Adj R-squared = 0.9993

Total | 90.7860046 1749 .051907378 Root MSE = .0062

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

state\_cpi\_~b | Coef. Std. Err. t P>|t| [95% Conf. Interval]

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

state\_cpi\_~2 | 2.005496 .0430922 46.54 0.000 1.920978 2.090014

state\_cpi\_~3 | -1.002586 .0436265 -22.98 0.000 -1.088152 -.91702

regional\_c~r | .4128395 .0312813 13.20 0.000 .3514864 .4741927

regional\_~l1 | -.2288016 .0612694 -3.73 0.000 -.3489716 -.1086316

regional\_~l2 | -.6202844 .0597557 -10.38 0.000 -.7374854 -.5030834

regional\_~l3 | .4361006 .0321213 13.58 0.000 .3730999 .4991014

regional\_~d1 | -.0001088 .0004982 -0.22 0.827 -.0010859 .0008683

regional\_~d2 | -.0008031 .0004446 -1.81 0.071 -.0016752 .000069

regional\_~d3 | .0008808 .0002019 4.36 0.000 .0004848 .0012769

pc\_inc\_ann | 3.61e-07 6.60e-07 0.55 0.584 -9.33e-07 1.66e-06

pc\_inc\_an~l1 | -2.69e-07 1.04e-06 -0.26 0.797 -2.31e-06 1.78e-06

pc\_inc\_an~l2 | -1.42e-06 1.09e-06 -1.30 0.192 -3.57e-06 7.18e-07

pc\_inc\_an~l3 | 1.96e-06 7.12e-07 2.76 0.006 5.66e-07 3.36e-06

pc\_inc\_an~d1 | .0000583 .0001441 0.40 0.686 -.0002243 .0003408

pc\_inc\_an~d2 | .0005621 .0001393 4.03 0.000 .0002888 .0008353

pc\_inc\_an~d3 | -.0000725 .0000861 -0.84 0.400 -.0002414 .0000963

pop\_growth | -.0016373 .0303566 -0.05 0.957 -.0611769 .0579023

pop\_growth~1 | -.0133628 .0425894 -0.31 0.754 -.0968949 .0701693

pop\_growth~2 | -.0251464 .0299791 -0.84 0.402 -.0839454 .0336526

\_cons | .0337894 .0145844 2.32 0.021 .0051846 .0623942

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

. predict predicted\_run1\_t2

(option xb assumed; fitted values)

(600 missing values generated)

.

. \*has housing prices

. reg state\_cpi\_bfh\_b state\_cpi\_bfh\_l2 state\_cpi\_bfh\_l3 regional\_cpi\_bls\_quar regional\_cpi\_bls\_l1 regional\_cpi\_bls\_l2 re

> gional\_cpi\_bls\_l3 regional\_cpi\_bls\_d1 regional\_cpi\_bls\_d2 regional\_cpi\_bls\_d3 pc\_inc\_ann pc\_inc\_ann\_l1 pc\_inc\_ann\_l2 pc

> \_inc\_ann\_l3 pc\_inc\_ann\_d1 pc\_inc\_ann\_d2 pc\_inc\_ann\_d3 pop\_growth pop\_growth\_l1 pop\_growth\_l2 housing\_prices\_quar housin

> g\_prices\_quar\_l1 housing\_prices\_quar\_l2 housing\_prices\_quar\_l3 housing\_prices\_quar\_d1 housing\_prices\_quar\_d2 housing\_pr

> ices\_quar\_d3

Source | SS df MS Number of obs = 1350

-------------+------------------------------ F( 26, 1323) =41433.28

Model | 40.6149267 26 1.56211256 Prob > F = 0.0000

Residual | .049879589 1323 .000037702 R-squared = 0.9988

-------------+------------------------------ Adj R-squared = 0.9987

Total | 40.6648063 1349 .030144408 Root MSE = .00614

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

state\_cpi\_~b | Coef. Std. Err. t P>|t| [95% Conf. Interval]

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

state\_cpi\_~2 | 1.742648 .0497422 35.03 0.000 1.645066 1.840231

state\_cpi\_~3 | -.7381528 .0504377 -14.63 0.000 -.8370995 -.6392062

regional\_c~r | .4735304 .0470551 10.06 0.000 .3812197 .5658411

regional\_~l1 | -.3181183 .0950343 -3.35 0.001 -.5045526 -.131684

regional\_~l2 | -.468906 .0929307 -5.05 0.000 -.6512136 -.2865985

regional\_~l3 | .3142668 .0485959 6.47 0.000 .2189334 .4096003

regional\_~d1 | -.0020971 .0009808 -2.14 0.033 -.0040212 -.0001731

regional\_~d2 | .0003428 .0008874 0.39 0.699 -.001398 .0020836

regional\_~d3 | .0005733 .0003786 1.51 0.130 -.0001694 .001316

pc\_inc\_ann | -1.18e-06 8.87e-07 -1.33 0.183 -2.92e-06 5.60e-07

pc\_inc\_an~l1 | 8.46e-09 1.31e-06 0.01 0.995 -2.56e-06 2.57e-06

pc\_inc\_an~l2 | -1.15e-06 1.31e-06 -0.88 0.381 -3.72e-06 1.42e-06

pc\_inc\_an~l3 | 2.86e-06 8.84e-07 3.23 0.001 1.12e-06 4.59e-06

pc\_inc\_an~d1 | .000123 .0002097 0.59 0.558 -.0002884 .0005344

pc\_inc\_an~d2 | .0005239 .0001946 2.69 0.007 .0001421 .0009058

pc\_inc\_an~d3 | -.0000244 .0001292 -0.19 0.850 -.0002778 .000229

pop\_growth | -.0127909 .0428936 -0.30 0.766 -.0969377 .0713559

pop\_growth~1 | -.0858082 .0587542 -1.46 0.144 -.2010697 .0294533

pop\_growth~2 | .0112538 .0394486 0.29 0.775 -.0661348 .0886425

housing\_pr~r | .0198415 .0072258 2.75 0.006 .0056662 .0340167

housing\_p~l1 | -.0102254 .0171196 -0.60 0.550 -.04381 .0233592

housing\_p~l2 | -.0090597 .0177485 -0.51 0.610 -.0438779 .0257585

housing\_p~l3 | -.0018844 .0084418 -0.22 0.823 -.0184452 .0146763

housing\_p~d1 | -.0000663 .0002087 -0.32 0.751 -.0004756 .0003431

housing\_p~d2 | .0000287 .0001829 0.16 0.875 -.0003301 .0003875

housing\_p~d3 | .000104 .000085 1.22 0.221 -.0000628 .0002709

\_cons | .0827076 .0184307 4.49 0.000 .0465511 .1188642

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

. predict predicted\_run2\_t2

(option xb assumed; fitted values)

(1000 missing values generated)

.

. \*For three years in the future

. \*No housing prices

. reg state\_cpi\_bfh\_b state\_cpi\_bfh\_l3 regional\_cpi\_bls\_quar regional\_cpi\_bls\_l1 regional\_cpi\_bls\_l2 regional\_cpi\_bls\_l3

> regional\_cpi\_bls\_d1 regional\_cpi\_bls\_d2 regional\_cpi\_bls\_d3 pc\_inc\_ann pc\_inc\_ann\_l1 pc\_inc\_ann\_l2 pc\_inc\_ann\_l3 pc\_in

> c\_ann\_d1 pc\_inc\_ann\_d2 pc\_inc\_ann\_d3 pop\_growth pop\_growth\_l1 pop\_growth\_l2

Source | SS df MS Number of obs = 1750

-------------+------------------------------ F( 18, 1731) =58185.50

Model | 90.6362047 18 5.03534471 Prob > F = 0.0000

Residual | .149799893 1731 .00008654 R-squared = 0.9983

-------------+------------------------------ Adj R-squared = 0.9983

Total | 90.7860046 1749 .051907378 Root MSE = .0093

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

state\_cpi\_~b | Coef. Std. Err. t P>|t| [95% Conf. Interval]

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

state\_cpi\_~3 | 1.014974 .0073372 138.33 0.000 1.000583 1.029365

regional\_c~r | .4610942 .0469033 9.83 0.000 .3691011 .5530873

regional\_~l1 | -.0439186 .0917247 -0.48 0.632 -.2238215 .1359844

regional\_~l2 | -.3120385 .0890948 -3.50 0.000 -.4867833 -.1372937

regional\_~l3 | -.1241213 .0446775 -2.78 0.006 -.2117489 -.0364936

regional\_~d1 | .001093 .0007464 1.46 0.143 -.0003709 .0025569

regional\_~d2 | -.0025179 .0006648 -3.79 0.000 -.0038217 -.001214

regional\_~d3 | .0014333 .0003024 4.74 0.000 .0008401 .0020265

pc\_inc\_ann | -2.34e-07 9.90e-07 -0.24 0.813 -2.18e-06 1.71e-06

pc\_inc\_an~l1 | -1.84e-06 1.56e-06 -1.18 0.238 -4.91e-06 1.22e-06

pc\_inc\_an~l2 | 3.12e-06 1.63e-06 1.91 0.056 -7.94e-08 6.32e-06

pc\_inc\_an~l3 | 5.40e-07 1.07e-06 0.51 0.613 -1.55e-06 2.63e-06

pc\_inc\_an~d1 | -.0000749 .0002161 -0.35 0.729 -.0004987 .0003489

pc\_inc\_an~d2 | .0000149 .0002082 0.07 0.943 -.0003935 .0004233

pc\_inc\_an~d3 | .0007388 .0001265 5.84 0.000 .0004908 .0009869

pop\_growth | -.0022043 .0455419 -0.05 0.961 -.0915272 .0871186

pop\_growth~1 | -.0640106 .0638729 -1.00 0.316 -.1892868 .0612656

pop\_growth~2 | -.0417322 .0449722 -0.93 0.354 -.1299379 .0464734

\_cons | .1025406 .0217673 4.71 0.000 .0598475 .1452336

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

. predict predicted\_run1\_t3

(option xb assumed; fitted values)

(550 missing values generated)

.

. \*has housing prices

. reg state\_cpi\_bfh\_b state\_cpi\_bfh\_l3 regional\_cpi\_bls\_quar regional\_cpi\_bls\_l1 regional\_cpi\_bls\_l2 regional\_cpi\_bls\_l3

> regional\_cpi\_bls\_d1 regional\_cpi\_bls\_d2 regional\_cpi\_bls\_d3 pc\_inc\_ann pc\_inc\_ann\_l1 pc\_inc\_ann\_l2 pc\_inc\_ann\_l3 pc\_in

> c\_ann\_d1 pc\_inc\_ann\_d2 pc\_inc\_ann\_d3 pop\_growth pop\_growth\_l1 pop\_growth\_l2 housing\_prices\_quar housing\_prices\_quar\_l1

> housing\_prices\_quar\_l2 housing\_prices\_quar\_l3 housing\_prices\_quar\_d1 housing\_prices\_quar\_d2 housing\_prices\_quar\_d3

Source | SS df MS Number of obs = 1350

-------------+------------------------------ F( 25, 1324) =22344.74

Model | 40.5686532 25 1.62274613 Prob > F = 0.0000

Residual | .096153093 1324 .000072623 R-squared = 0.9976

-------------+------------------------------ Adj R-squared = 0.9976

Total | 40.6648063 1349 .030144408 Root MSE = .00852

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

state\_cpi\_~b | Coef. Std. Err. t P>|t| [95% Conf. Interval]

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

state\_cpi\_~3 | 1.017113 .0080591 126.21 0.000 1.001303 1.032923

regional\_c~r | .3608222 .0651546 5.54 0.000 .2330046 .4886397

regional\_~l1 | .1971211 .1303084 1.51 0.131 -.0585124 .4527547

regional\_~l2 | -.4003396 .1289492 -3.10 0.002 -.6533068 -.1473725

regional\_~l3 | -.1643145 .0647263 -2.54 0.011 -.2912918 -.0373371

regional\_~d1 | .002679 .001348 1.99 0.047 .0000346 .0053234

regional\_~d2 | -.0036142 .0012216 -2.96 0.003 -.0060106 -.0012177

regional\_~d3 | .0015441 .000524 2.95 0.003 .000516 .0025721

pc\_inc\_ann | -9.78e-07 1.23e-06 -0.79 0.427 -3.39e-06 1.44e-06

pc\_inc\_an~l1 | -1.58e-06 1.81e-06 -0.87 0.383 -5.14e-06 1.97e-06

pc\_inc\_an~l2 | 5.47e-08 1.82e-06 0.03 0.976 -3.51e-06 3.62e-06

pc\_inc\_an~l3 | 3.45e-06 1.23e-06 2.82 0.005 1.05e-06 5.86e-06

pc\_inc\_an~d1 | .0000529 .000291 0.18 0.856 -.000518 .0006239

pc\_inc\_an~d2 | -.0001154 .0002689 -0.43 0.668 -.000643 .0004122

pc\_inc\_an~d3 | .0007582 .0001766 4.29 0.000 .0004118 .0011045

pop\_growth | .0381968 .0594974 0.64 0.521 -.0785227 .1549163

pop\_growth~1 | -.2421347 .081309 -2.98 0.003 -.4016433 -.0826261

pop\_growth~2 | .0182299 .0547498 0.33 0.739 -.0891759 .1256357

housing\_pr~r | .0088363 .0100192 0.88 0.378 -.0108189 .0284914

housing\_p~l1 | -.0192516 .0237575 -0.81 0.418 -.0658582 .0273549

housing\_p~l2 | .0828714 .0243623 3.40 0.001 .0350786 .1306642

housing\_p~l3 | -.0741308 .0113613 -6.52 0.000 -.096419 -.0518426

housing\_p~d1 | -.0002578 .0002895 -0.89 0.373 -.0008257 .0003101

housing\_p~d2 | .0007462 .0002522 2.96 0.003 .0002514 .0012411

housing\_p~d3 | -.0002521 .0001172 -2.15 0.032 -.0004819 -.0000222

\_cons | .172728 .02533 6.82 0.000 .1230367 .2224194

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

. predict predicted\_run2\_t3

(option xb assumed; fitted values)

(950 missing values generated)

.

. reg state\_cpi\_bfh predicted\_run1\_t1 if year==2005

Source | SS df MS Number of obs = 50

-------------+------------------------------ F( 1, 48) =67681.30

Model | .459249511 1 .459249511 Prob > F = 0.0000

Residual | .000325703 48 6.7855e-06 R-squared = 0.9993

-------------+------------------------------ Adj R-squared = 0.9993

Total | .459575214 49 .009379086 Root MSE = .0026

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

state\_cpi\_~h | Coef. Std. Err. t P>|t| [95% Conf. Interval]

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

predict~1\_t1 | 1.031297 .0039641 260.16 0.000 1.023327 1.039268

\_cons | -.0266803 .0037885 -7.04 0.000 -.0342976 -.0190631

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

. reg state\_cpi\_bfh predicted\_run2\_t1 if year==2005

Source | SS df MS Number of obs = 50

-------------+------------------------------ F( 1, 48) =33566.29

Model | .458918957 1 .458918957 Prob > F = 0.0000

Residual | .000656257 48 .000013672 R-squared = 0.9986

-------------+------------------------------ Adj R-squared = 0.9985

Total | .459575214 49 .009379086 Root MSE = .0037

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

state\_cpi\_~h | Coef. Std. Err. t P>|t| [95% Conf. Interval]

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

predict~2\_t1 | 1.016709 .0055494 183.21 0.000 1.005551 1.027867

\_cons | -.0146362 .0053141 -2.75 0.008 -.025321 -.0039514

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

. reg state\_cpi\_bfh predicted\_run1\_t2 if year==2006

Source | SS df MS Number of obs = 50

-------------+------------------------------ F( 1, 48) =48602.77

Model | .542675982 1 .542675982 Prob > F = 0.0000

Residual | .000535946 48 .000011166 R-squared = 0.9990

-------------+------------------------------ Adj R-squared = 0.9990

Total | .543211928 49 .011085958 Root MSE = .00334

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

state\_cpi\_~h | Coef. Std. Err. t P>|t| [95% Conf. Interval]

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

predict~1\_t2 | 1.066662 .0048383 220.46 0.000 1.056934 1.07639

\_cons | -.0593707 .004797 -12.38 0.000 -.0690158 -.0497256

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

. reg state\_cpi\_bfh predicted\_run2\_t2 if year==2006

Source | SS df MS Number of obs = 50

-------------+------------------------------ F( 1, 48) =15449.72

Model | .541529477 1 .541529477 Prob > F = 0.0000

Residual | .001682452 48 .000035051 R-squared = 0.9969

-------------+------------------------------ Adj R-squared = 0.9968

Total | .543211928 49 .011085958 Root MSE = .00592

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

state\_cpi\_~h | Coef. Std. Err. t P>|t| [95% Conf. Interval]

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

predict~2\_t2 | 1.057028 .0085041 124.30 0.000 1.03993 1.074127

\_cons | -.0512205 .008443 -6.07 0.000 -.0681962 -.0342447

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

. reg state\_cpi\_bfh predicted\_run1\_t3 if year==2007

Source | SS df MS Number of obs = 50

-------------+------------------------------ F( 1, 48) = 2109.44

Model | .624592296 1 .624592296 Prob > F = 0.0000

Residual | .014212492 48 .000296094 R-squared = 0.9778

-------------+------------------------------ Adj R-squared = 0.9773

Total | .638804788 49 .013036832 Root MSE = .01721

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

state\_cpi\_~h | Coef. Std. Err. t P>|t| [95% Conf. Interval]

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

predict~1\_t3 | 1.169677 .0254673 45.93 0.000 1.118472 1.220883

\_cons | -.1477489 .0257564 -5.74 0.000 -.1995355 -.0959622

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

. reg state\_cpi\_bfh predicted\_run2\_t3 if year==2007

Source | SS df MS Number of obs = 50

-------------+------------------------------ F( 1, 48) = 2752.09

Model | .627854219 1 .627854219 Prob > F = 0.0000

Residual | .010950569 48 .000228137 R-squared = 0.9829

-------------+------------------------------ Adj R-squared = 0.9825

Total | .638804788 49 .013036832 Root MSE = .0151

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

state\_cpi\_~h | Coef. Std. Err. t P>|t| [95% Conf. Interval]

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

predict~2\_t3 | 1.088918 .020757 52.46 0.000 1.047184 1.130653

\_cons | -.0808605 .0212811 -3.80 0.000 -.1236489 -.038072

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

.

.

.

end of do-file

. scatter state\_cpi\_bfh predicted\_run1\_t3 if year==2007

. scatter state\_cpi\_bfh predicted\_run2\_t3 if year==2007

.

THE FOLLOWING ARE THE ACTUAL EQUATIONS I USED TO GENERATE THE PREDICTED VALUES FOR 2008, 2009 AND 2010.

\*For next year

\*No housing prices

reg state\_cpi\_bfh state\_cpi\_bfh\_l1 state\_cpi\_bfh\_l2 state\_cpi\_bfh\_l3 regional\_cpi\_bls\_quar regional\_cpi\_bls\_l1 regional\_cpi\_bls\_l2 regional\_cpi\_bls\_l3 regional\_cpi\_bls\_d1 regional\_cpi\_bls\_d2 regional\_cpi\_bls\_d3 pc\_inc\_ann pc\_inc\_ann\_l1 pc\_inc\_ann\_l2 pc\_inc\_ann\_l3 pc\_inc\_ann\_d1 pc\_inc\_ann\_d2 pc\_inc\_ann\_d3 pop\_growth pop\_growth\_l1 pop\_growth\_l2

predict predicted\_for\_2008

\*For two years in the future

\*No housing prices

reg state\_cpi\_bfh state\_cpi\_bfh\_l2 state\_cpi\_bfh\_l3 regional\_cpi\_bls\_quar regional\_cpi\_bls\_l1 regional\_cpi\_bls\_l2 regional\_cpi\_bls\_l3 regional\_cpi\_bls\_d1 regional\_cpi\_bls\_d2 regional\_cpi\_bls\_d3 pc\_inc\_ann pc\_inc\_ann\_l1 pc\_inc\_ann\_l2 pc\_inc\_ann\_l3 pc\_inc\_ann\_d1 pc\_inc\_ann\_d2 pc\_inc\_ann\_d3 pop\_growth pop\_growth\_l1 pop\_growth\_l2

predict predicted\_for\_2009

\*For three years in the future

\*No housing prices

reg state\_cpi\_bfh state\_cpi\_bfh\_l3 regional\_cpi\_bls\_quar regional\_cpi\_bls\_l1 regional\_cpi\_bls\_l2 regional\_cpi\_bls\_l3 regional\_cpi\_bls\_d1 regional\_cpi\_bls\_d2 regional\_cpi\_bls\_d3 pc\_inc\_ann pc\_inc\_ann\_l1 pc\_inc\_ann\_l2 pc\_inc\_ann\_l3 pc\_inc\_ann\_d1 pc\_inc\_ann\_d2 pc\_inc\_ann\_d3 pop\_growth pop\_growth\_l1 pop\_growth\_l2

predict predicted\_for\_2010

. do "C:\Users\cklarner\AppData\Local\Temp\STD01000000.tmp"

. reg state\_cpi\_bfh state\_cpi\_bfh\_l1 state\_cpi\_bfh\_l2 state\_cpi\_bfh\_l3 regional\_cpi\_bls\_quar regional\_cpi\_bls\_l1 regiona

> l\_cpi\_bls\_l2 regional\_cpi\_bls\_l3 regional\_cpi\_bls\_d1 regional\_cpi\_bls\_d2 regional\_cpi\_bls\_d3 pc\_inc\_ann pc\_inc\_ann\_l1 p

> c\_inc\_ann\_l2 pc\_inc\_ann\_l3 pc\_inc\_ann\_d1 pc\_inc\_ann\_d2 pc\_inc\_ann\_d3 pop\_growth pop\_growth\_l1 pop\_growth\_l2

Source | SS df MS Number of obs = 1900

-------------+------------------------------ F( 20, 1879) = .

Model | 121.005152 20 6.05025759 Prob > F = 0.0000

Residual | .026006692 1879 .000013841 R-squared = 0.9998

-------------+------------------------------ Adj R-squared = 0.9998

Total | 121.031159 1899 .063734154 Root MSE = .00372

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

state\_cpi\_~h | Coef. Std. Err. t P>|t| [95% Conf. Interval]

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

state\_cpi\_~1 | 1.695505 .0239469 70.80 0.000 1.648539 1.74247

state\_cpi\_~2 | -.6552688 .0444298 -14.75 0.000 -.7424057 -.5681319

state\_cpi\_~3 | -.0355247 .0251769 -1.41 0.158 -.0849024 .013853

regional\_c~r | .2223245 .0179253 12.40 0.000 .1871689 .25748

regional\_~l1 | -.3974293 .035003 -11.35 0.000 -.4660781 -.3287805

regional\_~l2 | .0761207 .0356349 2.14 0.033 .0062326 .1460087

regional\_~l3 | .1008335 .0183891 5.48 0.000 .0647683 .1368987

regional\_~d1 | .0011892 .0002909 4.09 0.000 .0006187 .0017597

regional\_~d2 | -.0010364 .00026 -3.99 0.000 -.0015463 -.0005265

regional\_~d3 | .0005768 .0001174 4.91 0.000 .0003465 .0008071

pc\_inc\_ann | 1.11e-06 3.39e-07 3.27 0.001 4.43e-07 1.77e-06

pc\_inc\_an~l1 | -1.84e-06 5.37e-07 -3.44 0.001 -2.90e-06 -7.92e-07

pc\_inc\_an~l2 | -2.90e-08 5.62e-07 -0.05 0.959 -1.13e-06 1.07e-06

pc\_inc\_an~l3 | 9.46e-07 3.82e-07 2.48 0.013 1.97e-07 1.69e-06

pc\_inc\_an~d1 | .0006368 .0000819 7.78 0.000 .0004762 .0007975

pc\_inc\_an~d2 | -.0003323 .0000797 -4.17 0.000 -.0004887 -.0001759

pc\_inc\_an~d3 | .0001139 .0000494 2.31 0.021 .000017 .0002108

pop\_growth | -.0090139 .0161967 -0.56 0.578 -.0407793 .0227516

pop\_growth~1 | .0202634 .0222216 0.91 0.362 -.0233183 .063845

pop\_growth~2 | -.0239537 .0169315 -1.41 0.157 -.0571602 .0092528

\_cons | .0081655 .0084194 0.97 0.332 -.0083469 .0246779

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

. predict predicted\_for\_2008

(option xb assumed; fitted values)

(650 missing values generated)

.

. \*For two years in the future

. \*No housing prices

. reg state\_cpi\_bfh state\_cpi\_bfh\_l2 state\_cpi\_bfh\_l3 regional\_cpi\_bls\_quar regional\_cpi\_bls\_l1 regional\_cpi\_bls\_l2 regi

> onal\_cpi\_bls\_l3 regional\_cpi\_bls\_d1 regional\_cpi\_bls\_d2 regional\_cpi\_bls\_d3 pc\_inc\_ann pc\_inc\_ann\_l1 pc\_inc\_ann\_l2 pc\_i

> nc\_ann\_l3 pc\_inc\_ann\_d1 pc\_inc\_ann\_d2 pc\_inc\_ann\_d3 pop\_growth pop\_growth\_l1 pop\_growth\_l2

Source | SS df MS Number of obs = 1900

-------------+------------------------------ F( 19, 1880) = .

Model | 120.935768 19 6.36504044 Prob > F = 0.0000

Residual | .095390177 1880 .000050739 R-squared = 0.9992

-------------+------------------------------ Adj R-squared = 0.9992

Total | 121.031159 1899 .063734154 Root MSE = .00712

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

state\_cpi\_~h | Coef. Std. Err. t P>|t| [95% Conf. Interval]

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

state\_cpi\_~2 | 2.196141 .0359282 61.13 0.000 2.125678 2.266605

state\_cpi\_~3 | -1.192621 .0366697 -32.52 0.000 -1.264539 -1.120704

regional\_c~r | .3825357 .0340464 11.24 0.000 .3157629 .4493085

regional\_~l1 | -.1970492 .0667997 -2.95 0.003 -.3280586 -.0660398

regional\_~l2 | -.6811744 .065083 -10.47 0.000 -.808817 -.5535318

regional\_~l3 | .496381 .0335449 14.80 0.000 .4305919 .5621702

regional\_~d1 | .0002711 .0005564 0.49 0.626 -.0008201 .0013623

regional\_~d2 | -.0009731 .0004978 -1.95 0.051 -.0019493 3.11e-06

regional\_~d3 | .0009331 .0002246 4.15 0.000 .0004925 .0013736

pc\_inc\_ann | 1.87e-06 6.49e-07 2.89 0.004 6.01e-07 3.14e-06

pc\_inc\_an~l1 | -2.92e-07 1.03e-06 -0.28 0.776 -2.31e-06 1.72e-06

pc\_inc\_an~l2 | -4.85e-06 1.07e-06 -4.54 0.000 -6.95e-06 -2.76e-06

pc\_inc\_an~l3 | 3.88e-06 7.27e-07 5.35 0.000 2.46e-06 5.31e-06

pc\_inc\_an~d1 | .000087 .0001561 0.56 0.578 -.0002192 .0003931

pc\_inc\_an~d2 | .0003716 .0001515 2.45 0.014 .0000745 .0006688

pc\_inc\_an~d3 | -4.34e-06 .0000945 -0.05 0.963 -.0001898 .0001811

pop\_growth | .0270051 .0309961 0.87 0.384 -.0337852 .0877954

pop\_growth~1 | -.0336417 .0425221 -0.79 0.429 -.1170371 .0497537

pop\_growth~2 | -.0244355 .0324182 -0.75 0.451 -.088015 .039144

\_cons | .0228804 .0161155 1.42 0.156 -.0087257 .0544865

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

. predict predicted\_for\_2009

(option xb assumed; fitted values)

(600 missing values generated)

.

. \*For three years in the future

. \*No housing prices

. reg state\_cpi\_bfh state\_cpi\_bfh\_l3 regional\_cpi\_bls\_quar regional\_cpi\_bls\_l1 regional\_cpi\_bls\_l2 regional\_cpi\_bls\_l3 r

> egional\_cpi\_bls\_d1 regional\_cpi\_bls\_d2 regional\_cpi\_bls\_d3 pc\_inc\_ann pc\_inc\_ann\_l1 pc\_inc\_ann\_l2 pc\_inc\_ann\_l3 pc\_inc\_

> ann\_d1 pc\_inc\_ann\_d2 pc\_inc\_ann\_d3 pop\_growth pop\_growth\_l1 pop\_growth\_l2

Source | SS df MS Number of obs = 1900

-------------+------------------------------ F( 18, 1881) =44278.06

Model | 120.746187 18 6.70812152 Prob > F = 0.0000

Residual | .284971281 1881 .0001515 R-squared = 0.9976

-------------+------------------------------ Adj R-squared = 0.9976

Total | 121.031159 1899 .063734154 Root MSE = .01231

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

state\_cpi\_~h | Coef. Std. Err. t P>|t| [95% Conf. Interval]

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

state\_cpi\_~3 | 1.027702 .0086825 118.37 0.000 1.010673 1.04473

regional\_c~r | .4201888 .0588212 7.14 0.000 .3048272 .5355505

regional\_~l1 | .0838519 .1151537 0.73 0.467 -.1419905 .3096943

regional\_~l2 | -.4829096 .112321 -4.30 0.000 -.7031965 -.2626227

regional\_~l3 | -.0432654 .0559207 -0.77 0.439 -.1529386 .0664077

regional\_~d1 | .0024662 .0009594 2.57 0.010 .0005846 .0043478

regional\_~d2 | -.0038651 .0008562 -4.51 0.000 -.0055443 -.0021858

regional\_~d3 | .0020025 .0003869 5.18 0.000 .0012437 .0027614

pc\_inc\_ann | 2.11e-06 1.12e-06 1.88 0.060 -8.59e-08 4.31e-06

pc\_inc\_an~l1 | 8.86e-07 1.77e-06 0.50 0.618 -2.59e-06 4.36e-06

pc\_inc\_an~l2 | -4.61e-06 1.85e-06 -2.50 0.013 -8.23e-06 -9.86e-07

pc\_inc\_an~l3 | 3.29e-06 1.26e-06 2.62 0.009 8.30e-07 5.75e-06

pc\_inc\_an~d1 | .0002603 .0002697 0.97 0.335 -.0002686 .0007892

pc\_inc\_an~d2 | -.0006154 .0002603 -2.36 0.018 -.0011259 -.0001049

pc\_inc\_an~d3 | .0010604 .0001606 6.60 0.000 .0007455 .0013753

pop\_growth | -.00955 .0535499 -0.18 0.858 -.1145735 .0954735

pop\_growth~1 | .0277871 .0734558 0.38 0.705 -.1162764 .1718505

pop\_growth~2 | -.0804527 .055995 -1.44 0.151 -.1902715 .0293661

\_cons | .0481811 .0278377 1.73 0.084 -.0064149 .102777

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

. predict predicted\_for\_2010

(option xb assumed; fitted values)

(550 missing values generated)

.

end of do-file

Appendix B

STATA code for checking computations

gen dif1 =real\_pc\_inc\_q\_chg - s\_real\_pc\_inc\_chgL0

gen dif2 =real\_pc\_inc\_q\_chgl1- s\_real\_pc\_inc\_chgL1

gen dif3 =real\_pc\_inc\_q\_chgl2- s\_real\_pc\_inc\_chgL2

gen dif4 =real\_pc\_inc\_q\_chgl3- s\_real\_pc\_inc\_chgL3

gen dif5 = real\_pc\_inc\_q\_chg\_wghtd\_ave- s\_real\_pc\_inc\_chg\_whtd\_ave

recode dif1 (-9999999999999999999/-.00000000000000001=0) (0=1) (.00000000000000001/999999999999999999=0), gen(dif1b)

recode dif2 (-9999999999999999999/-.00000000000000001=0) (0=1) (.00000000000000001/999999999999999999=0), gen(dif2b)

recode dif3 (-9999999999999999999/-.00000000000000001=0) (0=1) (.00000000000000001/999999999999999999=0), gen(dif3b)

recode dif4 (-9999999999999999999/-.00000000000000001=0) (0=1) (.00000000000000001/999999999999999999=0), gen(dif4b)

recode dif5 (-9999999999999999999/-.00000000000000001=0) (0=1) (.00000000000000001/999999999999999999=0), gen(dif5b)

tab dif1b

tab dif2b

tab dif3b

tab dif4b

tab dif5b

\*There were very few 0s, implying lack of agreement, but the lack of agreement was several decimal places back.

sum dif1 dif2 dif3 dif4 dif5

\*The max difference was .01%.

scatter real\_pc\_inc\_q\_chg s\_real\_pc\_inc\_chgL0

scatter real\_pc\_inc\_q\_chgl1 s\_real\_pc\_inc\_chgL1

scatter real\_pc\_inc\_q\_chgl2 s\_real\_pc\_inc\_chgL2

scatter real\_pc\_inc\_q\_chgl3 s\_real\_pc\_inc\_chgL3

scatter real\_pc\_inc\_q\_chg\_wghtd\_ave s\_real\_pc\_inc\_chg\_whtd\_ave

\*The scatterplots indicate straight lines. The data are essentially the same.

scatter s\_real2\_pc\_inc\_chgl0\_old s\_real2\_pc\_inc\_chgL0

scatter s\_real2\_pc\_inc\_chgl1\_old s\_real2\_pc\_inc\_chgL1

scatter s\_real2\_pc\_inc\_chgl2\_old s\_real2\_pc\_inc\_chgL2

scatter s\_real2\_pc\_inc\_chgl3\_old s\_real2\_pc\_inc\_chgL3

scatter s\_real2\_pc\_inc\_chgl4\_old s\_real2\_pc\_inc\_chgL4

scatter s\_real2\_pc\_inc\_chg\_whtd\_ave\_old s\_real2\_pc\_inc\_chg\_whtd\_ave

\*Scatterplots above indicate that the data is almost the same. A few differences would be expected given changes to the population variables, etc.

**keep budget\_surplus total\_debt\_outstanding\_gsp total\_revenue\_gsp general\_revenue\_gsp taxes\_gsp total\_expenditure\_gsp general\_expenditure\_gsp budget\_surplus\_gsp total\_debt\_outstanding\_inc total\_revenue\_inc general\_revenue\_inc taxes\_inc total\_expenditure\_inc general\_expenditure\_inc budget\_surplus\_inc real\_leg\_tot\_exp real2\_leg\_tot\_exp s\_real\_pc\_inc\_chgL0 s\_real\_pc\_inc\_chgL1 s\_real\_pc\_inc\_chgL2 s\_real\_pc\_inc\_chgL3 s\_real\_pc\_inc\_chgL4 s\_real\_pc\_inc\_chg\_whtd\_ave s\_real\_pc\_inc\_chg\_whtd\_ave2 real2\_inc\_quar real2\_pc\_inc\_quar s\_real2\_pc\_inc\_chgL0 s\_real2\_pc\_inc\_chgL1 s\_real2\_pc\_inc\_chgL2 s\_real2\_pc\_inc\_chgL3 s\_real2\_pc\_inc\_chgL4 s\_real2\_pc\_inc\_chg\_whtd\_ave s\_real2\_pc\_inc\_chg\_whtd\_ave2 year quar stateno**