Supplementary Appendix to Mortality Impacts of Medicaid Expansion: Revisiting Sommers, et al. 2012

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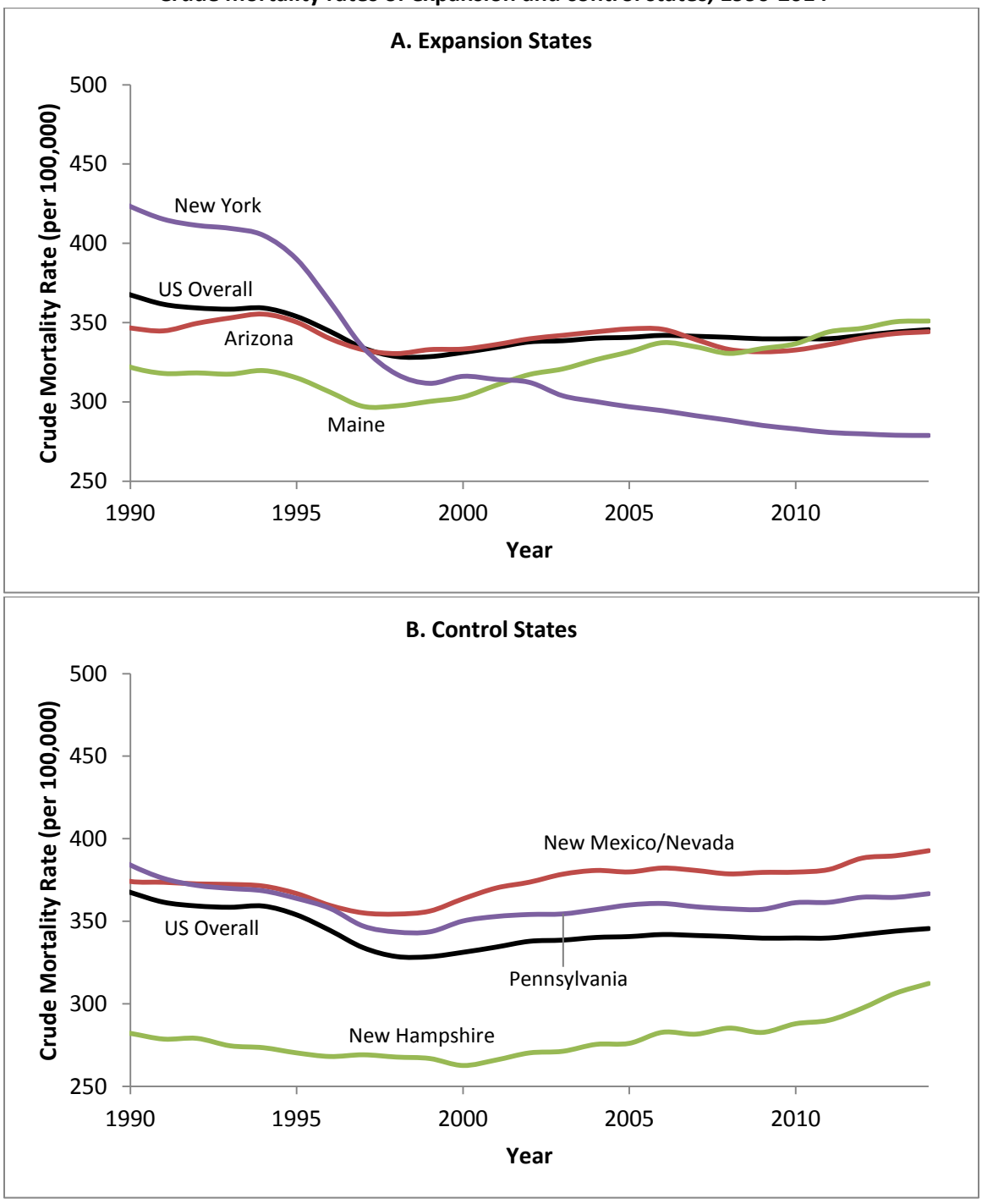
Part A: Supplementary Material

Crude mortality rates of expansion and control states, 1990-2014



Crude mortality rates are presented for both the control and treatment states. While most states follow similar patterns of mortality, there is a significant drop in New York mortality rates in the mid 1990's. Pennsylvania, which was used in the Sommers et al analysis as a control for New York, shows a similar drop in the same timeframe, but of a much smaller magnitude. (Data were smoothed using a 3-year moving average for ease of visualization.)

Part B: Replication Results

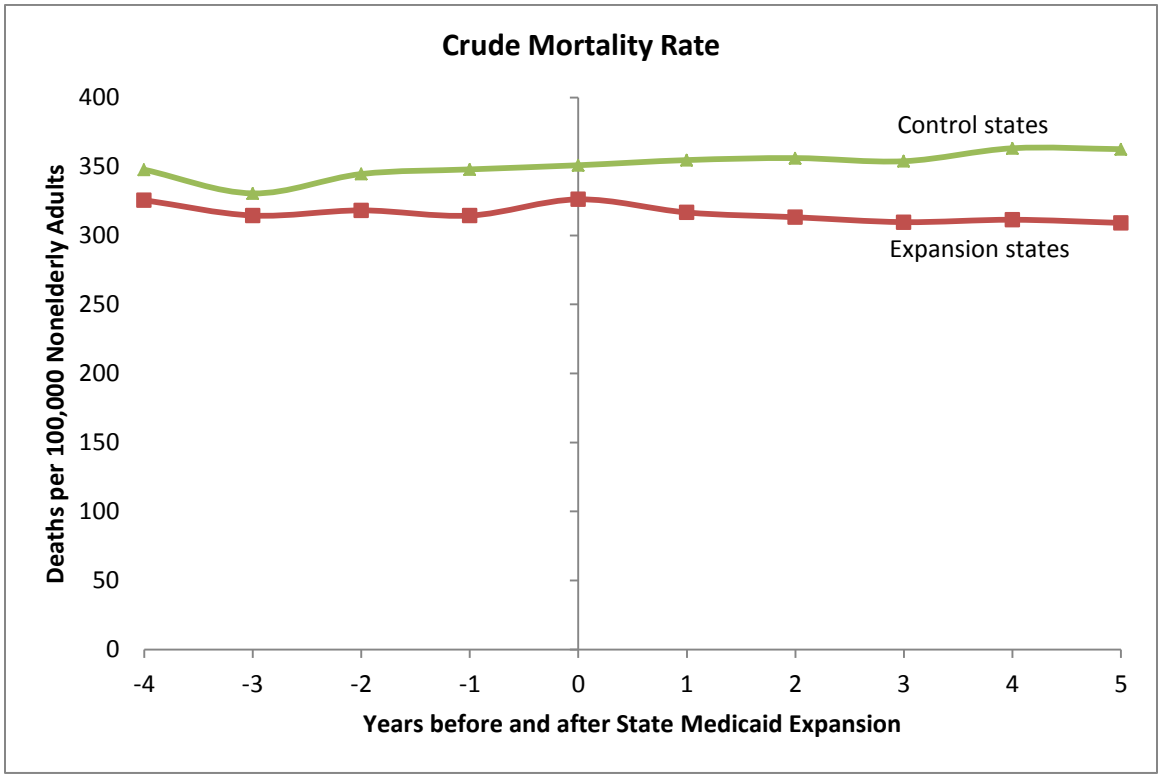
This portion of the technical appendix includes the table and figures generated in our replication of the Sommer et al analysis of the effect of Medicaid expansion on mortality rates.

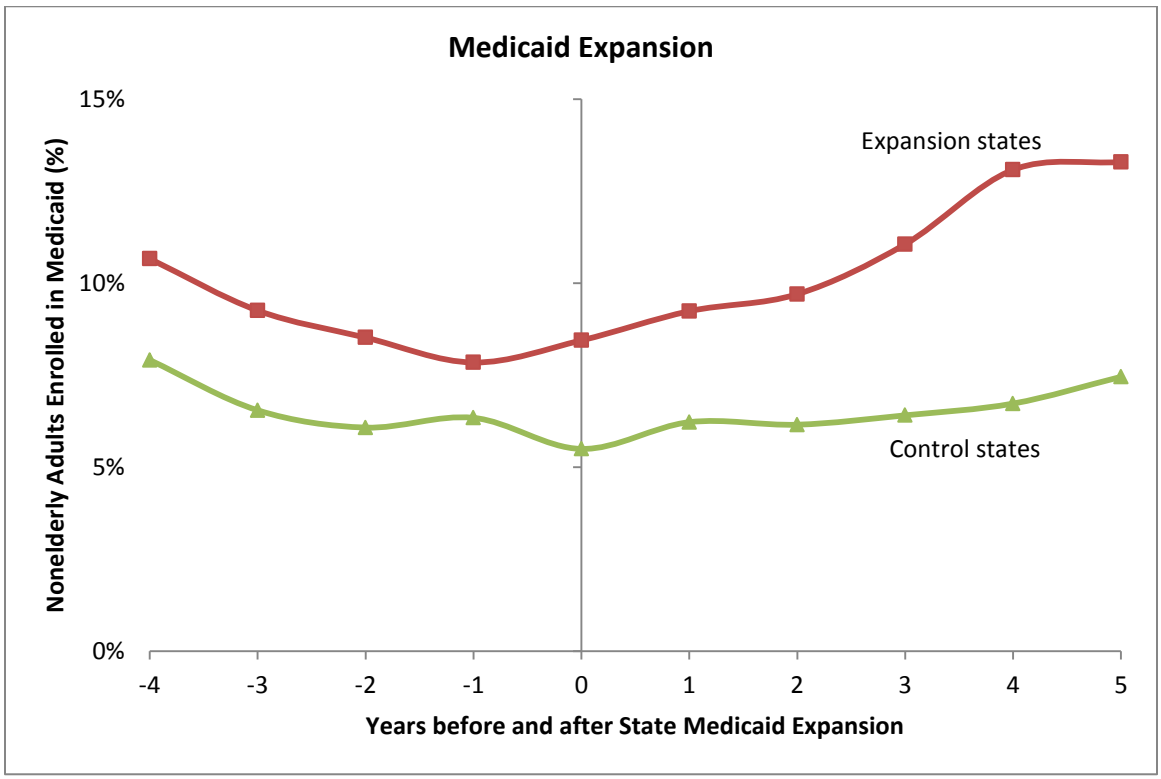
Replication of Table 1: Characteristics of the study sample at baseline

Characteristic	Medicaid Expansion States	Control States
Mean (+-SD) age (yr)	39.7 (12.3)	40.4 (12.2)
Age group (%)		
19-24 yr	13.4 (0.3)	12.2 (0.3)
25-34 yr	23.9 (0.4)	21.7 (0.4)
35-44 yr	26.8 (0.4)	27.9 (0.4)
45-54 yr	21.4 (0.4)	22.8 (0.4)
55-64 yr	14.6 (0.4)	15.3 (0.4)
Male sex (%)	48.2 (0.5)	48.8 (0.5)
Race or ethnic group (%)		
White	81.4 (0.4)	88.7 (0.3)
Nonwhite	18.6 (0.4)	11.3 (0.3)
Latino	16.0 (0.4)	7.3 (0.3)
Income (%)		
<100% of FPL	12.3 (0.3)	9.4 (0.3)
100-200% of FPL	15.8 (0.4)	14.2 (0.3)
Mortality (deaths/100,000 population)		
Total	320	344
From internal causes	271	281
From external causes	48	63

Table 1 presents baseline characteristics of the study sample in the expansion and control states mostly using the CPS and CDC data. There is a minor error in the original paper in which the authors reported values for <200% instead of 100-200%.

Replication of Figure 1A/1B: Mortality and Medicaid enrollment trends before and after Medicaid expansion in control and treatment states.





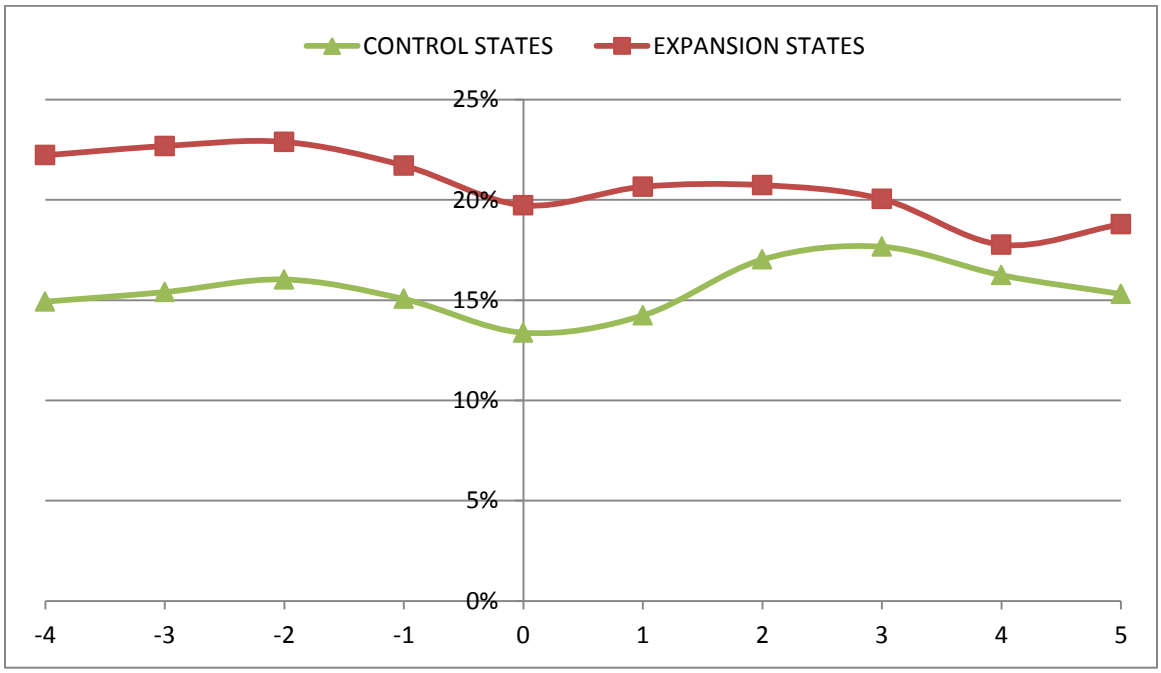
Replication of Table 2: Changes in all-cause mortality among adults between the ages of 20 and 64 years in states with Medicaid expansions

Variable	Baseline Mortality in States with Expansion	Net Change in Mortality after Expansion
	no . deaths/100,000	*no . deaths/100,000*
Full Sample	323	-15.1
Race		
White	301	4.4
Nonwhite	407	-89.1
Age		
20-34	102	-1.1
35-64	447	-22.5
Level of poverty in county		
High	335	-17.3
Low	284	-4.9
State		
Maine	323	18.0
Arizona	330	-7.6
New York	321	-18.0

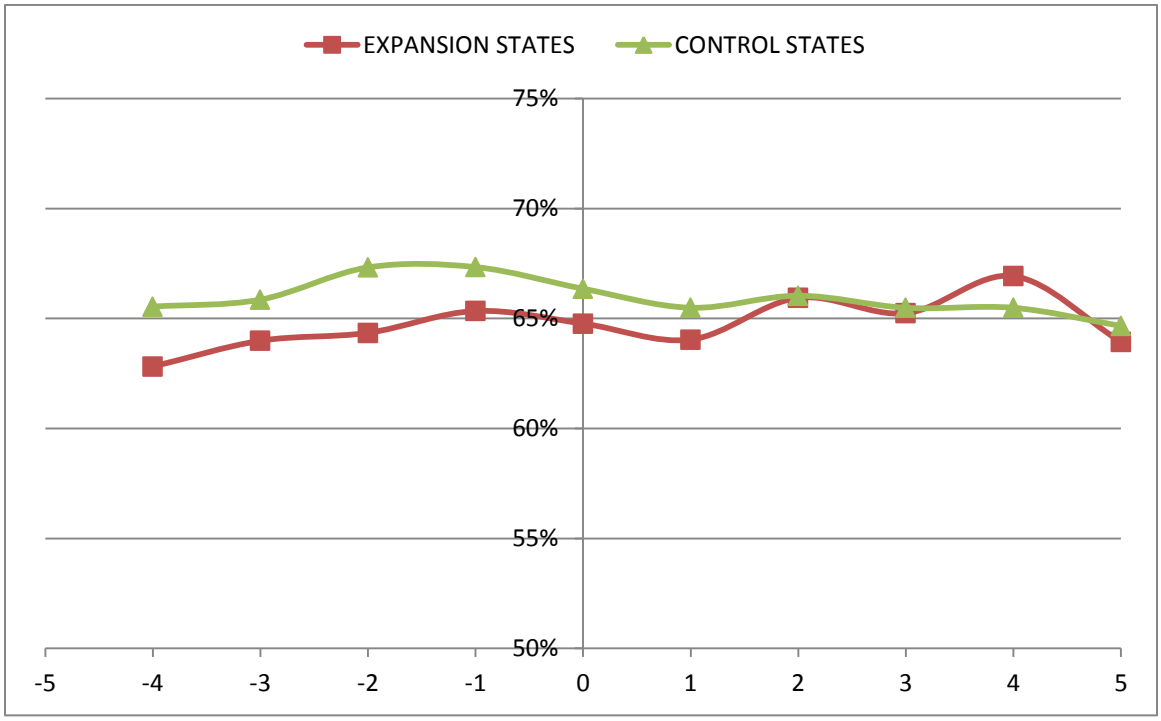
Replication of Table 3: Changes in insurance coverage, access to care, and health among adults between ages of 19 and 64 years after state Medicaid expansion

Variable	Net Change after Expansion			
	Medicaid Coverage	No Health Insurance	Delayed Care Because of Cost	Self-Reported Excellent or Very Good Health
	percentage points (95% CI)			
Full Sample	2.53 (1.40 to 3.65)	-3.19 (-3.47 to -2.91)	-2.84 (-3.84 to -1.84)	2.48 (0.56 to 4.4)
Race				
White non-Latino	1.81 (0.39 to 3.22)	-2.56 (-3.36 to -1.75)	-2.86 (-3.82 to -1.91)	2.95 (0.79 to 5.1)
Nonwhite and Latino	4.62 (3.14 to 6.1)	-4.59 (-6.65 to -2.53)	-2.78 (-4.43 to -1.14)	-0.16 (-4.02 to 3.7)
Age				
19-34 yr	3.61 (2.55 to 4.68)	-4.14 (-4.96 to -3.32)	-3.43 (-4.95 to -1.91)	1.76 (0.19 to 3.32)
35-64 yr	1.95 (0.75 to 3.15)	-2.67 (-2.95 to -2.4)	-2.53 (-3.52 to -1.54)	2.86 (0.37 to 5.36)
Income (%)				
<200% of FPL or <$35,000	5.37 (1.99 to 8.74)	-4.94 (-6.49 to -3.39)	-2.92 (-4.46 to -1.37)	1.29 (-1.28 to 3.86)
>=200% of FPL or >=$35,000	1.53 (0.44 to 2.62)	-2.52 (-2.89 to -2.15)	-2.8 (-3.76 to -1.84)	2.8 (0.99 to 4.6)

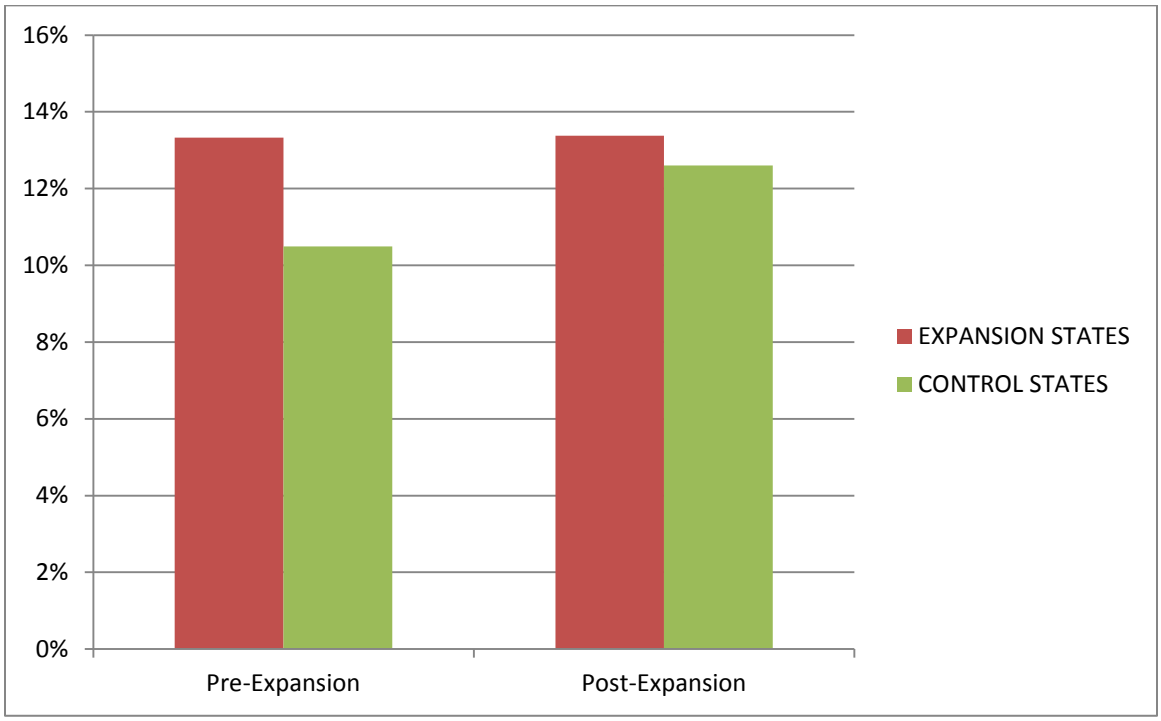
Replication of Figure S1: Unadjusted rates of uninsurance among adults (19-64) before and after Medicaid expansion



Replication of Figure S2: Unadjusted rates of "Excellent"/"Very good" health among adults (19-64) before and after Medicaid expansion



Replication of Figure S3: Unadjusted rates of delaying medical care due to cost among adults (19-64) before and after Medicaid expansion



Replication of Table S1: Full Regression Results for All-Cause Mortality Among Adults (20-64) (Per 100,000 Adults)

Variables	**Coefficient**	**95% CI**
Medicaid Expansion	-15.1	-25,-5.2
White	-214.9	-228.3,-201.5
Black	23	9,37.1
Other	*reference*	*reference*
Male	173.2	168.5,177.9
Age		
20 - 24	*reference*	*reference*
25 - 34	-20.6	-29.3,-12
35 - 44	57.4	48.6,66.2
45 - 54	272.3	263,281.5
55 - 64	767.1	757.2,776.9
County Poverty Rate	0.1	-2.9,3.2
County Median Income	-2.2	-3.4,-1
County Unemployment	1.3	-2.2,4.9
County Proportion Latino	-438.6	-846.1,-31.2
Imputation Dummy	-100.6	-109.2,-92

Part C: Data Sources and Code

Analytic Datasets and Code

The analytic datasets and R code used to perform the analyses are available on Dataverse: http://dx.doi.org/10.7910/DVN/Z9DGLQ

Raw Data

The original data are available here:

Compressed Mortality File

Interactive downloads from http://wonder.cdc.gov/mortsql.html

County-Level Factors

SAPIE (http://www.census.gov/did/www/saipe/downloads/estmod...)
BLS (http://www.bls.gov/lau/laucnty...)
Census (http://www.census.gov/popest/data/counties/asrh/2009/files/cc-est2009-alldata...)
(http://www.census.gov/popest/data/intercensal/st-co/tables/STCH-Intercensal/STCH-icen...)

Current Population Survey (CPS)

Year	Link
1997	http://www.nber.org/cps/cpsmar97.zip (Note: unzipped and rezipped as gz)
1998	http://thedataweb.rm.census.gov/pub/cps/march/mar98supp.cps.gz
1999	http://thedataweb.rm.census.gov/pub/cps/march/mar99supp.cps.gz
2000	http://thedataweb.rm.census.gov/pub/cps/march/mar00supp.cps.gz
2001	http://thedataweb.rm.census.gov/pub/cps/march/mar01supp.dat.gz
2002	http://thedataweb.rm.census.gov/pub/cps/march/mar02supp.dat.gz
2003	http://thedataweb.rm.census.gov/pub/cps/march/asec2003.pub.gz
2004	http://thedataweb.rm.census.gov/pub/cps/march/asec2004.pub.gz
2005	http://thedataweb.rm.census.gov/pub/cps/march/asec2005_pubuse.pub.gz
2006	http://thedataweb.rm.census.gov/pub/cps/march/asec2006_pubuse.pub.gz
2007	http://thedataweb.rm.census.gov/pub/cps/march/asec2007_pubuse_tax2.dat.gz

Behavioral Risk Factor Surveillance System (BRFSS)

Year	Link
1996	http://www.cdc.gov/brfss/annual_data/1996/files/CDBRFS96XPT.zip
1997	http://www.cdc.gov/brfss/annual_data/1997/files/CDBRFS97XPT.zip
1998	http://www.cdc.gov/brfss/annual_data/1998/files/CDBRFS98XPT.zip
1999	http://www.cdc.gov/brfss/annual_data/1999/files/CDBRFS99XPT.zip
2000	http://www.cdc.gov/brfss/annual_data/2000/files/CDBRFS00XPT.ZIP
2003	http://www.cdc.gov/brfss/annual_data/2003/files/CDBRFS03XPT.ZIP
2004	http://www.cdc.gov/brfss/annual_data/2004/files/CDBRFS04XPT.zip
2005	http://www.cdc.gov/brfss/annual_data/2005/files/CDBRFS05XPT.zip
2006	http://www.cdc.gov/brfss/annual_data/2006/files/CDBRFS06XPT.ZIP
2007	http://www.cdc.gov/brfss/annual_data/2007/files/CDBRFS07XPT.ZIP