

Berkeley Unified Numident Mortality Database: Public administrative records for individual-level mortality research

Full Count Census Data II: Record Linkage and Databases

Casey F. Breen ¹ Joshua R. Goldstein ¹

¹University of California, Berkeley | Department of Demography

November 18, 2022



Motivation

- I We are far from a complete understanding of the causal determinants of health and mortality in the United States

Motivation

- I We are far from a complete understanding of the causal determinants of health and mortality in the United States
- I Mortality research is often hampered by ~~①~~ ~~z~~ ~~Y~~ ~~S~~ ~~z~~ ~~S~~ ~~^~~ ~~s~~

Motivation

- I We are far from a complete understanding of the causal determinants of health and mortality in the United States
- I Mortality research is often hampered by ~~data~~ ~~issues~~ ~~problems~~
 - I U.S. has no population-level registry like Scandinavian countries

Motivation

- I We are far from a complete understanding of the causal determinants of health and mortality in the United States
- I Mortality research is often hampered by ~~@ z~~ ~~Y~~ ~~S z~~ ~~zB^s~~
 - I U.S. has no population-level registry like Scandinavian countries
- I Researchers are increasingly turning to administrative datasets (Chetty et al., 2016; Card, Dobkin and Maestas, 2008; Card et al., 2010; Meyer and Mittag, 2019; Ruggles, 2014)

Numident: Backbone of SSA record keeping system

- I The Social Security Numident (Numerical Index) tracks Social Security Number holders

LmKB/2Mi, " +F#QM2 Q7 aa `2+Q`/ F2

- | h?2 aQ+B H a2+m`Biv LmKB/2M
AM/2tV i` +Fb aQ+B H a2+m`Bi
- | . i2 Q7 #B`i?- / i2 Q7 /2 i?- #B`
b2t- T `2Mib M K2b- 2i+X

e

LmKB/2Mi, " +F#QM2 Q7 aa `2+Q`/F2

| h?2 aQ+B H a2+m`Biv LmKB/2M
AM/2tV i` +Fb aQ+B H a2+m`Bi

| . i2 Q7 #B`i?- / i2 Q7 /2 i?- #B`
b2t- T `2Mib M K2b- 2i+X

| AMi2`M H `2bi`B+i2/ p2`bBQM
aa `2b2 `+?2`b M/ +UQ2Fi#Q`
2i HX- kyRec 1HQ 2i HX- kyy9

e

L i B Q M H ` + ? B p 2 b T m # H B + ` 2 H 2 b 2 C

| b m # b 2 i Q 7 L m K B / 2 M i ` 2 + Q ` / b r 2 ` 2 i ` M b 7 2 ` ` 2 / 7
/ K B M B b i ` i B Q M i Q i ? 2 L i B Q M H ` + ? B p 2 b

e

~~xxx~~ A m i ` Q / m + i B Q M * ` 2 i B M ; " I L J .

~~xxxxxxxx~~

~~xxx~~ J Q i H B i v 1 b i B K i B Q M b 2 a i m / B 2 b

~~xxx~~

~~xxx~~ * Q M + H m b B Q M _ 3 b 2 i p 2 b H B / 2 b _ 2 7 2 ` 2 M

~~xxxxxxx~~

9fk

L i B Q M H ` + ? B p 2 b T m # H B + ` 2 H 2 b 2 C

| b m # b 2 i Q 7 L m K B / 2 M i ` 2 + Q ` / b r 2 ` 2 i ` M b 7 2 ` ` 2 / 7
/ K B M B b i ` i B Q M i Q i ? 2 L i B Q M H ` + ? B p 2 b

| L i B Q M H ` + ? B p 2 b K / 2 i ? 2 b 2 ` 2 i 2 Q i } H 2 B i B R k # / Y 2
} 2 H / b r B i ? K M v K B b b B M ; p H m 2 b

| J 2 b b v - + ? H H 2 M ; B M ; / i b i ` m + i m ` 2

9e

AMI`Q/m+iBQM*`2iBM; "ILJ.

JQ`i HBiv 1biBK iBQMb2 aim/B2b

*QM+HmbBQM_3b2`p2 bHB/2b_272`2M

9fk

h?2 bi`m+im`2 Q7 i?2 L iBQM H `+?Bj

_2+Q`/ivT2 hQi H 2Mi`B2b hQi H `2+Q`/b UT2`bQM

| | | |
|------------|------------|-----------------|
| .2 i? | 9N-98N-kNj | 9N-98N-kNRjXyyy |
| TTHB+ iBQM | kk-Rky-8Re | 9y-3dy-98R Xde8 |
| *H BKb | k8-kk3-k8d | k8-R9y-39R Xyy9 |

9e

AMI`Q/m+iBQM*`2iBM; "ILJ.

JQ`i HBiv 1biBK iBQMb2 aim/B2b

*QM+HmbBQM_3b2`p2 bHB/2b_272`2M

8fk

*`2 iBM; i?2 "ILJ.

R a 2H2+i M K2b M/ pBi H / i2b 7`QK
/2 i? `2+Q`/b

9e

~~AMi`Q/m+iBQM*`2 iBM; "ILJ.~~

~~JQ`i HBiv 1biBK iBQM`2 aim/B2b~~

~~*QM+HmbBQM_3b2`p2 bHB/2b_272`2M~~ efk

* ` 2 i B M ; i ? 2 " I L J .

R X a 2 H 2 + i M K 2 b M / p B i H / i 2 b 7 ` Q K
/ 2 i ? ` 2 + Q ` / b

k X // ? ` K Q M B + x Q p ` B i 2 b 7 ` Q K
T T H B + i B Q M M / + H B K ` 2 + Q ` / b U M /
` 2 + Q M + B H 2 / B b + ` 2 T M i p H m 2 b V

e

* ` 2 i BM; i ? 2 " ILJ.

R X a 2 H 2 + i M K 2 b M / p B i H / i 2 b 7 ` Q K
/ 2 i ? ` 2 + Q ` / b

k X // ? ` K Q M B + x Q p ` B i 2 b 7 ` Q K
T T H B + i B Q M M / + H B K ` 2 + Q ` / b U M /
` 2 + Q M + B H 2 / B b + ` 2 T M i p H m 2 b V

j X * ` 2 i 2 M 2 r p ` B # H 2 b U 2 X ; X - ; 2 Q 7
/ 2 i ? - b i i 2 r ? 2 ` 2 a a L r b B b b m 2 / V

* ` 2 i BM; i ? 2 " ILJ.

R X a 2 H 2 + i M K 2 b M / p B i H / i 2 b 7 ` Q K
/ 2 i ? ` 2 + Q ` / b

k X // ? ` K Q M B + x Q p ` B i 2 b 7 ` Q K
T T H B + i B Q M M / + H B K ` 2 + Q ` / b U M /
` 2 + Q M + B H 2 / B b + ` 2 T M i p H m 2 b V

j X * ` 2 i 2 M 2 r p ` B # H 2 b U 2 X ; X - ; 2 Q 7
/ 2 i ? - b i i 2 r ? 2 ` 2 a a L r b B b b m 2 / V

o `B #H2b BM i?2 "ILJ.

| o `B #H2 | .2b+`BTiBQM | LmKB/2Mi aQm`+2 |
|----------------|--------------------------------|-----------------------------------|
| bbM | aQ+B H a2+m`Biv LmK#. | 2`i? 1Mi`v |
| 7M K2 | 6B`bi M K2 | .2 i? 1Mi`v |
| KM K2 | JB//H2 M K2 | .2 i? 1Mi`v |
| HM K2 | G bi L K2 | .2 i? 1Mi`v |
| #v2 ` | u2 ` Q7 #B`i? | .2 i? 1Mi`v |
| #KQMi? | JQMi? Q7 #B`i? | .2 i? 1Mi`v |
| #/ v | . v Q7 #B`i? | .2 i? 1Mi`v |
| /v2 ` | u2 ` Q7 /2 i? | .2 i? 1Mi`v |
| /KQMi? | JQMi? Q7 /2 i? | .2 i? 1Mi`v |
| // v | . v Q7 /2 i? | .2 i? 1Mi`v |
| xBTn`2bB/2MwAS | *Q/2 Q7 `2bB/2M+2 | i/2 i? .2 i? 1Mi`v |
| b2t | a2t | .2 i?- TTHB+ iBQM- Q` *H BK 1Mi`v |
| `+2n}`bi | - +2 U}`biV | TTHB+ iBQM 1Mi`v |
| `+2nH bi | - +2 UH biV | TTHB+ iBQM 1Mi`v |
| #TH | SH +2 Q7 #B`i? | TTHB+ iBQM Q` *H BK 1Mi`v |
| 7 i?2`n7M K26 | i?2`öb }`bi M K2 | TTHB+ iBQM Q` *H BK 1Mi`v |
| 7 i?2`nKM K2 | 6 i?2`öb KB//H2 M K2 | TTHB+ iBQM Q` *H BK 1Mi`v |
| 7 i?2`nHM K26 | i?2`öb H bi M K2 | TTHB+ iBQM Q` *H BK 1Mi`v |
| KQi?2`n7M K2 | JQi?2`öb }`bi M K2 | TTHB+ iBQM Q` *H BK 1Mi`v |
| KQi?2`nKM K2 | JQi?2`öb KB//H2 M K2 | TTHB+ iBQM Q` *H BK 1Mi`v |
| KQi?2`nHM K2 | JQi?2`öb H bi M K2 | TTHB+ iBQM Q` *H BK 1Mi`v |
| /2 i?n ;2 | ;2 Q7 /2 i? Uv2 `bV | *QMbi`m+i2/ |
| bQ+bi i2 | ai i2 BM r?B+? aa + ` / Bbbm2/ | *QMbi`m+i2/ |
| ;2n}`bin TT | ;2 Q7 }`bi TTHB+ iBQM | *QMbi`m+i2/ |
| MmK#2`n TTb | hQi H MmK#2` Q7 | *QMbi`m+i2/ |
| MmK#2`n+H BKb | hQi H MmK#2` Q7 | *QMbi`m+i2/ |
| r2B;?i | q2B;?i p `B #H2 | *QMbi`m+i2/ |
| +r2B;?i | *QKTH2i2 + b2 T2`bQM@r2B;?i | *QMbi`m+i2/ |

9e

AMI`Q/m+iBQM*`2iBM; "ILJ.

JQ`i HBiv 1biBK iBQMb2 aim/B2b

*QM+HmbBQM 2b2;2 bHB/2b_272`2M

dfk

JQ`i HBiv +Qp2` ;2 ;2b e8Y

9e

~~AMi`Q/m+iBQM*`2iBM; "ILJ.~~

~~JQ`i HBiv 1biBK iBQ1b2 aim/B2b~~

~~*QM+HmbBQM_3b2`p2 bHB/2b_272`2M~~

3fk

2M

N8WY KQ`i HBiv +Qp2` ;2 #2ir22M RN

9e

~~xx~~ AMi`Q/m+iBQM*`2iBM; "ILJ.
~~xxxxxxx~~

~~xxx~~ JQ`i HBiv 1biBK iBQMb2 aim/B2b
~~xxx~~

~~xxx~~ *QM+HmbBQM_3b2`p2 bHB/2b_272`2M
~~xxxxxxx~~ Nfk

G 2 t B b / B ; ` K Q 7 / 2 i ? + Q p 2 ` ; 2

9e

~~AMi`Q/m+iBQM*`2 iBM; "ILJ.~~

~~JG`i HBiv 1biBK iBQ1b2 aim/B2b~~

~~*QM+HmbBQM_3b2`p2 bHB/2b_272`2M~~ Ryfk

. Q m # H 2 i ` m M + i B Q M T ` 2 b 2 M i b + ? H H 2

0e

~~AMi`Q/m+iBQM*`2; iBM; "ILJ.~~

~~JQ; i HBiv 1biBK iBQM; 2 aim/B2b~~

~~*QM+HmbBQM_3b2; 2 bHB/2b_272`2M~~

RRfk

RRfk

ii2Mm iBQM, _2;`2bbBQM mM/2`bi i2

;2 Q7 .2= i0+ t + s +

URV

r?2`2

R X0 B b i?2 B Mi2`+2Ti

9e

~~AMi`Q/m+iBQM*`2iBM;~~ "ILJ.

~~JQ;i HBiv 1biBK iBQM~~ b2 aim/B2b

~~*QM+HmbBQM_3b2`p2 bHB/2b_272`2M~~ Rkfk

ii2Mm iBQM, _2;`2bbBQM mM/2`bi i2

;2 Q7 .2= i0+ t + s +

URV

r?2`2

RX0 Bb i?2 BMi2`+2Ti

kXt `2 #B`i? v2 `}t2/ 2z2+ib

ie



ii2Mm iBQM, _2;`2bbBQM mM/2`bi i2

;2 Q7 .2= i0+ t + s + URV

r?2`2

RX0 Bb i?2 BMi2`+2Ti

kXt `2 #B`i? v2 `}t2/ 2z2+ib

jXs Bb K i`Bt Q7 +Qp `BBib2 b? 2M# Q 2 {+B 2 Mi p2+iQ`

e



:QKT2`ix T ` K2i`B+ JG1 TT`Q +? UM

$$h_i(x_j) = a_0 e^{b_0 x} e^{z_i} \quad U k V$$

r?2`2

| h_i(x_j) B b i?2 ? x `/x # Q, M /BiBQM H QM T ` K2i2`b

0e

:QKT2`ix T ` K2i`B+ JG1 TT`Q +? UM

$$h_i(x_j) = a_0 e^{b_0 x} e^{Z_i} \quad U k V$$

r?2`2

| $h_i(x_j)$ B b i?2 ? x `/x # Q, M /BiBQM H QM T ` K2i2`b

| a_0 B b b Q K 2 # b 2 H B M 2 H 2 p 2 H Q 7 K Q ` i H B i v

0e

:QKT2`ix T ` K2i`B+ JG1 TT`Q +? UM

$$h_i(x_j) = a_0 e^{b_0 x} e^{Z_i} \quad U k V$$

r?2`2

| $h_i(x_j)$ B b i?2 ? x `/x # Q, M /BiBQM H QM T ` K2i2`b

| a_0 B b b QK2 # b2HBM2 H2p2H Q7 KQ`i HBiv

| b_0 ;Bp2b ` i2 Q7 BM+`2 b2 Q7 KQ`i HBiv Qp2` iBK:

0e

:QKT2`ix T ` K2i`B+ JG1 TT`Q +? UM

$$h_i(x_j) = a_0 e^{b_0 x} e^{Z_i} \quad U k V$$

r?2`2

| $h_i(x_j)$ B b i?2 ? x `/x # Q M /BiBQM H QM T ` K2i2`b

| a_0 B b b Q K 2 # b 2 H B M 2 H 2 p 2 H Q 7 K Q ` i H B i v

| b_0 ; B p 2 b ` i 2 Q 7 B M + ` 2 b 2 Q 7 K Q ` i H B i v Q p 2 ` i B K :

| Z_i ` 2 i?2 + Q p ` B i 2 b 7 Q ` T 2 ` b Q M

0e

:QKT2`ix T ` K2i`B+ JG1 TT`Q +? UM

$$h_i(x_j) = a_0 e^{b_0 x} e^{Z_i} \quad U k V$$

r?2`2

| $h_i(x_j)$ B b i?2 ? x `/x # Q M / B i B Q M H Q M T ` K 2 i 2 ` b

| a_0 B b b Q K 2 # b 2 H B M 2 H 2 p 2 H Q 7 K Q ` i H B i v

| b_0 ; B p 2 b ` i 2 Q 7 B M + ` 2 b 2 Q 7 K Q ` i H B i v Q p 2 ` i B K :

| Z_i ` 2 i?2 + Q p ` B i 2 b 0 Q X ; T X 2 ` b 2 Q M b Q 7 2 / m + i B Q M -

| B b i?2 b 2 i Q 7 + Q 2 { + B 2 M i b

0e

* b2 bim/v R, JQ`i HBiv /p Mi ;2 Q7 i?

9e

~~AMi`Q/m+iBQM*`2 iBM;~~ "ILJ.

~~JQ`i HBiv 1biBK iBQ~~ ~~1~~ ~~b2~~ aim/B2b

~~*QM+HmbBQM_3b2;p2 bHB/2b_272`2M~~ R9fk

* b2 bim/v k, wAS *Q/2 H2p2H KQ`i HE

~~XX~~ AMi`Q/m+iBQM*`2 iBM; "ILJ.
~~XXXXXXXXXX~~

~~XXX~~ JQ`i HBiv 1biBK iBQ**b2 aim/B2b**
~~XX~~

~~XXX~~ *QM+HmbBQM_3b2`p2 bHB/2b_272`2M
~~XXXXXXXXXX~~ R8fk

* 2 M a Q + @ L m K B / 2 M i , G B M F B M ; " I L J . r

e

~~AMi`Q/m+iBQM*`2 iBM; "ILJ.~~

~~JQ`i HBiv 1biBK iBQMb2 aim/B2b~~

~~*QM+HmbBQM_3b2`p2 bHB/2b_272`2M~~

Refk

* Q M b B / 2 ` i B Q M b M / 7 m i m ` 2 / B ` 2 + i B G

I S ` Q # H . 2 K m # H 2 i ` m M + i B Q M + M / Q r M r ` / H v i i 2 M m
+ Q M p 2 M i B Q M H ` 2 ; ` 2 b b B Q M

* Q M b B / 2 ` i B Q M b M / 7 m i m ` 2 / B ` 2 + i B G

| S ` Q # H . 2 K m # H 2 i ` m M + i B Q M + M / Q r M r ` / H v i i 2 M m
+ Q M p 2 M i B Q M H ` 2 ; ` 2 b b B Q M

| a Q H m i S Q M K 2 i ` B + K t B K m K H B F 2 U : B ? Q Q / i k 2 i m M / b _
S + F ; 2 V

* Q M b B / 2 ` i B Q M b M / 7 m i m ` 2 / B ` 2 + i B G

I S ` Q # H . 2 K m # H 2 i ` m M + i B Q M + M / Q r M r ` / H v i i 2 M m
+ Q M p 2 M i B Q M H ` 2 ; ` 2 b b B Q M

I a Q H m i S Q M K 2 i ` B + K t B K m K H B F 2 U : B ? Q Q / i k 2 i m M / b _
S + F ; 2 V

I A / 2 M i B 7 v b B # H B M ; b m b B M ; T ` 2 M i b M K 2 b C M / Q
2 i W X

e



* Q M b B / 2 ` i B Q M b M / 7 m i m ` 2 / B ` 2 + i B G

| S ` Q # H . 2 K m # H 2 i ` m M + i B Q M + M / Q r M r ` / H v i i 2 M m
+ Q M p 2 M i B Q M H ` 2 ; ` 2 b b B Q M

| a Q H m i S Q M K 2 i ` B + K t B K m K H B F 2 U : B ? Q Q / i k 2 i m M / b _
S + F ; 2 V

| A / 2 M i B 7 v b B # H B M ; b m b B M ; T ` 2 M i b M K 2 b C M / Q
2 i W X

| G B M F Q M i Q R N 8 y * 2 M b m b - q q A A 2 M H B b i K 2 M i ` 2 +

* Q M + H m b B Q M b

| "ILJ., Tm#HB+Hv p BH #H2 }H2 +QM i BMBM; 83y
+Qp `B i2b

e

* Q M + H m b B Q M b

| "ILJ., Tm#HB+Hv p BH #H2 }H2 +QM i BMBM; 83y
+Qp `B i2b

| GBMF2/ QMiQ i?2 R N49y K2BMBHbBQMV

e

* Q M + H m b B Q M b

| "ILJ., Tm#HB+Hv p BH #H2 }H2 +QM i BMBM; 83y
+Qp `B i2b

| GBMF2/ QMiQ i?2 R L49y K2BMBHBQMV

| Sm#HB+Hv p_2TH Q/H2, B#H2- 2ti2M/ #H2 b+B2M+

e

h ? M F u Q m

. Q r M H Q * 2, M a Q + X " 2 ` F 2 H 2 v X 2 / m

6 m M / B M ; R : y 8 3 N 9 y - _ y R : y d e 3 j y

* Q M i + i , + b 2 v # ` 2 2 M ! # 2 ` F 2 H 2 v X 2 / m

e

~~xx~~ A m i ` Q / m + i B Q M * ` 2 i B M ; " I L J .

~~xxx~~ J Q i H B i v 1 b i B K i B Q M b 2 a i m / B 2 b

~~xxx~~ * Q M + H m b B Q M 3 b 2 ; p 2 b H B / 2 b _ 2 7 2 ` 2 M R N f k

_2b2`p2 aHB/2b

0e

~~xx~~ AMi`Q/m+iBQM*`2 iBM; "ILJ. ~~xxxxxxxx~~

~~xxx~~ JQ;i HBiv 1biBK iBQMb2 aim/B2b ~~xx~~

~~xxx~~ *QM+HmbBQM_2b2`p2 bHB/2b_272`2M ~~xxxxxx~~ kyfk

:QMx€H2x 2i HX >BbT MB+ KQ`i HB

9e

~~AMi`Q/m+iBQM*`2iBM;~~ "ILJ.

~~JQ`i HBiv 1biBK iBQMb2 aim/B2b~~

~~*QM+HmbBQM_2b2`p2 bHB/2b_272`2M~~ kRfk

:QH/bi2BM 2i HX "H +F M K2b M/ H

.2T2M/2Mi o `B #H2, .2 i? ;2
SQQH2/ 6 KBHv 61

JQ/2H, URV UjV U9V U8V

"LA Uai M/ `/Bx2/V @y@kjs@ek8@yXekdj@yX9eNe
UyXkjyRV UyXjyeyV UyXjy88V UyX9j3yV

"B`i? u2 ` 61 u2b u2b u2b u2b

6 KBHv 61 /j u2b u2b u2b

"B`i? P`/2` 61 /j u2b u2b

JQ`i HBiv qBM/Qr RN33@kyy8 RN33@kyy8 RN33@kyy8

P#b2`p iBQMb jy-9kN jy-9kN jy-9kN98-3Nj

² yXkRykn yXeR9k3 yXeR9jy yX8e9yk

qBi?BM _ 5:35 10⁵ yXyyyje yXy8y4e 10⁵

LQi2, T yXR T yXy8c T yXyR

C Q Q 2 i H X A / 2 M i B 7 v B M ; b B # H B M ; b

~~xxx~~ A Mi`Q/m+iBQM*`2 iBM; "ILJ. ~~xxxxxxxx~~

~~xxx~~ JQ`i HBiv 1biBK iBQMb2 aim/B2b ~~xxx~~

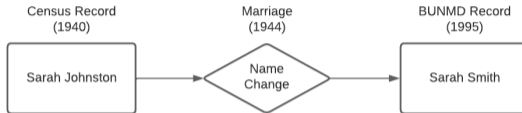
~~xxx~~ *QM+HmbBQM_2b2; p2 bHB/2b_272`2M kjfke

Variable source and selection rule

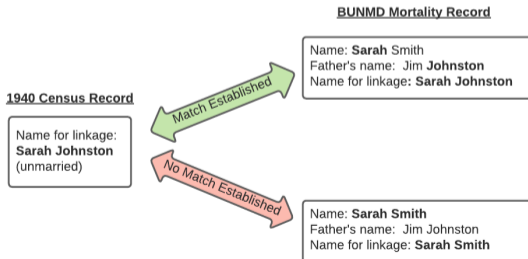
| Variable | Numident source | Selection rule |
|---------------|------------------------------------|---------------------|
| ssn | Death Entry | - |
| fname | Death Entry | - |
| mname | Death Entry | - |
| lname | Death Entry | - |
| byear | Death Entry | - |
| bmonth | Death Entry | - |
| bday | Death Entry | - |
| dyear | Death Entry | - |
| dmonth | Death Entry | - |
| dday | Death Entry | - |
| zip_residence | Death Entry | - |
| sex | Death, Application, or Claim Entry | Last Recorded Sex |
| race_first | Application Entry | First Recorded Race |
| race_last | Application Entry | Last Recorded Race |
| bpl | Application or Claim Entry | Last Recorded BPL |
| father_fname | Application or Claim Entry | Maximum Characters |
| father_mname | Application or Claim Entry | Maximum Characters |
| father_lname | Application or Claim Entry | Maximum Characters |
| mother_fname | Application or Claim Entry | Maximum Characters |
| mother_mname | Application or Claim Entry | Maximum Characters |
| mother_lname | Application or Claim Entry | Maximum Characters |
| death_age | Constructed | - |
| socstate | Constructed | - |
| age_first_app | Constructed | - |
| number_apps | Constructed | - |
| number_claims | Constructed | - |
| weight | Constructed | - |
| ccweight | Constructed | - |

Linking unmarried women in CenSoc-Numident

Sarah Johnston changes her name to Sarah Smith after she is observed in 1940 census



We can still establish a match using father's last name from Numident Record.



References

- Card, David, Carlos Dobkin and Nicole Maestas. 2008. "The Impact of Nearly Universal Insurance Coverage on Health Care Utilization: Evidence from Medicare." *K 2` B+ M 1+Q M Q K B* (6):2242-2258.
- Card, David E., Raj Chetty, Martin S. Feldstein and Emmanuel Saez. 2010. "Expanding Access to Administrative Data for Research in the United States." *K 2` B+ M 1+Q M Q K B+ b b Q + B i B Q M - h 2 M u 2 ` b M / " 2 v Q M / , 1 + Q M Q K B b i b M b r 2 ` L a 6 ö b * H H 7 Q`*
- Chetty, Raj, Michael Stepner, Sarah Abraham, Shelby Lin, Benjamin Scuderi, Nicholas Turner, Augustin Bergeron and David Cutler. 2016. "The Association Between Income and Life Expectancy in the United States, 2001-2014." *C J* 315(16):1750.
- Elo, Irma T., Cassio M. Turra, Bert Kestenbaum and B. René Ferguson. 2004. "Mortality Among Elderly Hispanics in the United States: Past Evidence and New Results." *. 2 K Q ; ` T 4 1 (1)*:109-128.
- Mehta, Neil K., Irma T. Elo, Michal Engelman, Diane S. Lauderdale and Bert M. Kestenbaum. 2016. "Life Expectancy Among U.S.-Born and Foreign-born Older Adults in the United States: Estimates From Linked Social Security and Medicare Data." *. 2 K Q ; ` T 5 3 (4)*:1109-1134.
- Meyer, Bruce D. and Nikolas Mittag. 2019. "Using Linked Survey and Administrative Data to Better Measure Income: Implications for Poverty, Program Effectiveness, and Holes in the Safety Net." *K 2` B+ M 1+Q M Q K B+ C Q m ` M H , 1 1 (2)*:116-204. *1 + Q M Q K B + b*
- Ruggles, Steven. 2014. "Big Microdata for Population Research." *. 2 K Q ; ` T 5 1 (1)*:287-297.
- Waldron, Hilary. 2007. "Trends in Mortality Differentials and Life Expectancy for Male Social Security-Covered Workers, by Socioeconomic Status." *a Q + B H a 2 + m ` B 6 7 (3)*:288-300. *H 2 i B M*