

```
-----  
-----  
name: <unnamed>  
log: C:\Users\AN.4271\Dropbox\HHS 651\Assignments\Assignment 3\  
Assignment3log.log  
log type: text  
opened on: 20 Oct 2017, 00:09:22
```

```
.  
. * Import data  
. import delimited using "m_d_806.tab", delimiter(tab) clear  
(85 vars, 927,267 obs)  
  
. ***** variables  
. **** Rename variables  
. rename yobm yob_moth  
  
. rename agem age_mother  
  
. rename weeksm wks_wrked_moth  
. rename weeksd wks_wrked_fath  
  
. rename ageqk ageof1stchild  
  
. rename hoursd hourswked_fath  
. rename hoursm hourswked_moth  
  
. rename incomelm labinc_moth  
  
. rename income2m selfempinc_moth  
. rename incomeld labinc_fath  
. rename income2d selfempinc_fath  
  
.   
.   
. **** Label variables  
. label variable wks_wrked_moth "Weeks worked (moth)"  
. label variable wks_wrked_fath "Weeks worked (fath)"  
. label variable labinc_moth "Mother's labor income"  
. label variable selfempinc_moth "Mother's self-employment income"  
. label variable labinc_fath "Father's labor income"  
. label variable selfempinc_fath "Father's self-employment income"  
. label variable age_mother "Mother's age"  
. label variable hourswked_moth "Mother's hours worked"  
  
.   
. **** Recode missing values and reform string Variables  
. *** Identify string variables  
. describe
```

```
Contains data  
obs: 927,267  
vars: 85  
size: 98,290,302  
-----  
-----
```

variable name	storage type	display format	value label	variable label
state	byte	%8.0g		STATE
sexk	byte	%8.0g		SEXK
agek	byte	%8.0g		AGEK
qtrbkid	byte	%8.0g		QTRBKID
racek	byte	%8.0g		RACEK
spanish	byte	%8.0g		SPANISH
birthplk	int	%8.0g		BIRTHPLK
schoolk	byte	%8.0g		SCHOOLK
grade	byte	%8.0g		GRADE
fingrade	byte	%8.0g		FINGRADE
asex	byte	%8.0g		ASEX
aage	byte	%8.0g		AAGE
aqtrbrth	byte	%8.0g		AQTRBRTH
abirthpl	byte	%8.0g		ABIRTHPL
aschool	byte	%8.0g		ASCHOOL
ayearsch	byte	%8.0g		AYEARSCH
afingrad	byte	%8.0g		AFINGRAD
yobk	byte	%8.0g		YOBK
ageof1stchild	byte	%8.0g		AGEQK
sex2nd	byte	%8.0g		SEX2ND
race2nd	byte	%8.0g		RACE2ND
span2nd	byte	%8.0g		SPAN2ND
sch2nd	byte	%8.0g		SCH2ND
grade2nd	byte	%8.0g		GRADE2ND
fin2nd	byte	%8.0g		FIN2ND
asex2nd	byte	%8.0g		ASEX2ND
aage2nd	byte	%8.0g		AAGE2ND
aqtr2nd	byte	%8.0g		AQTR2ND
asch2nd	byte	%8.0g		ASCH2ND
ayear2nd	byte	%8.0g		AYEAR2ND
afin2nd	byte	%8.0g		AFIN2ND
ageq2nd	str2	%9s		AGEQ2ND
sex3rd	byte	%8.0g		SEX3RD
ageq3rd	str2	%9s		AGEQ3RD
sex4th	byte	%8.0g		SEX4TH
ageq4th	str2	%9s		AGEQ4TH
sex5th	byte	%8.0g		SEX5TH
ageq5th	str2	%9s		AGEQ5TH
twin1st	byte	%8.0g		TWIN1ST
triplet	byte	%8.0g		TRIPLET
kidcount	byte	%8.0g		KIDCOUNT
faminc	long	%12.0g		FAMINC
age_mother	byte	%8.0g		Mother's age
qtrbthm	byte	%8.0g		QTRBTHM
marital	byte	%8.0g		MARITAL
racem	byte	%8.0g		RACEM
spanishm	byte	%8.0g		SPANISHM
fert	byte	%8.0g		FERT
timesmar	byte	%8.0g		TIMESMAR
agemar	byte	%8.0g		AGEMAR
qtrmar	byte	%8.0g		QTRMAR
widow	byte	%8.0g		WIDOW
gradem	byte	%8.0g		GRADEM
fingradm	byte	%8.0g		FINGRADM
classm	byte	%8.0g		CLASSM
wks_wrked_moth	byte	%8.0g		Weeks worked (moth)
hourswked_moth	byte	%8.0g		Mother's hours worked
labinc_moth	long	%12.0g		Mother's labor income
selfempinc_moth	long	%8.0g		Mother's self-employment income
income6m	int	%8.0g		INCOME6M
poverty	byte	%8.0g		POVERTY
afertil	byte	%8.0g		AFERTIL
aweek79m	byte	%8.0g		AWEEK79M
ahour79m	byte	%8.0g		AHOUR79M

```

ainc1m      byte      %8.0g      AINC1M
ainc2m      byte      %8.0g      AINC2M
yob moth    byte      %8.0g      YOBM
aged        byte      %8.0g      AGED
qtrbthd     byte      %8.0g      QTRBTHD
raced       byte      %8.0g      RACED
spanishd    byte      %8.0g      SPANISHD
timemard    byte      %8.0g      TIMEMARD
agemard     byte      %8.0g      AGEMARD
qtrmard     byte      %8.0g      QTRMARD
graded      byte      %8.0g      GRADED
fingradd    byte      %8.0g      FINGRADD
classd      byte      %8.0g      CLASSD
wks_wrked_fath byte    %8.0g      Weeks worked (fath)
hourswked_fath byte    %8.0g      HOURSD
labinc_fath long     %12.0g     Father's labor income
selfempinc_fath long    %12.0g     Father's self-employment income
aweek79d    byte      %8.0g      AWEEK79D
ahour79d    byte      %8.0g      AHOOR79D
ainc1d      byte      %8.0g      AINC1D
ainc2d      byte      %8.0g      AINC2D

```

Sorted by:

Note: Dataset has changed since last saved.

```
. codebook ageq2nd ageq3rd ageq4th ageq5th, tab(100)
```

```
ageq2nd
AGEQ2ND
```

```
type: string (str2)
```

```
unique values: 73
```

```
missing "": 0/927,267
```

```

tabulation:  Freq.  Value
              11,622  "0"
              12,449  "1"
              12,318  "10"
              11,750  "11"
              11,537  "12"
              11,541  "13"
              11,819  "14"
              11,131  "15"
              10,695  "16"
              10,908  "17"
              11,457  "18"
              11,169  "19"
              12,899  "2"
              10,483  "20"
              11,207  "21"
              11,784  "22"
              10,923  "23"
              10,132  "24"
              10,350  "25"
              10,897  "26"
              10,325  "27"
               9,885  "28"
              10,447  "29"
              12,155  "3"
              10,706  "30"
              10,257  "31"
              10,021  "32"
              10,163  "33"

```

```

10,745 "34"
10,269 "35"
10,551 "36"
11,118 "37"
11,450 "38"
10,818 "39"
11,579 "4"
10,411 "40"
10,221 "41"
10,590 "42"
9,918 "43"
9,443 "44"
9,515 "45"
9,721 "46"
9,404 "47"
8,507 "48"
8,566 "49"
11,758 "5"
8,996 "50"
8,544 "51"
8,032 "52"
8,139 "53"
8,305 "54"
7,721 "55"
7,232 "56"
7,410 "57"
7,366 "58"
6,850 "59"
12,238 "6"
6,112 "60"
5,992 "61"
5,854 "62"
4,745 "63"
3,952 "64"
3,173 "65"
2,375 "66"
1,197 "67"
409 "68"
155 "69"
11,620 "7"
141 "70"
84 "71"
11,376 "8"
11,537 "9"
272,098 "NA"

```

```

-----
ageq3rd
AGEQ3RD
-----

```

```

      type: string (str2)
unique values: 71          missing "": 0/927,267

  tabulation: Freq. Value
              5,712 "0"
              5,939 "1"
              5,380 "10"
              4,973 "11"
              4,943 "12"
              5,059 "13"
              4,991 "14"
              4,384 "15"
              4,426 "16"
              4,555 "17"

```

4,855	"18"
4,376	"19"
6,180	"2"
4,326	"20"
4,466	"21"
4,626	"22"
4,095	"23"
4,067	"24"
4,188	"25"
4,368	"26"
3,940	"27"
4,032	"28"
4,301	"29"
5,461	"3"
4,577	"30"
4,215	"31"
4,232	"32"
4,579	"33"
4,729	"34"
4,371	"35"
4,612	"36"
4,919	"37"
5,045	"38"
4,459	"39"
5,322	"4"
4,409	"40"
4,406	"41"
4,332	"42"
3,907	"43"
3,763	"44"
3,781	"45"
3,663	"46"
3,306	"47"
3,024	"48"
3,010	"49"
5,458	"5"
3,038	"50"
2,557	"51"
2,424	"52"
2,387	"53"
2,307	"54"
1,965	"55"
1,736	"56"
1,601	"57"
1,433	"58"
1,106	"59"
5,475	"6"
878	"60"
601	"61"
442	"62"
222	"63"
114	"64"
55	"65"
40	"66"
28	"67"
4	"68"
1	"69"
4,981	"7"
4,984	"8"
5,022	"9"
676,104	"NA"

 ageq4th
 AGEQ4TH


```

type: string (str2)
unique values: 67                               missing "": 0/927,267

```

```

tabulation: Freq. Value
1,891 "0"
2,052 "1"
1,672 "10"
1,547 "11"
1,569 "12"
1,601 "13"
1,587 "14"
1,362 "15"
1,457 "16"
1,445 "17"
1,553 "18"
1,489 "19"
2,043 "2"
1,363 "20"
1,554 "21"
1,508 "22"
1,394 "23"
1,356 "24"
1,420 "25"
1,445 "26"
1,297 "27"
1,386 "28"
1,545 "29"
1,658 "3"
1,578 "30"
1,430 "31"
1,424 "32"
1,490 "33"
1,572 "34"
1,428 "35"
1,489 "36"
1,619 "37"
1,595 "38"
1,406 "39"
1,749 "4"
1,320 "40"
1,273 "41"
1,198 "42"
1,028 "43"
  917 "44"
  949 "45"
  862 "46"
  730 "47"
  690 "48"
  625 "49"
1,809 "5"
  602 "50"
  474 "51"
  420 "52"
  337 "53"
  283 "54"
  243 "55"
  181 "56"
  107 "57"
   90 "58"
   56 "59"
1,824 "6"
   37 "60"
   15 "61"
   11 "62"
    5 "63"
    3 "64"

```

```

      3 "65"
    1,626 "7"
    1,605 "8"
    1,616 "9"
  852,354 "NA"

```

```

-----
ageq5th
AGEQ5TH
-----

```

```

      type: string (str2)
unique values: 63          missing "": 0/927,267
tabulation:  Freq.  Value
              662   "0"
              669   "1"
              531  "10"
              421  "11"
              488  "12"
              489  "13"
              481  "14"
              407  "15"
              415  "16"
              466  "17"
              482  "18"
              413  "19"
              652  "2"
              436  "20"
              462  "21"
              511  "22"
              393  "23"
              406  "24"
              419  "25"
              459  "26"
              392  "27"
              384  "28"
              415  "29"
              578  "3"
              415  "30"
              406  "31"
              431  "32"
              393  "33"
              408  "34"
              357  "35"
              355  "36"
              410  "37"
              383  "38"
              303  "39"
              561  "4"
              301  "40"
              274  "41"
              212  "42"
              193  "43"
              182  "44"
              156  "45"
              133  "46"
              113  "47"
               96  "48"
               77  "49"
              575  "5"
               65  "50"
               56  "51"
               50  "52"
               26  "53"

```

```

12 "54"
14 "55"
8 "56"
6 "57"
3 "58"
2 "59"
590 "6"
1 "62"
1 "64"
515 "7"
534 "8"
512 "9"
906,707 "NA"

.   foreach variable in ageq2nd ageq3rd ageq4th ageq5th {
2.     replace `variable' = "." if `variable'=="NA"
3.     destring `variable', replace
4.   }
(272,098 real changes made)
ageq2nd: all characters numeric; replaced as byte
(272098 missing values generated)
(676,104 real changes made)
ageq3rd: all characters numeric; replaced as byte
(676104 missing values generated)
(852,354 real changes made)
ageq4th: all characters numeric; replaced as byte
(852354 missing values generated)
(906,707 real changes made)
ageq5th: all characters numeric; replaced as byte
(906707 missing values generated)

.
.   replace agemar = . if agemar == 0
(38,383 real changes made, 38,383 to missing)

.
.   ***** Generate Timing of Birth and Marriage Variables (to determine
.   ***** whether parents were Married)
.
.   *** Recode quarter Married as 0-3 instead of 1-4
.   replace qtrmar = qtrmar - 1 if ((qtrmar > 0) & !missing(qtrmar))
(888,884 real changes made)

.
.   *** Code year of marriage
.   gen yr_Married = .
(927,267 missing values generated)

.   replace yr_Married = yob_moth + agemar if ((qtrbthm<=qtrmar) & ///
>   !missing(qtrmar) & !missing(qtrbthm))
(340,508 real changes made)

.   replace yr_Married = yob_moth + agemar + 1 if ((qtrbthm>qtrmar) ///
>   & !missing(qtrmar) & !missing(qtrbthm))
(548,376 real changes made)

.
.   *** Code year&quarter of marriage
.   gen yr_qtr_Married= .
(927,267 missing values generated)

.   replace yr_qtr_Married = yr_Married+(qtrmar/4) if ///
>   (!missing(qtrmar) & !missing(yr_Married))
(888,884 real changes made)

.
.   *** Code year&quarter of first birth
.   gen yr_qtr_birth = yobk+((qtrbkid)/4)

```

```

.
.  /* Generate indicator for if parents were not Married when
>  first-birth occurred */
.  gen unMarriedbirth = 0
.
.  replace unMarriedbirth = 1 if ((yr_qtr_Married-yr_qtr_birth >0) ///
>  & !missing(yr_qtr_Married) & !missing(yr_qtr_birth))
(108,294 real changes made)
.
.
.  **** Sex of Child Indicators
.  gen boy1st = (sexk==0)
.
.  label variable boy1st "First child is a boy"
.
.  gen boy2nd = (sex2nd==0)
.
.  label variable boy2nd "Second child is a boy"
.
.  gen boys2 = ((sexk==0) & (sex2nd==0))
.
.  label variable boys2 "First two children boys"
.
.  gen girls2 = ((sexk==1) & (sex2nd==1))
.
.  label variable boys2 "First two children girl"
.
.  gen samesex = ((boys2==1) | (girls2==1))
.
.  label variable samesex "First two children same sex"
.
.  gen morekids = (kidcount>2) if !missing(kidcount)
.
.  label variable morekids "Parents had more than 3 children"
.
.  **** Race Indicators
.  gen black_mother = (racem==2)
.
.  label variable black_mother "Black / African-American (Mother)"
.
.  gen hisp_moth = (racem==12)
.
.  label variable hisp_moth "Hispanic / Latina (Mother)"
.
.  gen white_moth = (racem==1)
.
.  label variable white_moth "White (Mother)"
.
.  gen othrace_moth = 1 - black_mother - hisp_moth - white_moth
.
.  label variable othrace_moth "Other Race / Ethnicity (Mother)"
.
.
.  **** Mother and Father Labor Supply Variables
.  scalar inflationfactor = 245.519 / 82.4

```

```

.      // From CPI-U data on BLS website
.
.   gen workedind_moth = (wks_wrked_moth>0) if !missing(wks_wrked_moth)
.
.   label variable workedind_moth "Mother worked"
.
.
.   gen workedind_fath = (wks_wrked_fath>0) if !missing(wks_wrked_fath)
(164,424 missing values generated)
.
.   label variable workedind_fath "Father worked"
.
.
.   gen totalinc_moth =labinc_moth+max(0,selfempinc_moth)
.
.   gen totalinc_fath =labinc_fath+max(0,selfempinc_fath)
(164,424 missing values generated)
.
.
.   replace totalinc_moth = totalinc_moth*inflationfactor
(559,462 real changes made)
.
.   replace totalinc_fath = totalinc_fath*inflationfactor
(731,178 real changes made)
.
.
.   label variable totalinc_moth "Total Income (mother)"
.
.   label variable totalinc_fath "Total Income (father)"
.
.
.   gen totalinc_fam =faminc *inflationfactor
.
.   label variable totalinc_fam "Total Income (family)"
.
.
.   gen logincfam =log(max(totalinc_fam ,1))
.
.   label variable logincfam "Log of total income (family)"
.
.
.   gen income_nonmoth =totalinc_fam -labinc_moth*inflationfactor
.
.   replace income_nonmoth=log(max(1,income_nonmoth ))
(919,653 real changes made)
.
.   label variable income_nonmoth "Total income besides mother"
.
.
.   ***** Create variables for sample
.   ***** Ages of Mother and Father and ages when 1st kid was born
.   *** Generate "year of birth" for father
.   gen yob_fath = 79 - aged
(164,424 missing values generated)
.
.   replace yob_fath= 80 - aged if qtrbthd==0
(187,601 real changes made)
.
.
.   *** Generate age in quarters for parents
.   gen ageqm=4*(80-yob_moth)-qtrbthm-1
.
.   gen ageqd=4*(80-yob_fath)-qtrbthd
(164,424 missing values generated)
.
.
.   *** Generate age of parents at birth of first child
.   gen age1stbth_moth =floor((ageqm-ageof1stchild)/4)

```

```

. label variable agelstbth_moth "Age of mother at birth of first child"

. gen agelstbth_fath =floor((ageqd-ageof1stchild)/4)
(164,424 missing values generated)

.
. *** Main Sample
. gen Main = 0

. replace Main =1 if (inrange(age_mother,21,35) & (kidcount >= 2) & ///
> !missing(kidcount) & (ageq2nd > 4) & !missing(ageq2nd) ///
> & (agelstbth_moth>=15) & !missing(agelstbth_moth) ///
> & asex==0 & aage==0 & aqtrbrth==0 & asex2nd==0 & aage2nd==0 ///
> & aqtrbrth==0)
(394,840 real changes made)

. label variable Main "Main sample"

.
. *** Married Sample
. gen Married = 0

. replace Married = 1 if (!missing(aged) & (timesmar==1) & ///
> (marital==0) & (unMarriedbirth==0) & (agelstbth_fath >=15) & ///
> (agelstbth_moth>=15) & !missing(agelstbth_fath) & ///
> !missing(agelstbth_moth) & (Main==1))
(254,652 real changes made)

. label variable Married "Married sample"

.
.
. ***** Descriptive Statistics
. /* Reproduce summary statistics for variables in Table 2, cols 1-2 for
> Main sample and Married sample */
. summarize kidcount morekids boylst boy2nd boys2 girls2 samesex age_mother ///
> agelstbth moth agelstbth fath workedind moth workedind fath ///
> wks_wrked_moth wks_wrked_fath hourswked moth hourswked_fath ///
> totalinc_moth totalinc_fath faminc logincfam income_nonmoth ///
> if Main==1

```

Variable	Obs	Mean	Std. Dev.	Min	Max
kidcount	394,840	2.552069	.8083876	2	12
morekids	394,840	.4020641	.4903154	0	1
boylst	394,840	.511088	.4998777	0	1
boy2nd	394,840	.5109614	.4998805	0	1
boys2	394,840	.2637195	.4406495	0	1
girls2	394,840	.24167	.4280959	0	1
samesex	394,840	.5053895	.4999716	0	1
age_mother	394,840	30.1248	3.509685	21	35
agelstbt~oth	394,840	20.13956	2.949069	15	33
agelstbt~ath	333,707	23.58086	4.48092	2	76
workedin~oth	394,840	.5654873	.4956935	0	1
workedin~ath	333,707	.9736835	.160075	0	1
wks_wrke~oth	394,840	20.83419	22.28601	0	52
wks_wrke~ath	333,707	47.46631	11.13531	0	52
hourswke~oth	394,840	18.79767	18.91573	0	99
hourswke~ath	333,707	43.169	12.5342	0	99
totalinc_m~h	394,840	10164.17	15335.55	0	369485.3
totalinc_f~h	333,707	53123.53	34827.72	0	446939.9
faminc	394,840	20170.96	12654.13	-9995	75000
logincfam	394,840	10.66416	1.379786	0	12.31703

```
income_non~h |      394,840      10.05109      2.487283      0      12.31703
```

```
. summarize kidcount morekids boy1st boy2nd girls2 samesex age_mother ///
>   agelstbth_moth agelstbth_fath workedind_moth workedind_fath ///
>   wks_wrked_moth wks_wrked_fath hourswked_moth hourswked_fath ///
>   totalinc_moth totalinc_fath faminc logincfam income_nonmoth ///
>   if Married==1
```

Variable	Obs	Mean	Std. Dev.	Min	Max
kidcount	254,652	2.507819	.7693593	2	12
morekids	254,652	.3805703	.485528	0	1
boy1st	254,652	.5143568	.4997948	0	1
boy2nd	254,652	.5124405	.4998462	0	1
girls2	254,652	.2392756	.4266421	0	1
samesex	254,652	.5053485	.4999724	0	1
age_mother	254,652	30.39328	3.386388	21	35
agelstbt~oth	254,652	20.83167	2.921259	15	33
agelstbt~ath	254,652	23.97856	3.998633	15	76
workedin~oth	254,652	.528211	.4992045	0	1
workedin~ath	254,652	.9769175	.1501658	0	1
wks_wrke~oth	254,652	19.0184	21.86741	0	52
wks_wrke~ath	254,652	47.95713	10.49022	0	52
hourswke~oth	254,652	16.6985	18.33558	0	99
hourswke~ath	254,652	43.49038	12.28648	0	99
totalinc_m~h	254,652	8871.814	14493.46	0	369485.3
totalinc_f~h	254,652	55242.09	35505.53	0	446939.9
faminc	254,652	22697.2	12301.02	-9995	75000
logincfam	254,652	10.90694	1.065842	0	12.31703
income_non~h	254,652	10.71142	1.274335	0	12.31703

```
. ***** Regressions
```

```
. /* Note: Easily the most succinct way to run these regression
>   is using local macros and loops, which I do here. The long
>   way without these features is included at the very end of the
>   file. */
```

```
. *** Macro to store the dependent variables
. local dependvars workedind_moth wks_wrked_moth hourswked_moth ///
>   totalinc_moth logincfam
```

```
. *** Macro for the control variables
. local controls age_mother agelstbth_moth boy1st boy2nd black_mother ///
>   hisp_moth othrace_moth
```

```
. ** Perform the same regressions for each the Main and Married sample
. foreach sample in Main Married {
2.   if("`sample'"=="Married") local dependvars `dependvars' income_nonmoth
3.   eststo clear
4.   * Perform the OLS regression for each of the dep. variables.
.   foreach outcome in `dependvars' {
5.     display
*****
*****
6.     display "                               Regression: OLS - " `"`: var label
`outcome'"" " - `sample' Sample "
7.     display
*****
*****
```

```

*****"
8.     eststo: reg `outcome' morekids `controls' if `sample'==1, robust
9.     }
10.
.     esttab using "OLS`sample'", title("OLS Estimates of Effects of Children on
Parents' Labor Supply (`sample' sample)") ///
>     se label wrap noabbrev rtf compress one replace // Output th table, with
names and titles using the loop-value of sample
11.     eststo clear
12.
.     *Perform the IV regression for each of the dep. variables.
.     foreach outcome in `dependvars' {
13.         display
*****
*****"
14.         display "                Regression: IV - " `": var label
`outcome'"" " - `sample' Sample "
15.         display
*****
*****"
16.         eststo: ivreg2 `outcome' `controls' (morekids = samesex) if ///
>         `sample'==1, first robust
17.     }
18.
.     esttab using "IV`sample'", title("IV Estimates of Effects of Children on
Parents' Labor Supply (`sample' Sample)") ///
>     se label wrap noabbrev rtf compress one replace // Output IV tables
19.     eststo clear
20.
. }

```

```

*****
*****
                Regression: OLS - Mother worked - Main Sample
*****
*****

```

```

Linear regression                Number of obs    =    394,840
                                F(8, 394831)    =    3032.83
                                Prob > F            =    0.0000
                                R-squared           =    0.0537
                                Root MSE        =    .48222

```

	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
workedind_moth						
morekids	-.1764489	.0016171	-109.11	0.000	-.1796184	-.1732793
age_mother	.0241995	.0002424	99.84	0.000	.0237244	.0246745
age1stbth_moth	-.0291002	.0002967	-98.07	0.000	-.0296818	-.0285187
boy1st	-.0005312	.0015353	-0.35	0.729	-.0035404	.002478
boy2nd	-.0040863	.0015353	-2.66	0.008	-.0070955	-.0010771
black_mother	.1060263	.0023474	45.17	0.000	.1014255	.110627
hisp_moth	-.0309759	.0046057	-6.73	0.000	-.0400029	-.0219488
othrace_moth	.0420805	.0046453	9.06	0.000	.0329759	.0511852
_cons	.4829654	.0075603	63.88	0.000	.4681474	.4977834

```

(est1 stored)
*****
*****
                Regression: OLS - Weeks worked (moth) - Main Sample
*****
*****

```

```

Linear regression                Number of obs    =    394,840
                                F(8, 394831)    =    4589.07
                                Prob > F            =    0.0000
                                R-squared           =    0.0778
                                Root MSE        =    21.402

```

```

-----
wks_wrked_moth |           Coef.   Robust
                |           Std. Err.   t   P>|t|   [95% Conf. Interval]
-----+-----
    morekids |   -8.978191   .0705666  -127.23  0.000   -9.1165   -8.839883
    age_mother |    1.466036   .0105266  139.27  0.000    1.445404   1.486668
  agelstbth_moth |  -1.423913   .0131709  -108.11  0.000   -1.449728  -1.398099
    boy1st |   -.1153498   .0681462   -1.69  0.091   -.2489143   .0182147
    boy2nd |   -.1773649   .0681483   -2.60  0.009   -.3109335  -.0437963
  black_mother |    6.451669   .1103587   58.46  0.000    6.235369   6.667968
    hisp_moth |   -.7810209   .1956389   -3.99  0.000   -1.164467  -.3975744
  othrace_moth |    2.860371   .2109436   13.56  0.000    2.446928   3.273814
    _cons |    8.280615   .3199806   25.88  0.000    7.653463   8.907767
-----

```

(est2 stored)

```

*****
*****
                        Regression: OLS - Mother's hours worked - Main Sample
*****
*****

```

```

Linear regression                               Number of obs   =   394,840
                                                F(8, 394831)   =   3752.23
                                                Prob > F       =   0.0000
                                                R-squared     =   0.0657
                                                Root MSE     =   18.284

```

```

-----
hourswked_moth |           Coef.   Robust
                |           Std. Err.   t   P>|t|   [95% Conf. Interval]
-----+-----
    morekids |   -6.646724   .060972  -109.01  0.000   -6.766227  -6.527221
    age_mother |    .8986444   .0093065   96.56  0.000    .8804039   .9168849
  agelstbth_moth |  -1.367101   .0110962  -123.20  0.000   -1.38885   -1.345353
    boy1st |   -.0493376   .0582138   -0.85  0.397   -.1634348   .0647597
    boy2nd |   -.1377486   .0582197   -2.37  0.018   -.2518575  -.0236398
  black mother |    5.652372   .0951953   59.38  0.000    5.465792   5.838952
    hisp_moth |    .6747887   .1816479    3.71  0.000    .3187642   1.030813
  othrace_moth |    3.920399   .1867783   20.99  0.000    3.554319   4.286479
    _cons |   21.22202   .2850939   74.44  0.000   20.66325   21.7808
-----

```

(est3 stored)

```

*****
*****
                        Regression: OLS - Total Income (mother) - Main Sample
*****
*****

```

```

Linear regression                               Number of obs   =   394,840
                                                F(8, 394831)   =   3296.75
                                                Prob > F       =   0.0000
                                                R-squared     =   0.0637
                                                Root MSE     =   14840

```

```

-----
totalinc_moth |           Coef.   Robust
                |           Std. Err.   t   P>|t|   [95% Conf. Interval]
-----+-----
    morekids |  -5340.386   48.8465  -109.33  0.000  -5436.124  -5244.648
    age_mother |    912.2873   7.243414  125.95  0.000    898.0904   926.4841
  agelstbth_moth |  -620.8484   9.901247  -62.70  0.000   -640.2545  -601.4422
    boy1st |  -49.89716   47.25277   -1.06  0.291  -142.5112   42.71686
    boy2nd |  -84.99501   47.24091   -1.80  0.072  -177.5858   7.595767
  black_mother |   5565.582   82.96153   67.09  0.000   5402.98   5728.184
    hisp_moth |   353.9192  123.0926    2.88  0.004   112.6614   595.177
  othrace_moth |   3608.073  172.7693   20.88  0.000   3269.45   3946.695
    _cons |  -3374.65  218.9399  -15.41  0.000  -3803.765  -2945.534
-----

```

(est4 stored)

Regression: OLS - Log of total income (family) - Main Sample

Linear regression

Number of obs	=	394,840
F(8, 394831)	=	2194.01
Prob > F	=	0.0000
R-squared	=	0.0568
Root MSE	=	1.34

logincfam	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
morekids	-.1391022	.0046376	-29.99	0.000	-.1481918	-.1300126
age_mother	.0465436	.0007166	64.95	0.000	.0451391	.047948
agelstbth_moth	.0304876	.0007981	38.20	0.000	.0289232	.0320519
boy1st	.004836	.0042681	1.13	0.257	-.0035294	.0132014
boy2nd	.0035556	.0042682	0.83	0.405	-.00481	.0119212
black_mother	-.5756599	.008489	-67.81	0.000	-.5922981	-.5590216
hisp_moth	-.4837938	.0160986	-30.05	0.000	-.5153466	-.4522411
othrace_moth	-.2155311	.015747	-13.69	0.000	-.2463947	-.1846675
_cons	8.788859	.02165	405.95	0.000	8.746426	8.831293

(est5 stored)
 (output written to OLSMain.rtf)

Regression: IV - Mother worked - Main Sample

First-stage regressions

First-stage regression of morekids:

Statistics robust to heteroskedasticity
 Number of obs = 394840

morekids	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
samesex	.0611486	.001494	40.93	0.000	.0582203	.0640769
age_mother	.0302059	.0002291	131.86	0.000	.0297569	.0306549
agelstbth_moth	-.0451303	.0002645	-170.61	0.000	-.0456488	-.0446119
boy1st	-.007932	.0014942	-5.31	0.000	-.0108606	-.0050034
boy2nd	-.0086896	.0014942	-5.82	0.000	-.0116183	-.0057609
black_mother	.071419	.0024032	29.72	0.000	.0667089	.0761292
hisp_moth	.1562174	.0043905	35.58	0.000	.1476122	.1648226
othrace_moth	.0721126	.0044715	16.13	0.000	.0633487	.0808765
_cons	.3633578	.0071317	50.95	0.000	.3493799	.3773357

F test of excluded instruments:

F(1,394831) = 1675.15
 Prob > F = 0.0000

Sanderson-Windmeijer multivariate F test of excluded instruments:

F(1,394831) = 1675.15
 Prob > F = 0.0000

Summary results for first-stage regressions

Variable			(Underid)		(Weak id)	
	F(1,394831)	P-val	SW Chi-sq(1)	P-val	SW F(1,394831)	
morekids	1675.15	0.0000	1675.19	0.0000	1675.15	

NB: first-stage test statistics heteroskedasticity-robust

Stock-Yogo weak ID F test critical values for single endogenous regressor:

10% maximal IV size	16.38
15% maximal IV size	8.96
20% maximal IV size	6.66
25% maximal IV size	5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for i.i.d. errors only.

Underidentification test

Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)

Ha: matrix has rank=K1 (identified)

Kleibergen-Paap rk LM statistic Chi-sq(1)=1668.08 P-val=0.0000

Weak identification test

Ho: equation is weakly identified

Cragg-Donald Wald F statistic 1674.22

Kleibergen-Paap Wald rk F statistic 1675.15

Stock-Yogo weak ID test critical values for K1=1 and L1=1:

10% maximal IV size	16.38
15% maximal IV size	8.96
20% maximal IV size	6.66
25% maximal IV size	5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Weak-instrument-robust inference

Tests of joint significance of endogenous regressors B1 in main equation

Ho: B1=0 and orthogonality conditions are valid

Anderson-Rubin Wald test F(1,394831)= 21.19 P-val=0.0000

Anderson-Rubin Wald test Chi-sq(1)= 21.19 P-val=0.0000

Stock-Wright LM S statistic Chi-sq(1)= 21.19 P-val=0.0000

NB: Underidentification, weak identification and weak-identification-robust test statistics heteroskedasticity-robust

Number of observations	N =	394840
Number of regressors	K =	9
Number of endogenous regressors	K1 =	1
Number of instruments	L =	9
Number of excluded instruments	L1 =	1

IV (2SLS) estimation

Estimates efficient for homoskedasticity only
Statistics robust to heteroskedasticity

Total (centered) SS	=	97016.69525	Number of obs	=	394840
Total (uncentered) SS	=	223277	F(8,394831)	=	1374.53
Residual SS	=	92116.99784	Prob > F	=	0.0000
			Centered R2	=	0.0505
			Uncentered R2	=	0.5874
			Root MSE	=	.483

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]
workedind_moth					

morekids		-.117295	.0251545	-4.66	0.000	-.166597	-.067993
age_mother		.0224148	.0007955	28.18	0.000	.0208556	.0239739
agelstbth_moth		-.0264334	.001117	-22.59	0.000	-.0287266	-.0241401
boylst		-.0001396	.0015469	-0.09	0.928	-.0031714	.0028922
boy2nd		-.0036508	.001549	-2.36	0.018	-.0066868	-.0006149
black_mother		.1017956	.0029574	34.42	0.000	.0959992	.107592
hisp_moth		-.0402164	.006057	-6.64	0.000	-.052088	-.0283449
othrace_moth		.0378345	.0049857	7.59	0.000	.0280627	.0476063
_cons		.4597156	.0124318	36.98	0.000	.4353497	.4840816

 Underidentification test (Kleibergen-Paap rk LM statistic): 1668.078
 Chi-sq(1) P-val = 0.0000

Weak identification test (Cragg-Donald Wald F statistic): 1674.223
 (Kleibergen-Paap rk Wald F statistic): 1675.148

Stock-Yogo weak ID test critical values: 10% maximal IV size 16.38
 15% maximal IV size 8.96
 20% maximal IV size 6.66
 25% maximal IV size 5.53

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

 Hansen J statistic (overidentification test of all instruments): 0.000
 (equation exactly identified)

Instrumented: morekids
 Included instruments: age_mother agelstbth_moth boylst boy2nd black_mother
 hisp_moth othrace_moth
 Excluded instruments: samesex

 (est1 stored)

 Regression: IV - Weeks worked (moth) - Main Sample

 First-stage regressions

First-stage regression of morekids:

Statistics robust to heteroskedasticity
 Number of obs = 394840

morekids		Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
samesex		.0611486	.001494	40.93	0.000	.0582203 .0640769
age_mother		.0302059	.0002291	131.86	0.000	.0297569 .0306549
agelstbth_moth		-.0451303	.0002645	-170.61	0.000	-.0456488 -.0446119
boylst		-.007932	.0014942	-5.31	0.000	-.0108606 -.0050034
boy2nd		-.0086896	.0014942	-5.82	0.000	-.0116183 -.0057609
black_mother		.071419	.0024032	29.72	0.000	.0667089 .0761292
hisp_moth		.1562174	.0043905	35.58	0.000	.1476122 .1648226
othrace_moth		.0721126	.0044715	16.13	0.000	.0633487 .0808765
_cons		.3633578	.0071317	50.95	0.000	.3493799 .3773357

 F test of excluded instruments:

F(1,394831) = 1675.15
 Prob > F = 0.0000

Sanderson-Windmeijer multivariate F test of excluded instruments:

F(1,394831) = 1675.15
 Prob > F = 0.0000

Summary results for first-stage regressions

Variable	F(1,394831)	P-val	(Underid) SW Chi-sq(1)	P-val	(Weak id) SW F(1,394831)
morekids	1675.15	0.0000	1675.19	0.0000	1675.15

NB: first-stage test statistics heteroskedasticity-robust

Stock-Yogo weak ID F test critical values for single endogenous regressor:

10% maximal IV size	16.38
15% maximal IV size	8.96
20% maximal IV size	6.66
25% maximal IV size	5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for i.i.d. errors only.

Underidentification test

Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)

Ha: matrix has rank=K1 (identified)

Kleibergen-Paap rk LM statistic Chi-sq(1)=1668.08 P-val=0.0000

Weak identification test

Ho: equation is weakly identified

Cragg-Donald Wald F statistic 1674.22

Kleibergen-Paap Wald rk F statistic 1675.15

Stock-Yogo weak ID test critical values for K1=1 and L1=1:

10% maximal IV size	16.38
15% maximal IV size	8.96
20% maximal IV size	6.66
25% maximal IV size	5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Weak-instrument-robust inference

Tests of joint significance of endogenous regressors B1 in main equation

Ho: B1=0 and orthogonality conditions are valid

Anderson-Rubin Wald test F(1,394831)= 23.94 P-val=0.0000

Anderson-Rubin Wald test Chi-sq(1)= 23.94 P-val=0.0000

Stock-Wright LM S statistic Chi-sq(1)= 23.94 P-val=0.0000

NB: Underidentification, weak identification and weak-identification-robust test statistics heteroskedasticity-robust

Number of observations	N =	394840
Number of regressors	K =	9
Number of endogenous regressors	K1 =	1
Number of instruments	L =	9
Number of excluded instruments	L1 =	1

IV (2SLS) estimation

Estimates efficient for homoskedasticity only
Statistics robust to heteroskedasticity

Total (centered) SS	=	196103263.5	Number of obs	=	394840
Total (uncentered) SS	=	367488861	F(8,394831)	=	2281.48
Residual SS	=	181873792.4	Prob > F	=	0.0000
			Centered R2	=	0.0726
			Uncentered R2	=	0.5051
			Root MSE	=	21.46

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]
wks_wrked_moth					

morekids		-5.55877	1.117829	-4.97	0.000	-7.749673	-3.367866
age_mother		1.362872	.0352894	38.62	0.000	1.293706	1.432038
agelstbth_moth		-1.269755	.0520245	-24.41	0.000	-1.371722	-1.167789
boylst		-.0927166	.0687273	-1.35	0.177	-.2274196	.0419864
boy2nd		-.1521926	.0688292	-2.21	0.027	-.2870953	-.0172899
black_mother		6.207114	.1364545	45.49	0.000	5.939668	6.47456
hisp_moth		-1.315178	.2625227	-5.01	0.000	-1.829713	-.8006428
othrace_moth		2.614926	.2260306	11.57	0.000	2.171914	3.057938
_cons		6.936651	.5431087	12.77	0.000	5.872177	8.001124

 Underidentification test (Kleibergen-Paap rk LM statistic): 1668.078
 Chi-sq(1) P-val = 0.0000

Weak identification test (Cragg-Donald Wald F statistic): 1674.223
 (Kleibergen-Paap rk Wald F statistic): 1675.148

Stock-Yogo weak ID test critical values: 10% maximal IV size 16.38
 15% maximal IV size 8.96
 20% maximal IV size 6.66
 25% maximal IV size 5.53

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

 Hansen J statistic (overidentification test of all instruments): 0.000
 (equation exactly identified)

Instrumented: morekids
 Included instruments: age_mother agelstbth_moth boylst boy2nd black_mother
 hisp_moth othrace_moth
 Excluded instruments: samesex

 (est2 stored)

 Regression: IV - Mother's hours worked - Main Sample

 First-stage regressions

First-stage regression of morekids:

Statistics robust to heteroskedasticity
 Number of obs = 394840

morekids		Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
samesex		.0611486	.001494	40.93	0.000	.0582203 .0640769
age_mother		.0302059	.0002291	131.86	0.000	.0297569 .0306549
agelstbth_moth		-.0451303	.0002645	-170.61	0.000	-.0456488 -.0446119
boylst		-.007932	.0014942	-5.31	0.000	-.0108606 -.0050034
boy2nd		-.0086896	.0014942	-5.82	0.000	-.0116183 -.0057609
black_mother		.071419	.0024032	29.72	0.000	.0667089 .0761292
hisp_moth		.1562174	.0043905	35.58	0.000	.1476122 .1648226
othrace_moth		.0721126	.0044715	16.13	0.000	.0633487 .0808765
_cons		.3633578	.0071317	50.95	0.000	.3493799 .3773357

 F test of excluded instruments:
 F(1,394831) = 1675.15
 Prob > F = 0.0000

Sanderson-Windmeijer multivariate F test of excluded instruments:
 F(1,394831) = 1675.15
 Prob > F = 0.0000

Summary results for first-stage regressions

Variable	F(1,394831)	P-val	(Underid) SW Chi-sq(1)	P-val	(Weak id) SW F(1,394831)
morekids	1675.15	0.0000	1675.19	0.0000	1675.15

NB: first-stage test statistics heteroskedasticity-robust

Stock-Yogo weak ID F test critical values for single endogenous regressor:

10% maximal IV size	16.38
15% maximal IV size	8.96
20% maximal IV size	6.66
25% maximal IV size	5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for i.i.d. errors only.

Underidentification test

Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)

Ha: matrix has rank=K1 (identified)

Kleibergen-Paap rk LM statistic Chi-sq(1)=1668.08 P-val=0.0000

Weak identification test

Ho: equation is weakly identified

Cragg-Donald Wald F statistic 1674.22

Kleibergen-Paap Wald rk F statistic 1675.15

Stock-Yogo weak ID test critical values for K1=1 and L1=1:

10% maximal IV size	16.38
15% maximal IV size	8.96
20% maximal IV size	6.66
25% maximal IV size	5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Weak-instrument-robust inference

Tests of joint significance of endogenous regressors B1 in main equation

Ho: B1=0 and orthogonality conditions are valid

Anderson-Rubin Wald test F(1,394831)= 22.15 P-val=0.0000

Anderson-Rubin Wald test Chi-sq(1)= 22.15 P-val=0.0000

Stock-Wright LM S statistic Chi-sq(1)= 22.15 P-val=0.0000

NB: Underidentification, weak identification and weak-identification-robust test statistics heteroskedasticity-robust

Number of observations	N =	394840
Number of regressors	K =	9
Number of endogenous regressors	K1 =	1
Number of instruments	L =	9
Number of excluded instruments	L1 =	1

IV (2SLS) estimation

Estimates efficient for homoskedasticity only
Statistics robust to heteroskedasticity

Total (centered) SS	=	141275374.3	Number of obs	=	394840
Total (uncentered) SS	=	280793034	F(8,394831)	=	2048.64
Residual SS	=	132375685.2	Prob > F	=	0.0000
			Centered R2	=	0.0630
			Uncentered R2	=	0.5286
			Root MSE	=	18.31

hourswked_moth	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]

morekids		-4.546786	.9536447	-4.77	0.000	-6.415895	-2.677676
age_mother		.8352893	.0301719	27.68	0.000	.7761535	.8944252
agelstbth_moth		-1.27243	.0443019	-28.72	0.000	-1.35926	-1.1856
boylst		-.035438	.058622	-0.60	0.545	-.150335	.0794589
boy2nd		-.1222898	.0587418	-2.08	0.037	-.2374215	-.007158
black_mother		5.502186	.1170673	47.00	0.000	5.272738	5.731633
hisp_moth		.3467517	.2348961	1.48	0.140	-.1136361	.8071395
othrace_moth		3.769666	.1990046	18.94	0.000	3.379624	4.159708
_cons		20.39667	.4706503	43.34	0.000	19.47421	21.31912

 Underidentification test (Kleibergen-Paap rk LM statistic): 1668.078
 Chi-sq(1) P-val = 0.0000

Weak identification test (Cragg-Donald Wald F statistic): 1674.223
 (Kleibergen-Paap rk Wald F statistic): 1675.148

Stock-Yogo weak ID test critical values: 10% maximal IV size 16.38
 15% maximal IV size 8.96
 20% maximal IV size 6.66
 25% maximal IV size 5.53

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

 Hansen J statistic (overidentification test of all instruments): 0.000
 (equation exactly identified)

Instrumented: morekids
 Included instruments: age_mother agelstbth_moth boylst boy2nd black_mother
 hisp_moth othrace_moth
 Excluded instruments: samesex

 (est3 stored)

 Regression: IV - Total Income (mother) - Main Sample

 First-stage regressions

First-stage regression of morekids:

Statistics robust to heteroskedasticity
 Number of obs = 394840

morekids		Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
samesex		.0611486	.001494	40.93	0.000	.0582203 .0640769
age_mother		.0302059	.0002291	131.86	0.000	.0297569 .0306549
agelstbth_moth		-.0451303	.0002645	-170.61	0.000	-.0456488 -.0446119
boylst		-.007932	.0014942	-5.31	0.000	-.0108606 -.0050034
boy2nd		-.0086896	.0014942	-5.82	0.000	-.0116183 -.0057609
black_mother		.071419	.0024032	29.72	0.000	.0667089 .0761292
hisp_moth		.1562174	.0043905	35.58	0.000	.1476122 .1648226
othrace_moth		.0721126	.0044715	16.13	0.000	.0633487 .0808765
_cons		.3633578	.0071317	50.95	0.000	.3493799 .3773357

 F test of excluded instruments:
 F(1,394831) = 1675.15
 Prob > F = 0.0000

Sanderson-Windmeijer multivariate F test of excluded instruments:
 F(1,394831) = 1675.15
 Prob > F = 0.0000

Summary results for first-stage regressions

Variable	F(1,394831)	P-val	(Underid)	(Weak id)
morekids	1675.15	0.0000	SW Chi-sq(1) 1675.19	SW F(1,394831) 1675.15

NB: first-stage test statistics heteroskedasticity-robust

Stock-Yogo weak ID F test critical values for single endogenous regressor:

10% maximal IV size	16.38
15% maximal IV size	8.96
20% maximal IV size	6.66
25% maximal IV size	5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for i.i.d. errors only.

Underidentification test

Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)

Ha: matrix has rank=K1 (identified)

Kleibergen-Paap rk LM statistic Chi-sq(1)=1668.08 P-val=0.0000

Weak identification test

Ho: equation is weakly identified

Cragg-Donald Wald F statistic 1674.22

Kleibergen-Paap Wald rk F statistic 1675.15

Stock-Yogo weak ID test critical values for K1=1 and L1=1:

10% maximal IV size	16.38
15% maximal IV size	8.96
20% maximal IV size	6.66
25% maximal IV size	5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Weak-instrument-robust inference

Tests of joint significance of endogenous regressors B1 in main equation

Ho: B1=0 and orthogonality conditions are valid

Anderson-Rubin Wald test F(1,394831)= 11.87 P-val=0.0006

Anderson-Rubin Wald test Chi-sq(1)= 11.87 P-val=0.0006

Stock-Wright LM S statistic Chi-sq(1)= 11.88 P-val=0.0006

NB: Underidentification, weak identification and weak-identification-robust test statistics heteroskedasticity-robust

Number of observations	N =	394840
Number of regressors	K =	9
Number of endogenous regressors	K1 =	1
Number of instruments	L =	9
Number of excluded instruments	L1 =	1

IV (2SLS) estimation

Estimates efficient for homoskedasticity only
Statistics robust to heteroskedasticity

Total (centered) SS	=	9.28579e+13	Number of obs	=	394840
Total (uncentered) SS	=	1.33649e+14	F(8,394831)	=	1898.51
Residual SS	=	8.75554e+13	Prob > F	=	0.0000
			Centered R2	=	0.0571
			Uncentered R2	=	0.3449
			Root MSE	=	14891

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]
totalinc_moth					

morekids		-2701.081	775.5953	-3.48	0.000	-4221.22	-1180.942
age_mother		832.6595	24.40529	34.12	0.000	784.826	880.493
agelstbth_moth		-501.8605	36.39988	-13.79	0.000	-573.203	-430.5181
boylst		-32.42754	47.68212	-0.68	0.496	-125.8828	61.02769
boy2nd		-65.56556	47.71321	-1.37	0.169	-159.0817	27.95061
black_mother		5376.821	99.5138	54.03	0.000	5181.777	5571.864
hisp_moth		-58.3737	173.8867	-0.34	0.737	-399.1855	282.4381
othrace_moth		3418.624	182.182	18.76	0.000	3061.554	3775.694
_cons		-4411.998	377.9538	-11.67	0.000	-5152.774	-3671.222

 Underidentification test (Kleibergen-Paap rk LM statistic): 1668.078
 Chi-sq(1) P-val = 0.0000

Weak identification test (Cragg-Donald Wald F statistic): 1674.223
 (Kleibergen-Paap rk Wald F statistic): 1675.148

Stock-Yogo weak ID test critical values: 10% maximal IV size 16.38
 15% maximal IV size 8.96
 20% maximal IV size 6.66
 25% maximal IV size 5.53

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

 Hansen J statistic (overidentification test of all instruments): 0.000
 (equation exactly identified)

Instrumented: morekids
 Included instruments: age_mother agelstbth_moth boylst boy2nd black_mother
 hisp_moth othrace_moth
 Excluded instruments: samesex

 (est4 stored)

 Regression: IV - Log of total income (family) - Main
 Sample

 First-stage regressions

First-stage regression of morekids:

Statistics robust to heteroskedasticity
 Number of obs = 394840

		Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
morekids						
samesex		.0611486	.001494	40.93	0.000	.0582203 .0640769
age_mother		.0302059	.0002291	131.86	0.000	.0297569 .0306549
agelstbth_moth		-.0451303	.0002645	-170.61	0.000	-.0456488 -.0446119
boylst		-.007932	.0014942	-5.31	0.000	-.0108606 -.0050034
boy2nd		-.0086896	.0014942	-5.82	0.000	-.0116183 -.0057609
black_mother		.071419	.0024032	29.72	0.000	.0667089 .0761292
hisp_moth		.1562174	.0043905	35.58	0.000	.1476122 .1648226
othrace_moth		.0721126	.0044715	16.13	0.000	.0633487 .0808765
_cons		.3633578	.0071317	50.95	0.000	.3493799 .3773357

 F test of excluded instruments:

F(1,394831) = 1675.15
 Prob > F = 0.0000

Sanderson-Windmeijer multivariate F test of excluded instruments:

F(1,394831) = 1675.15
 Prob > F = 0.0000

Summary results for first-stage regressions

Variable	(Underid)		(Weak id)	
	F(1,394831)	P-val	SW Chi-sq(1)	P-val
morekids	1675.15	0.0000	1675.19	0.0000

NB: first-stage test statistics heteroskedasticity-robust

Stock-Yogo weak ID F test critical values for single endogenous regressor:

10% maximal IV size	16.38
15% maximal IV size	8.96
20% maximal IV size	6.66
25% maximal IV size	5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for i.i.d. errors only.

Underidentification test

Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)

Ha: matrix has rank=K1 (identified)

Kleibergen-Paap rk LM statistic Chi-sq(1)=1668.08 P-val=0.0000

Weak identification test

Ho: equation is weakly identified

Cragg-Donald Wald F statistic 1674.22

Kleibergen-Paap Wald rk F statistic 1675.15

Stock-Yogo weak ID test critical values for K1=1 and L1=1:

10% maximal IV size	16.38
15% maximal IV size	8.96
20% maximal IV size	6.66
25% maximal IV size	5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Weak-instrument-robust inference

Tests of joint significance of endogenous regressors B1 in main equation

Ho: B1=0 and orthogonality conditions are valid

Anderson-Rubin Wald test F(1,394831)= 0.12 P-val=0.7251

Anderson-Rubin Wald test Chi-sq(1)= 0.12 P-val=0.7251

Stock-Wright LM S statistic Chi-sq(1)= 0.12 P-val=0.7250

NB: Underidentification, weak identification and weak-identification-robust test statistics heteroskedasticity-robust

Number of observations	N =	394840
Number of regressors	K =	9
Number of endogenous regressors	K1 =	1
Number of instruments	L =	9
Number of excluded instruments	L1 =	1

IV (2SLS) estimation

Estimates efficient for homoskedasticity only
Statistics robust to heteroskedasticity

Total (centered) SS	=	751697.7839	Number of obs	=	394840
Total (uncentered) SS	=	45654616.9	F(8,394831)	=	2092.74
Residual SS	=	710139.5724	Prob > F	=	0.0000
			Centered R2	=	0.0553
			Uncentered R2	=	0.9844
			Root MSE	=	1.341

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]
logincfam					

Prob > F = 0.0000
 R-squared = 0.0698
 Root MSE = 21.091

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```

wks_wrked_moth	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
morekids	-8.024965	.0869289	-92.32	0.000	-8.195343	-7.854587
age_mother	1.331143	.0134341	99.09	0.000	1.304812	1.357473
agelstbth_moth	-1.36446	.0161673	-84.40	0.000	-1.396147	-1.332772
boy1st	-.0563531	.0836378	-0.67	0.500	-.2202809	.1075748
boy2nd	-.1601503	.0836263	-1.92	0.055	-.3240557	.0037551
black_mother	10.8291	.1952422	55.46	0.000	10.44643	11.21177
hisp_moth	1.187217	.2579849	4.60	0.000	.6815733	1.692861
othrace_moth	4.206066	.2590965	16.23	0.000	3.698244	4.713888
_cons	9.432382	.4024957	23.43	0.000	8.643501	10.22126

```
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```

(est2 stored)

Regression: OLS - Mother's hours worked - Married Sample

Linear regression

Number of obs = 254,652
 F(8, 254643) = 2318.52
 Prob > F = 0.0000
 R-squared = 0.0642
 Root MSE = 17.738

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```

hourswked_moth	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
morekids	-5.96969	.073911	-80.77	0.000	-6.114554	-5.824826
age_mother	.8130709	.0116865	69.57	0.000	.7901655	.8359762
agelstbth_moth	-1.305388	.0134593	-96.99	0.000	-1.331768	-1.279008
boy1st	.0345851	.0703309	0.49	0.623	-.1032615	.1724318
boy2nd	-.1436676	.070333	-2.04	0.041	-.2815184	-.0058169
black_mother	9.678379	.1646005	58.80	0.000	9.355767	10.00099
hisp_moth	2.949066	.2398056	12.30	0.000	2.479053	3.419078
othrace_moth	5.194616	.22704	22.88	0.000	4.749624	5.639609
_cons	20.77389	.3551013	58.50	0.000	20.0779	21.46988

```
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```

(est3 stored)

Regression: OLS - Total Income (mother) - Married Sample

Linear regression

Number of obs = 254,652
 F(8, 254643) = 1750.75
 Prob > F = 0.0000
 R-squared = 0.0567
 Root MSE = 14077

```
-----+-----
```

totalinc_moth	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
morekids	-4465.048	57.54728	-77.59	0.000	-4577.839	-4352.257
age_mother	746.0299	8.772013	85.05	0.000	728.837	763.2228
agelstbth_moth	-484.1389	11.60238	-41.73	0.000	-506.8793	-461.3986
boy1st	9.5768	55.83232	0.17	0.864	-99.85305	119.0067
boy2nd	-35.68791	55.78465	-0.64	0.522	-145.0243	73.64851
black_mother	8808.951	154.5288	57.01	0.000	8506.079	9111.823

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```

hisp_moth		1538.117	168.7548	9.11	0.000	1207.362	1868.872
othrace_moth		4825.035	218.0769	22.13	0.000	4397.61	5252.46
_cons		-2645.207	266.5729	-9.92	0.000	-3167.683	-2122.732

(est4 stored)

Regression: OLS - Log of total income (family) - Married
Sample

Linear regression

Number of obs = 254,652
F(8, 254643) = 1026.52
Prob > F = 0.0000
R-squared = 0.0358
Root MSE = 1.0466

		Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
logincfam							
morekids		-.1414007	.0046332	-30.52	0.000	-.1504817	-.1323198
age_mother		.0428198	.0007204	59.44	0.000	.0414079	.0442317
agelstbth_moth		.0188688	.0007919	23.83	0.000	.0173167	.020421
boy1st		.0047178	.0041527	1.14	0.256	-.0034213	.012857
boy2nd		.0015034	.0041514	0.36	0.717	-.0066333	.0096401
black_mother		-.1332217	.0104321	-12.77	0.000	-.1536684	-.112775
hisp_moth		-.3165162	.0162118	-19.52	0.000	-.3482909	-.2847414
othrace_moth		-.1845611	.0174449	-10.58	0.000	-.2187527	-.1503694
_cons		9.2838	.021462	432.57	0.000	9.241735	9.325865

(est5 stored)

Regression: OLS - Total income besides mother - Married
Sample

Linear regression

Number of obs = 254,652
F(8, 254643) = 836.62
Prob > F = 0.0000
R-squared = 0.0299
Root MSE = 1.2552

		Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]	
income_nonmoth							
morekids		-.0640445	.005482	-11.68	0.000	-.0747891	-.0532999
age_mother		.0325059	.0008543	38.05	0.000	.0308315	.0341804
agelstbth_moth		.0337318	.0009656	34.93	0.000	.0318393	.0356244
boy1st		.0047014	.0049796	0.94	0.345	-.0050585	.0144612
boy2nd		.0055748	.0049804	1.12	0.263	-.0041866	.0153363
black_mother		-.3995285	.0142098	-28.12	0.000	-.4273793	-.3716778
hisp_moth		-.3972982	.0188809	-21.04	0.000	-.4343043	-.3602922
othrace_moth		-.2967721	.0197229	-15.05	0.000	-.3354285	-.2581158
_cons		9.07987	.0253746	357.83	0.000	9.030136	9.129604

(est6 stored)

(output written to OLSMarried.rtf)

Regression: IV - Mother worked - Married Sample

First-stage regressions

First-stage regression of morekids:

Statistics robust to heteroskedasticity

Number of obs = 254652

morekids	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
samesex	.0688214	.0018482	37.24	0.000	.0651989 .0724438
age_mother	.0302007	.0002935	102.92	0.000	.0296255 .0307759
agelstbth_moth	-.0438521	.0003275	-133.92	0.000	-.0444939 -.0432103
boy1st	-.0109446	.0018485	-5.92	0.000	-.0145676 -.0073217
boy2nd	-.0102893	.0018485	-5.57	0.000	-.0139122 -.0066663
black_mother	.0632568	.0042604	14.85	0.000	.0549064 .0716071
hisp_moth	.1650835	.0058074	28.43	0.000	.1537012 .1764658
othrace_moth	.0588497	.0053646	10.97	0.000	.0483353 .0693641
_cons	.3429363	.0090432	37.92	0.000	.3252119 .3606608

F test of excluded instruments:

F(1,254643) = 1386.55

Prob > F = 0.0000

Sanderson-Windmeijer multivariate F test of excluded instruments:

F(1,254643) = 1386.55

Prob > F = 0.0000

Summary results for first-stage regressions

Variable	F(1,254643)	P-val	(Underid)	SW Chi-sq(1)	P-val	(Weak id)	SW F(1,254643)
morekids	1386.55	0.0000		1386.60	0.0000		1386.55

NB: first-stage test statistics heteroskedasticity-robust

Stock-Yogo weak ID F test critical values for single endogenous regressor:

10% maximal IV size 16.38

15% maximal IV size 8.96

20% maximal IV size 6.66

25% maximal IV size 5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for i.i.d. errors only.

Underidentification test

Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)

Ha: matrix has rank=K1 (identified)

Kleibergen-Paap rk LM statistic Chi-sq(1)=1379.05 P-val=0.0000

Weak identification test

Ho: equation is weakly identified

Cragg-Donald Wald F statistic 1385.68

Kleibergen-Paap Wald rk F statistic 1386.55

Stock-Yogo weak ID test critical values for K1=1 and L1=1:

10% maximal IV size 16.38

15% maximal IV size 8.96

20% maximal IV size 6.66

25% maximal IV size 5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Weak-instrument-robust inference

Tests of joint significance of endogenous regressors B1 in main equation

Ho: B1=0 and orthogonality conditions are valid

Anderson-Rubin Wald test F(1,254643)= 16.98 P-val=0.0000
 Anderson-Rubin Wald test Chi-sq(1)= 16.98 P-val=0.0000
 Stock-Wright LM S statistic Chi-sq(1)= 16.98 P-val=0.0000

NB: Underidentification, weak identification and weak-identification-robust test statistics heteroskedasticity-robust

Number of observations N = 254652
 Number of regressors K = 9
 Number of endogenous regressors K1 = 1
 Number of instruments L = 9
 Number of excluded instruments L1 = 1

IV (2SLS) estimation

Estimates efficient for homoskedasticity only
 Statistics robust to heteroskedasticity

		Number of obs = 254652
		F(8,254643) = 921.26
		Prob > F = 0.0000
Total (centered) SS = 63460.33183		Centered R2 = 0.0480
Total (uncentered) SS = 134510		Uncentered R2 = 0.5509
Residual SS = 60414.15506		Root MSE = .4871

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]
workedind_moth	-.1169982	.0280722	-4.17	0.000	-.1720186 -.0619778
morekids	.0218325	.0009012	24.22	0.000	.0200661 .0235989
age_mother	-.0264159	.001281	-20.62	0.000	-.0289266 -.0239053
age1stbth_moth	.0007089	.0019486	0.36	0.716	-.0031103 .0045282
boy1st	-.004638	.0019453	-2.38	0.017	-.0084506 -.0008253
boy2nd	.1902398	.0044135	43.10	0.000	.1815896 .1988901
black_mother	.0111637	.0076635	1.46	0.145	-.0038564 .0261837
hisp_moth	.060046	.0059299	10.13	0.000	.0484236 .0716684
othrace_moth	.4495455	.0143419	31.34	0.000	.421436 .477655
_cons					

Underidentification test (Kleibergen-Paap rk LM statistic): 1379.045
 Chi-sq(1) P-val = 0.0000

Weak identification test (Cragg-Donald Wald F statistic): 1385.684
 (Kleibergen-Paap rk Wald F statistic): 1386.551
 Stock-Yogo weak ID test critical values: 10% maximal IV size 16.38
 15% maximal IV size 8.96
 20% maximal IV size 6.66
 25% maximal IV size 5.53

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Hansen J statistic (overidentification test of all instruments): 0.000
 (equation exactly identified)

Instrumented: morekids
 Included instruments: age_mother age1stbth_moth boy1st boy2nd black_mother
 hisp_moth othrace_moth
 Excluded instruments: samesex

(est1 stored)

 Regression: IV - Weeks worked (moth) - Married Sample

First-stage regressions

First-stage regression of morekids:

Statistics robust to heteroskedasticity

Number of obs = 254652

morekids	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
samesex	.0688214	.0018482	37.24	0.000	.0651989 .0724438
age_mother	.0302007	.0002935	102.92	0.000	.0296255 .0307759
agelstbth_moth	-.0438521	.0003275	-133.92	0.000	-.0444939 -.0432103
boy1st	-.0109446	.0018485	-5.92	0.000	-.0145676 -.0073217
boy2nd	-.0102893	.0018485	-5.57	0.000	-.0139122 -.0066663
black_mother	.0632568	.0042604	14.85	0.000	.0549064 .0716071
hisp_moth	.1650835	.0058074	28.43	0.000	.1537012 .1764658
othrace_moth	.0588497	.0053646	10.97	0.000	.0483353 .0693641
_cons	.3429363	.0090432	37.92	0.000	.3252119 .3606608

F test of excluded instruments:

F(1,254643) = 1386.55

Prob > F = 0.0000

Sanderson-Windmeijer multivariate F test of excluded instruments:

F(1,254643) = 1386.55

Prob > F = 0.0000

Summary results for first-stage regressions

Variable	F(1,254643)	P-val	(Underid)	SW Chi-sq(1)	P-val	(Weak id)	SW F(1,254643)
morekids	1386.55	0.0000		1386.60	0.0000		1386.55

NB: first-stage test statistics heteroskedasticity-robust

Stock-Yogo weak ID F test critical values for single endogenous regressor:

10% maximal IV size 16.38

15% maximal IV size 8.96

20% maximal IV size 6.66

25% maximal IV size 5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for i.i.d. errors only.

Underidentification test

Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)

Ha: matrix has rank=K1 (identified)

Kleibergen-Paap rk LM statistic Chi-sq(1)=1379.05 P-val=0.0000

Weak identification test

Ho: equation is weakly identified

Cragg-Donald Wald F statistic 1385.68

Kleibergen-Paap Wald rk F statistic 1386.55

Stock-Yogo weak ID test critical values for K1=1 and L1=1:

10% maximal IV size 16.38

15% maximal IV size 8.96

20% maximal IV size 6.66

25% maximal IV size 5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Weak-instrument-robust inference

Tests of joint significance of endogenous regressors B1 in main equation

Ho: B1=0 and orthogonality conditions are valid

Anderson-Rubin Wald test F(1,254643)= 18.24 P-val=0.0000
 Anderson-Rubin Wald test Chi-sq(1)= 18.24 P-val=0.0000
 Stock-Wright LM S statistic Chi-sq(1)= 18.23 P-val=0.0000

NB: Underidentification, weak identification and weak-identification-robust test statistics heteroskedasticity-robust

Number of observations N = 254652
 Number of regressors K = 9
 Number of endogenous regressors K1 = 1
 Number of instruments L = 9
 Number of excluded instruments L1 = 1

IV (2SLS) estimation

Estimates efficient for homoskedasticity only
 Statistics robust to heteroskedasticity

		Number of obs = 254652
		F(8,254643) = 1381.66
		Prob > F = 0.0000
Total (centered) SS = 121769885.8		Centered R2 = 0.0663
Total (uncentered) SS = 213877412		Uncentered R2 = 0.4684
Residual SS = 113693590.3		Root MSE = 21.13

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
wks_wrked_moth						
morekids	-5.272048	1.217842	-4.33	0.000	-7.658975	-2.885121
age_mother	1.248147	.0390491	31.96	0.000	1.171612	1.324682
age1stbth_moth	-1.243872	.0556552	-22.35	0.000	-1.352954	-1.134789
boy1st	-.0308324	.0845353	-0.36	0.715	-.1965185	.1348538
boy2nd	-.1371702	.0843995	-1.63	0.104	-.3025902	.0282498
black_mother	10.65607	.2102791	50.68	0.000	10.24393	11.06821
hisp_moth	.732642	.3274499	2.24	0.025	.090852	1.374432
othrace_moth	4.045323	.2689623	15.04	0.000	3.518166	4.572479
_cons	8.395964	.6092192	13.78	0.000	7.201916	9.590012

Underidentification test (Kleibergen-Paap rk LM statistic): 1379.045
 Chi-sq(1) P-val = 0.0000

Weak identification test (Cragg-Donald Wald F statistic): 1385.684
 (Kleibergen-Paap rk Wald F statistic): 1386.551
 Stock-Yogo weak ID test critical values: 10% maximal IV size 16.38
 15% maximal IV size 8.96
 20% maximal IV size 6.66
 25% maximal IV size 5.53

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Hansen J statistic (overidentification test of all instruments): 0.000
 (equation exactly identified)

Instrumented: morekids
 Included instruments: age_mother age1stbth_moth boy1st boy2nd black_mother hisp_moth othrace_moth
 Excluded instruments: samesex

(est2 stored)

 Regression: IV - Mother's hours worked - Married Sample

First-stage regressions

First-stage regression of morekids:

Statistics robust to heteroskedasticity

Number of obs = 254652

morekids	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
samesex	.0688214	.0018482	37.24	0.000	.0651989 .0724438
age_mother	.0302007	.0002935	102.92	0.000	.0296255 .0307759
agelstbth_moth	-.0438521	.0003275	-133.92	0.000	-.0444939 -.0432103
boy1st	-.0109446	.0018485	-5.92	0.000	-.0145676 -.0073217
boy2nd	-.0102893	.0018485	-5.57	0.000	-.0139122 -.0066663
black_mother	.0632568	.0042604	14.85	0.000	.0549064 .0716071
hisp_moth	.1650835	.0058074	28.43	0.000	.1537012 .1764658
othrace_moth	.0588497	.0053646	10.97	0.000	.0483353 .0693641
_cons	.3429363	.0090432	37.92	0.000	.3252119 .3606608

F test of excluded instruments:

F(1,254643) = 1386.55

Prob > F = 0.0000

Sanderson-Windmeijer multivariate F test of excluded instruments:

F(1,254643) = 1386.55

Prob > F = 0.0000

Summary results for first-stage regressions

Variable	F(1,254643)	P-val	(Underid)	SW Chi-sq(1)	P-val	(Weak id)	SW F(1,254643)
morekids	1386.55	0.0000		1386.60	0.0000		1386.55

NB: first-stage test statistics heteroskedasticity-robust

Stock-Yogo weak ID F test critical values for single endogenous regressor:

10% maximal IV size 16.38

15% maximal IV size 8.96

20% maximal IV size 6.66

25% maximal IV size 5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for i.i.d. errors only.

Underidentification test

Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)

Ha: matrix has rank=K1 (identified)

Kleibergen-Paap rk LM statistic Chi-sq(1)=1379.05 P-val=0.0000

Weak identification test

Ho: equation is weakly identified

Cragg-Donald Wald F statistic 1385.68

Kleibergen-Paap Wald rk F statistic 1386.55

Stock-Yogo weak ID test critical values for K1=1 and L1=1:

10% maximal IV size 16.38

15% maximal IV size 8.96

20% maximal IV size 6.66

25% maximal IV size 5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Weak-instrument-robust inference

Tests of joint significance of endogenous regressors B1 in main equation

Ho: B1=0 and orthogonality conditions are valid

Anderson-Rubin Wald test F(1,254643)= 21.37 P-val=0.0000
 Anderson-Rubin Wald test Chi-sq(1)= 21.37 P-val=0.0000
 Stock-Wright LM S statistic Chi-sq(1)= 21.37 P-val=0.0000

NB: Underidentification, weak identification and weak-identification-robust test statistics heteroskedasticity-robust

Number of observations N = 254652
 Number of regressors K = 9
 Number of endogenous regressors K1 = 1
 Number of instruments L = 9
 Number of excluded instruments L1 = 1

IV (2SLS) estimation

Estimates efficient for homoskedasticity only
 Statistics robust to heteroskedasticity

		Number of obs = 254652
		F(8,254643) = 1390.99
		Prob > F = 0.0000
Total (centered) SS = 85611975.31		Centered R2 = 0.0633
Total (uncentered) SS = 156619100		Uncentered R2 = 0.4880
Residual SS = 80194171.35		Root MSE = 17.75

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
hourswked_moth						
morekids	-4.78356	1.022766	-4.68	0.000	-6.788144	-2.778975
age_mother	.7773111	.032891	23.63	0.000	.7128459	.8417763
age1stbth_moth	-1.253431	.0466356	-26.88	0.000	-1.344835	-1.162027
boy1st	.045581	.0709781	0.64	0.521	-.0935334	.1846955
boy2nd	-.1337664	.0709203	-1.89	0.059	-.2727676	.0052349
black_mother	9.603829	.1766837	54.36	0.000	9.257536	9.950123
hisp_moth	2.753206	.2930359	9.40	0.000	2.178866	3.327546
othrace_moth	5.125358	.2347506	21.83	0.000	4.665255	5.585461
_cons	20.32734	.5230009	38.87	0.000	19.30227	21.3524

Underidentification test (Kleibergen-Paap rk LM statistic): 1379.045
 Chi-sq(1) P-val = 0.0000

Weak identification test (Cragg-Donald Wald F statistic): 1385.684
 (Kleibergen-Paap rk Wald F statistic): 1386.551
 Stock-Yogo weak ID test critical values: 10% maximal IV size 16.38
 15% maximal IV size 8.96
 20% maximal IV size 6.66
 25% maximal IV size 5.53

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Hansen J statistic (overidentification test of all instruments): 0.000
 (equation exactly identified)

Instrumented: morekids
 Included instruments: age_mother age1stbth_moth boy1st boy2nd black_mother
 hisp_moth othrace_moth
 Excluded instruments: samesex

(est3 stored)

 Regression: IV - Total Income (mother) - Married Sample

First-stage regressions

First-stage regression of morekids:

Statistics robust to heteroskedasticity

Number of obs = 254652

morekids	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
samesex	.0688214	.0018482	37.24	0.000	.0651989 .0724438
age_mother	.0302007	.0002935	102.92	0.000	.0296255 .0307759
agelstbth_moth	-.0438521	.0003275	-133.92	0.000	-.0444939 -.0432103
boy1st	-.0109446	.0018485	-5.92	0.000	-.0145676 -.0073217
boy2nd	-.0102893	.0018485	-5.57	0.000	-.0139122 -.0066663
black_mother	.0632568	.0042604	14.85	0.000	.0549064 .0716071
hisp_moth	.1650835	.0058074	28.43	0.000	.1537012 .1764658
othrace_moth	.0588497	.0053646	10.97	0.000	.0483353 .0693641
_cons	.3429363	.0090432	37.92	0.000	.3252119 .3606608

F test of excluded instruments:

F(1,254643) = 1386.55

Prob > F = 0.0000

Sanderson-Windmeijer multivariate F test of excluded instruments:

F(1,254643) = 1386.55

Prob > F = 0.0000

Summary results for first-stage regressions

Variable	F(1,254643)	P-val	(Underid)	SW Chi-sq(1)	P-val	(Weak id)	SW F(1,254643)
morekids	1386.55	0.0000		1386.60	0.0000		1386.55

NB: first-stage test statistics heteroskedasticity-robust

Stock-Yogo weak ID F test critical values for single endogenous regressor:

10% maximal IV size 16.38

15% maximal IV size 8.96

20% maximal IV size 6.66

25% maximal IV size 5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for i.i.d. errors only.

Underidentification test

Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)

Ha: matrix has rank=K1 (identified)

Kleibergen-Paap rk LM statistic Chi-sq(1)=1379.05 P-val=0.0000

Weak identification test

Ho: equation is weakly identified

Cragg-Donald Wald F statistic 1385.68

Kleibergen-Paap Wald rk F statistic 1386.55

Stock-Yogo weak ID test critical values for K1=1 and L1=1:

10% maximal IV size 16.38

15% maximal IV size 8.96

20% maximal IV size 6.66

25% maximal IV size 5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Weak-instrument-robust inference

Tests of joint significance of endogenous regressors B1 in main equation

Ho: B1=0 and orthogonality conditions are valid

Anderson-Rubin Wald test	F(1,254643)=	4.86	P-val=0.0274
Anderson-Rubin Wald test	Chi-sq(1)=	4.86	P-val=0.0274
Stock-Wright LM S statistic	Chi-sq(1)=	4.87	P-val=0.0273

NB: Underidentification, weak identification and weak-identification-robust test statistics heteroskedasticity-robust

Number of observations	N =	254652
Number of regressors	K =	9
Number of endogenous regressors	K1 =	1
Number of instruments	L =	9
Number of excluded instruments	L1 =	1

IV (2SLS) estimation

Estimates efficient for homoskedasticity only
Statistics robust to heteroskedasticity

Total (centered) SS	=	5.34921e+13	Number of obs =	254652
Total (uncentered) SS	=	7.35355e+13	F(8,254643) =	1043.75
Residual SS	=	5.08537e+13	Prob > F =	0.0000
			Centered R2 =	0.0493
			Uncentered R2 =	0.3084
			Root MSE =	14131

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
totalinc_moth						
morekids	-1808.738	814.3478	-2.22	0.026	-3404.831	-212.6459
age_mother	665.9469	25.98071	25.63	0.000	615.0256	716.8682
age1stbth_moth	-367.7826	37.55444	-9.79	0.000	-441.388	-294.1772
boy1st	34.20192	56.62547	0.60	0.546	-76.78197	145.1858
boy2nd	-13.51422	56.34837	-0.24	0.810	-123.955	96.92655
black_mother	8641.998	163.1021	52.99	0.000	8322.323	8961.672
hisp_moth	1099.494	218.1248	5.04	0.000	671.9773	1527.011
othrace_moth	4669.933	224.2845	20.82	0.000	4230.343	5109.523
_cons	-3645.254	408.49	-8.92	0.000	-4445.88	-2844.629

Underidentification test (Kleibergen-Paap rk LM statistic): 1379.045
Chi-sq(1) P-val = 0.0000

Weak identification test (Cragg-Donald Wald F statistic): 1385.684
(Kleibergen-Paap rk Wald F statistic): 1386.551
Stock-Yogo weak ID test critical values: 10% maximal IV size 16.38
15% maximal IV size 8.96
20% maximal IV size 6.66
25% maximal IV size 5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Hansen J statistic (overidentification test of all instruments): 0.000
(equation exactly identified)

Instrumented: morekids
Included instruments: age_mother age1stbth_moth boy1st boy2nd black_mother
hisp_moth othrace_moth
Excluded instruments: samesex

(est4 stored)

Regression: IV - Log of total income (family) - Married
Sample

First-stage regressions

First-stage regression of morekids:

Statistics robust to heteroskedasticity

Number of obs = 254652

morekids	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
samesex	.0688214	.0018482	37.24	0.000	.0651989 .0724438
age_mother	.0302007	.0002935	102.92	0.000	.0296255 .0307759
agelstbth_moth	-.0438521	.0003275	-133.92	0.000	-.0444939 -.0432103
boy1st	-.0109446	.0018485	-5.92	0.000	-.0145676 -.0073217
boy2nd	-.0102893	.0018485	-5.57	0.000	-.0139122 -.0066663
black_mother	.0632568	.0042604	14.85	0.000	.0549064 .0716071
hisp_moth	.1650835	.0058074	28.43	0.000	.1537012 .1764658
othrace_moth	.0588497	.0053646	10.97	0.000	.0483353 .0693641
_cons	.3429363	.0090432	37.92	0.000	.3252119 .3606608

F test of excluded instruments:

F(1,254643) = 1386.55

Prob > F = 0.0000

Sanderson-Windmeijer multivariate F test of excluded instruments:

F(1,254643) = 1386.55

Prob > F = 0.0000

Summary results for first-stage regressions

Variable	F(1,254643)	P-val	(Underid) SW Chi-sq(1)	P-val	(Weak id) SW F(1,254643)
morekids	1386.55	0.0000	1386.60	0.0000	1386.55

NB: first-stage test statistics heteroskedasticity-robust

Stock-Yogo weak ID F test critical values for single endogenous regressor:

10% maximal IV size	16.38
15% maximal IV size	8.96
20% maximal IV size	6.66
25% maximal IV size	5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for i.i.d. errors only.

Underidentification test

Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)

Ha: matrix has rank=K1 (identified)

Kleibergen-Paap rk LM statistic Chi-sq(1)=1379.05 P-val=0.0000

Weak identification test

Ho: equation is weakly identified

Cragg-Donald Wald F statistic 1385.68

Kleibergen-Paap Wald rk F statistic 1386.55

Stock-Yogo weak ID test critical values for K1=1 and L1=1:

10% maximal IV size	16.38
15% maximal IV size	8.96
20% maximal IV size	6.66
25% maximal IV size	5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Weak-instrument-robust inference

Tests of joint significance of endogenous regressors B1 in main equation

Ho: B1=0 and orthogonality conditions are valid

Anderson-Rubin Wald test F(1,254643)= 0.53 P-val=0.4657
 Anderson-Rubin Wald test Chi-sq(1)= 0.53 P-val=0.4657
 Stock-Wright LM S statistic Chi-sq(1)= 0.53 P-val=0.4652

NB: Underidentification, weak identification and weak-identification-robust test statistics heteroskedasticity-robust

Number of observations N = 254652
 Number of regressors K = 9
 Number of endogenous regressors K1 = 1
 Number of instruments L = 9
 Number of excluded instruments L1 = 1

IV (2SLS) estimation

Estimates efficient for homoskedasticity only
 Statistics robust to heteroskedasticity

		Number of obs =	254652
		F(8,254643) =	913.36
		Prob > F =	0.0000
Total (centered) SS =	289288.6391	Centered R2 =	0.0340
Total (uncentered) SS =	30583039.24	Uncentered R2 =	0.9909
Residual SS =	279456.952	Root MSE =	1.048

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
logincfam						
morekids	-.044139	.0604452	-0.73	0.465	-.1626095	.0743314
age_mother	.0398875	.0019608	20.34	0.000	.0360444	.0437306
agelstbth_moth	.0231292	.0027564	8.39	0.000	.0177269	.0285316
boylst	.0056195	.0041915	1.34	0.180	-.0025957	.0138347
boy2nd	.0023153	.0041684	0.56	0.579	-.0058546	.0104852
black_mother	-.1393347	.0110541	-12.60	0.000	-.1610004	-.1176691
hisp_moth	-.3325765	.0190857	-17.43	0.000	-.3699838	-.2951692
othrace_moth	-.1902402	.0179122	-10.62	0.000	-.2253475	-.1551329
_cons	9.247183	.0310686	297.64	0.000	9.18629	9.308076

Underidentification test (Kleibergen-Paap rk LM statistic): 1379.045
 Chi-sq(1) P-val = 0.0000

Weak identification test (Cragg-Donald Wald F statistic): 1385.684
 (Kleibergen-Paap rk Wald F statistic): 1386.551

Stock-Yogo weak ID test critical values: 10% maximal IV size 16.38
 15% maximal IV size 8.96
 20% maximal IV size 6.66
 25% maximal IV size 5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Hansen J statistic (overidentification test of all instruments): 0.000
 (equation exactly identified)

Instrumented: morekids
 Included instruments: age_mother agelstbth_moth boylst boy2nd black_mother
 hisp_moth othrace_moth
 Excluded instruments: samesex

(est5 stored)

 Regression: IV - Total income besides mother - Married
 Sample

First-stage regressions

First-stage regression of morekids:

Statistics robust to heteroskedasticity

Number of obs = 254652

morekids	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
samesex	.0688214	.0018482	37.24	0.000	.0651989 .0724438
age_mother	.0302007	.0002935	102.92	0.000	.0296255 .0307759
age1stbth_moth	-.0438521	.0003275	-133.92	0.000	-.0444939 -.0432103
boy1st	-.0109446	.0018485	-5.92	0.000	-.0145676 -.0073217
boy2nd	-.0102893	.0018485	-5.57	0.000	-.0139122 -.0066663
black_mother	.0632568	.0042604	14.85	0.000	.0549064 .0716071
hisp_moth	.1650835	.0058074	28.43	0.000	.1537012 .1764658
othrace_moth	.0588497	.0053646	10.97	0.000	.0483353 .0693641
_cons	.3429363	.0090432	37.92	0.000	.3252119 .3606608

F test of excluded instruments:

F(1,254643) = 1386.55

Prob > F = 0.0000

Sanderson-Windmeijer multivariate F test of excluded instruments:

F(1,254643) = 1386.55

Prob > F = 0.0000

Summary results for first-stage regressions

Variable	F(1,254643)	P-val	(Underid)	(Weak id)
morekids	1386.55	0.0000	SW Chi-sq(1) 1386.60	P-val 0.0000 SW F(1,254643) 1386.55

NB: first-stage test statistics heteroskedasticity-robust

Stock-Yogo weak ID F test critical values for single endogenous regressor:

10% maximal IV size	16.38
15% maximal IV size	8.96
20% maximal IV size	6.66
25% maximal IV size	5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for i.i.d. errors only.

Underidentification test

Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)

Ha: matrix has rank=K1 (identified)

Kleibergen-Paap rk LM statistic Chi-sq(1)=1379.05 P-val=0.0000

Weak identification test

Ho: equation is weakly identified

Cragg-Donald Wald F statistic 1385.68

Kleibergen-Paap Wald rk F statistic 1386.55

Stock-Yogo weak ID test critical values for K1=1 and L1=1:

10% maximal IV size	16.38
15% maximal IV size	8.96
20% maximal IV size	6.66
25% maximal IV size	5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Weak-instrument-robust inference

Tests of joint significance of endogenous regressors B1 in main equation

Ho: B1=0 and orthogonality conditions are valid

Anderson-Rubin Wald test F(1,254643)= 0.24 P-val=0.6238
 Anderson-Rubin Wald test Chi-sq(1)= 0.24 P-val=0.6238
 Stock-Wright LM S statistic Chi-sq(1)= 0.24 P-val=0.6234

NB: Underidentification, weak identification and weak-identification-robust test statistics heteroskedasticity-robust

Number of observations N = 254652
 Number of regressors K = 9
 Number of endogenous regressors K1 = 1
 Number of instruments L = 9
 Number of excluded instruments L1 = 1

IV (2SLS) estimation

Estimates efficient for homoskedasticity only
 Statistics robust to heteroskedasticity

		Number of obs =	254652
		F(8,254643) =	820.09
		Prob > F =	0.0000
Total (centered) SS =	413535.1801	Centered R2 =	0.0285
Total (uncentered) SS =	29630912.29	Uncentered R2 =	0.9864
Residual SS =	401742.1699	Root MSE =	1.256

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
income_nonmoth						
morekids	.035536	.0724802	0.49	0.624	-.1065225	.1775945
age_mother	.0295037	.0023517	12.55	0.000	.0248944	.034113
age1stbth_moth	.0380938	.0033041	11.53	0.000	.0316179	.0445697
boy1st	.0056245	.0050176	1.12	0.262	-.0042097	.0154588
boy2nd	.0064061	.0050048	1.28	0.201	-.0034031	.0162153
black_mother	-.4057873	.0149475	-27.15	0.000	-.435084	-.3764907
hisp_moth	-.4137415	.0222952	-18.56	0.000	-.4574392	-.3700437
othrace_moth	-.3025867	.0202721	-14.93	0.000	-.3423193	-.262854
_cons	9.04238	.036818	245.60	0.000	8.970218	9.114542

Underidentification test (Kleibergen-Paap rk LM statistic): 1379.045
 Chi-sq(1) P-val = 0.0000

Weak identification test (Cragg-Donald Wald F statistic): 1385.684
 (Kleibergen-Paap rk Wald F statistic): 1386.551

Stock-Yogo weak ID test critical values: 10% maximal IV size 16.38
 15% maximal IV size 8.96
 20% maximal IV size 6.66
 25% maximal IV size 5.53

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Hansen J statistic (overidentification test of all instruments): 0.000
 (equation exactly identified)

Instrumented: morekids
 Included instruments: age_mother age1stbth_moth boy1st boy2nd black_mother hisp_moth othrace_moth
 Excluded instruments: samesex

(est6 stored)
 (output written to IVMarried.rtf)

. *****

```

.
. ***** Discussion
.
. /* Question 3(a):
> The number of children is certain to suffer from endogeneity to
> omitted variables and very likely suffers from simultaneity with
> labor supply. For instance, having children may cause someone to
> reduce their labor supply, but at the same time, having a good job
> or high income might allow someone to have children, or perhaps
> more likely, experiencing unemployment / low income may cause someone
> to delay plans for children.
> */
.
. /* Question 3(b):
> Would-be parents are often perceived to desire children of a certain
> sex, or often, to have both a girl and a boy. Hence, if the first
> two children are the same sex, in this case parents might be expected
> to have a weakly greater propensity to have another child. This
> implies that having two children of the same sex might be a relevant
> predictor of having a third child.
>
> At the same time, there aren't immediately obvious reasons why having
> two children of the same sex would be expected to influence the labor
> supply of parents via other channels, hence it seems quite possible
> that this also works as a valid instrument.
> */
.
. /* Question 3(d):
> As one can see from the first state regressions, the F-test of the
> excluded instruments indicates that the instrument is relevant since
> we reject the null of irrelevance in the underidentification test.
> Furthermore, this F-value is large enough that we know we do not have
> a problem with weak instruments, which is confirmed by the Stock-Yogo
> critical values suggesting that the instrument has very good size
> properties.
> */
.
. /* Question 3(e):
> Using the "same sex" as an instrument, we estimate that having three
> or more children is estimated to reduce the likelihood of a mother
> working by 11.7 percentage points. It is estimated to reduce
> mother's weeks worked by 5.559 weeks, and hours worked per week by
> 4.547 hours. Having three or more children is estimated to reduce
> mother's income by $2,701 in 2017 USD, and it is estimated to reduce
> family income by 2.46 percentage points. All of these estimates are
> highly statistically significant.
> */
.
. /* Question 3(f):
> We find that the reductions in labor supply or income estimated by
> IV regression is smaller in every case than the effects estimated
> using ordinary least squares, although they each still remain highly
> significant.
> */
.
. /* Question 3(g):
> The overidentification restrictions (OIR) test is not meaningful
> because it used to check coherence of instruments in the case where
> there are more than excluded instruments than endogenous variables.
> Here, we have the same number of excluded instruments as endogenous
> variables (just identified). Hence, we cannot conduct the OIR test.
> */
.
. ***** For 3 person groups
.
. **** Regressions (4a)
.

```

```
. local dependvars workedind_moth wks_wrked_moth hourswked_moth ///
> totalinc_moth logincfam income_nonmoth

.
.
. local controls age_mother agelstbth_moth boylst black_mother ///
> hisp_moth othrace_moth

.
.
. foreach sample in Main Married { // Perform the same regressions for each
the Main and Married sample
2.
. eststo clear
3.
. foreach outcome in `dependvars' { // Perform the IV regression for each
outcome in the list of dependent variables
4. display
"*****
*****"
5. display " Regression: IV - " `": var label `outcome'"" " -
`sample' Sample - Using Two Sons and Two Daughters Instruments "
6. display
"*****
*****"
7. eststo: ivreg2 `outcome' `controls' (morekids = boys2 girls2) if ///
> `sample'=1, first robust
8. }
9. }
```

```
*****
*****
Regression: IV - Mother worked - Main Sample - Using Two Sons and Two
Daughters Instruments
*****
*****
```

First-stage regressions

First-stage regression of morekids:

Statistics robust to heteroskedasticity

Number of obs = 394840

morekids	Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
boys2	.052459	.0020861	25.15	0.000	.0483702 .0565477
girls2	.0698382	.0021396	32.64	0.000	.0656446 .0740318
age_mother	.0302059	.0002291	131.86	0.000	.0297569 .0306549
agelstbth_moth	-.0451303	.0002645	-170.61	0.000	-.0456488 -.0446119
boylst	.0007576	.0020983	0.36	0.718	-.0033549 .0048701
black_mother	.071419	.0024032	29.72	0.000	.0667089 .0761292
hisp_moth	.1562174	.0043905	35.58	0.000	.1476122 .1648226
othrace_moth	.0721126	.0044715	16.13	0.000	.0633487 .0808765
_cons	.3546682	.0071315	49.73	0.000	.3406907 .3686457

F test of excluded instruments:

F(2,394831) = 849.00

Prob > F = 0.0000

Sanderson-Windmeijer multivariate F test of excluded instruments:

F(2,394831) = 849.00

Prob > F = 0.0000

Summary results for first-stage regressions

				(Underid)		(Weak id)
Variable	F(2,394831)	P-val	SW Chi-sq(2)	P-val	SW F(2,394831)	
morekids	849.00	0.0000	1698.04	0.0000	849.00	

NB: first-stage test statistics heteroskedasticity-robust

Stock-Yogo weak ID F test critical values for single endogenous regressor:

10% maximal IV size	19.93
15% maximal IV size	11.59
20% maximal IV size	8.75
25% maximal IV size	7.25

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for i.i.d. errors only.

Underidentification test

Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)
 Ha: matrix has rank=K1 (identified)
 Kleibergen-Paap rk LM statistic Chi-sq(2)=1690.20 P-val=0.0000

Weak identification test

Ho: equation is weakly identified
 Cragg-Donald Wald F statistic 849.25
 Kleibergen-Paap Wald rk F statistic 849.00

Stock-Yogo weak ID test critical values for K1=1 and L1=2:

10% maximal IV size	19.93
15% maximal IV size	11.59
20% maximal IV size	8.75
25% maximal IV size	7.25

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Weak-instrument-robust inference

Tests of joint significance of endogenous regressors B1 in main equation
 Ho: B1=0 and orthogonality conditions are valid
 Anderson-Rubin Wald test F(2,394831)= 12.19 P-val=0.0000
 Anderson-Rubin Wald test Chi-sq(2)= 24.39 P-val=0.0000
 Stock-Wright LM S statistic Chi-sq(2)= 24.38 P-val=0.0000

NB: Underidentification, weak identification and weak-identification-robust test statistics heteroskedasticity-robust

Number of observations	N =	394840
Number of regressors	K =	8
Number of endogenous regressors	K1 =	1
Number of instruments	L =	9
Number of excluded instruments	L1 =	2

IV (2SLS) estimation

Estimates efficient for homoskedasticity only
 Statistics robust to heteroskedasticity

		Number of obs =	394840
		F(7,394832) =	1569.24
		Prob > F =	0.0000
Total (centered) SS =	97016.69525	Centered R2 =	0.0497
Total (uncentered) SS =	223277	Uncentered R2 =	0.5871
Residual SS =	92195.88314	Root MSE =	.4832

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
workedind_moth						
morekids	-.110207	.024984	-4.41	0.000	-.1591747	-.0612393
age_mother	.0222014	.0007907	28.08	0.000	.0206518	.0237511

agelstbth_moth		-.0261163	.0011628	-22.46	0.000	-.0283953	-.0238373
boylst		-.0001297	.0015475	-0.08	0.933	-.0031627	.0029034
black_mother		.1013245	.0029519	34.33	0.000	.095539	.10711
hisp_moth		-.0413244	.0060417	-6.84	0.000	-.053166	-.0294828
othrace_moth		.0373426	.0049829	7.49	0.000	.0275763	.0471088
_cons		.4551404	.0122836	37.05	0.000	.431065	.4792158

 Underidentification test (Kleibergen-Paap rk LM statistic): 1690.204
 Chi-sq(2) P-val = 0.0000

Weak identification test (Cragg-Donald Wald F statistic): 849.249
 (Kleibergen-Paap rk Wald F statistic): 849.002
 Stock-Yogo weak ID test critical values: 10% maximal IV size 19.93
 15% maximal IV size 11.59
 20% maximal IV size 8.75
 25% maximal IV size 7.25

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

 Hansen J statistic (overidentification test of all instruments): 5.550
 Chi-sq(1) P-val = 0.0185

Instrumented: morekids
 Included instruments: age_mother agelstbth_moth boylst black_mother hisp_moth
 othrace_moth
 Excluded instruments: boys2 girls2

(est1 stored)

 Regression: IV - Weeks worked (moth) - Main Sample - Using Two Sons and Two
 Daughters Instruments

First-stage regressions

First-stage regression of morekids:

Statistics robust to heteroskedasticity
 Number of obs = 394840

morekids		Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
boys2		.052459	.0020861	25.15	0.000	.0483702 .0565477
girls2		.0698382	.0021396	32.64	0.000	.0656446 .0740318
age_mother		.0302059	.0002291	131.86	0.000	.0297569 .0306549
agelstbth_moth		-.0451303	.0002645	-170.61	0.000	-.0456488 -.0446119
boylst		.0007576	.0020983	0.36	0.718	-.0033549 .0048701
black_mother		.071419	.0024032	29.72	0.000	.0667089 .0761292
hisp_moth		.1562174	.0043905	35.58	0.000	.1476122 .1648226
othrace_moth		.0721126	.0044715	16.13	0.000	.0633487 .0808765
_cons		.3546682	.0071315	49.73	0.000	.3406907 .3686457

 F test of excluded instruments:

F(2,394831) = 849.00

Prob > F = 0.0000

Sanderson-Windmeijer multivariate F test of excluded instruments:

F(2,394831) = 849.00

Prob > F = 0.0000

 Summary results for first-stage regressions

Variable	F(2,394831)	P-val	(Underid)	SW Chi-sq(2)	P-val	(Weak id)	SW F(2,394831)
morekids	849.00	0.0000		1698.04	0.0000		849.00

NB: first-stage test statistics heteroskedasticity-robust

Stock-Yogo weak ID F test critical values for single endogenous regressor:

10% maximal IV size	19.93
15% maximal IV size	11.59
20% maximal IV size	8.75
25% maximal IV size	7.25

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for i.i.d. errors only.

Underidentification test
 Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)
 Ha: matrix has rank=K1 (identified)
 Kleibergen-Paap rk LM statistic Chi-sq(2)=1690.20 P-val=0.0000

Weak identification test
 Ho: equation is weakly identified
 Cragg-Donald Wald F statistic 849.25
 Kleibergen-Paap Wald rk F statistic 849.00

Stock-Yogo weak ID test critical values for K1=1 and L1=2:

10% maximal IV size	19.93
15% maximal IV size	11.59
20% maximal IV size	8.75
25% maximal IV size	7.25

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Weak-instrument-robust inference
 Tests of joint significance of endogenous regressors B1 in main equation
 Ho: B1=0 and orthogonality conditions are valid
 Anderson-Rubin Wald test F(2,394831)= 13.26 P-val=0.0000
 Anderson-Rubin Wald test Chi-sq(2)= 26.51 P-val=0.0000
 Stock-Wright LM S statistic Chi-sq(2)= 26.51 P-val=0.0000

NB: Underidentification, weak identification and weak-identification-robust test statistics heteroskedasticity-robust

Number of observations	N =	394840
Number of regressors	K =	8
Number of endogenous regressors	K1 =	1
Number of instruments	L =	9
Number of excluded instruments	L1 =	2

IV (2SLS) estimation

Estimates efficient for homoskedasticity only
 Statistics robust to heteroskedasticity

	Number of obs =	394840
	F(7,394832) =	2604.57
	Prob > F =	0.0000
Total (centered) SS =	196103263.5	Centered R2 = 0.0716
Total (uncentered) SS =	367488861	Uncentered R2 = 0.5046
Residual SS =	182060080.5	Root MSE = 21.47

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
wks_wrked_moth	-5.26329	1.110424	-4.74	0.000	-7.439681	-3.0869
age_mother	1.353978	.0350807	38.60	0.000	1.285221	1.422734

agelstbth_moth		-1.256538	.0517075	-24.30	0.000	-1.357883	-1.155193
boylst		-.0923008	.0687631	-1.34	0.179	-.2270739	.0424724
black_mother		6.187473	.1362465	45.41	0.000	5.920435	6.454512
hisp_moth		-1.361366	.2618718	-5.20	0.000	-1.874625	-.8481067
othrace_moth		2.59442	.2259421	11.48	0.000	2.151581	3.037258
_cons		6.745921	.5363979	12.58	0.000	5.694601	7.797242

Underidentification test (Kleibergen-Paap rk LM statistic): 1690.204
Chi-sq(2) P-val = 0.0000

Weak identification test (Cragg-Donald Wald F statistic): 849.249
(Kleibergen-Paap rk Wald F statistic): 849.002
Stock-Yogo weak ID test critical values: 10% maximal IV size 19.93
15% maximal IV size 11.59
20% maximal IV size 8.75
25% maximal IV size 7.25

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Hansen J statistic (overidentification test of all instruments): 4.884
Chi-sq(1) P-val = 0.0271

Instrumented: morekids
Included instruments: age_mother agelstbth_moth boylst black_mother hisp_moth
othrace_moth
Excluded instruments: boys2 girls2

(est2 stored)

Regression: IV - Mother's hours worked - Main Sample - Using Two Sons and Two Daughters Instruments

First-stage regressions

First-stage regression of morekids:

Statistics robust to heteroskedasticity

Number of obs = 394840

morekids		Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
boys2		.052459	.0020861	25.15	0.000	.0483702 .0565477
girls2		.0698382	.0021396	32.64	0.000	.0656446 .0740318
age_mother		.0302059	.0002291	131.86	0.000	.0297569 .0306549
agelstbth_moth		-.0451303	.0002645	-170.61	0.000	-.0456488 -.0446119
boylst		.0007576	.0020983	0.36	0.718	-.0033549 .0048701
black_mother		.071419	.0024032	29.72	0.000	.0667089 .0761292
hisp_moth		.1562174	.0043905	35.58	0.000	.1476122 .1648226
othrace_moth		.0721126	.0044715	16.13	0.000	.0633487 .0808765
_cons		.3546682	.0071315	49.73	0.000	.3406907 .3686457

F test of excluded instruments:

F(2,394831) = 849.00

Prob > F = 0.0000

Sanderson-Windmeijer multivariate F test of excluded instruments:

F(2,394831) = 849.00

Prob > F = 0.0000

Summary results for first-stage regressions

Variable	F(2,394831)	P-val	(Underid)	SW Chi-sq(2)	P-val	(Weak id)	SW F(2,394831)
morekids	849.00	0.0000		1698.04	0.0000		849.00

NB: first-stage test statistics heteroskedasticity-robust

Stock-Yogo weak ID F test critical values for single endogenous regressor:

10% maximal IV size	19.93
15% maximal IV size	11.59
20% maximal IV size	8.75
25% maximal IV size	7.25

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for i.i.d. errors only.

Underidentification test

Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)

Ha: matrix has rank=K1 (identified)

Kleibergen-Paap rk LM statistic Chi-sq(2)=1690.20 P-val=0.0000

Weak identification test

Ho: equation is weakly identified

Cragg-Donald Wald F statistic 849.25

Kleibergen-Paap Wald rk F statistic 849.00

Stock-Yogo weak ID test critical values for K1=1 and L1=2:

10% maximal IV size	19.93
15% maximal IV size	11.59
20% maximal IV size	8.75
25% maximal IV size	7.25

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Weak-instrument-robust inference

Tests of joint significance of endogenous regressors B1 in main equation

Ho: B1=0 and orthogonality conditions are valid

Anderson-Rubin Wald test F(2,394831)= 12.19 P-val=0.0000

Anderson-Rubin Wald test Chi-sq(2)= 24.38 P-val=0.0000

Stock-Wright LM S statistic Chi-sq(2)= 24.38 P-val=0.0000

NB: Underidentification, weak identification and weak-identification-robust test statistics heteroskedasticity-robust

Number of observations	N =	394840
Number of regressors	K =	8
Number of endogenous regressors	K1 =	1
Number of instruments	L =	9
Number of excluded instruments	L1 =	2

IV (2SLS) estimation

Estimates efficient for homoskedasticity only
Statistics robust to heteroskedasticity

Total (centered) SS	=	141275374.3	Number of obs	=	394840
Total (uncentered) SS	=	280793034	F(7,394832)	=	2339.51
Residual SS	=	132469108.8	Prob > F	=	0.0000
			Centered R2	=	0.0623
			Uncentered R2	=	0.5282
			Root MSE	=	18.32

hourswked_moth	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]
morekids	-4.309362	.946856	-4.55	0.000	-6.165166 -2.453558
age_mother	.8281426	.0299805	27.62	0.000	.769382 .8869032

agelstbth_moth		-1.261809	.044011	-28.67	0.000	-1.348069	-1.175549
boylst		-.0351039	.0586432	-0.60	0.549	-.1500424	.0798346
black_mother		5.486404	.1168547	46.95	0.000	5.257373	5.715435
hisp_moth		.3096387	.2342771	1.32	0.186	-.1495361	.7688134
othrace_moth		3.753189	.1989044	18.87	0.000	3.363344	4.143035
_cons		20.24341	.4648067	43.55	0.000	19.33241	21.15442

 Underidentification test (Kleibergen-Paap rk LM statistic): 1690.204
 Chi-sq(2) P-val = 0.0000

Weak identification test (Cragg-Donald Wald F statistic): 849.249
 (Kleibergen-Paap rk Wald F statistic): 849.002
 Stock-Yogo weak ID test critical values: 10% maximal IV size 19.93
 15% maximal IV size 11.59
 20% maximal IV size 8.75
 25% maximal IV size 7.25

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

 Hansen J statistic (overidentification test of all instruments): 4.331
 Chi-sq(1) P-val = 0.0374

Instrumented: morekids
 Included instruments: age_mother agelstbth_moth boylst black_mother hisp_moth
 othrace_moth
 Excluded instruments: boys2 girls2

(est3 stored)

 Regression: IV - Total Income (mother) - Main Sample - Using Two Sons and Two
 Daughters Instruments

First-stage regressions

First-stage regression of morekids:

Statistics robust to heteroskedasticity
 Number of obs = 394840

morekids		Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
boys2		.052459	.0020861	25.15	0.000	.0483702 .0565477
girls2		.0698382	.0021396	32.64	0.000	.0656446 .0740318
age_mother		.0302059	.0002291	131.86	0.000	.0297569 .0306549
agelstbth_moth		-.0451303	.0002645	-170.61	0.000	-.0456488 -.0446119
boylst		.0007576	.0020983	0.36	0.718	-.0033549 .0048701
black_mother		.071419	.0024032	29.72	0.000	.0667089 .0761292
hisp_moth		.1562174	.0043905	35.58	0.000	.1476122 .1648226
othrace_moth		.0721126	.0044715	16.13	0.000	.0633487 .0808765
_cons		.3546682	.0071315	49.73	0.000	.3406907 .3686457

 F test of excluded instruments:

F(2,394831) = 849.00

Prob > F = 0.0000

Sanderson-Windmeijer multivariate F test of excluded instruments:

F(2,394831) = 849.00

Prob > F = 0.0000

 Summary results for first-stage regressions

Variable	F(2,394831)	P-val	(Underid)	SW Chi-sq(2)	P-val	(Weak id)	SW F(2,394831)
morekids	849.00	0.0000		1698.04	0.0000		849.00

NB: first-stage test statistics heteroskedasticity-robust

Stock-Yogo weak ID F test critical values for single endogenous regressor:

10% maximal IV size	19.93
15% maximal IV size	11.59
20% maximal IV size	8.75
25% maximal IV size	7.25

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for i.i.d. errors only.

Underidentification test

Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)

Ha: matrix has rank=K1 (identified)

Kleibergen-Paap rk LM statistic Chi-sq(2)=1690.20 P-val=0.0000

Weak identification test

Ho: equation is weakly identified

Cragg-Donald Wald F statistic 849.25

Kleibergen-Paap Wald rk F statistic 849.00

Stock-Yogo weak ID test critical values for K1=1 and L1=2:

10% maximal IV size	19.93
15% maximal IV size	11.59
20% maximal IV size	8.75
25% maximal IV size	7.25

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Weak-instrument-robust inference

Tests of joint significance of endogenous regressors B1 in main equation

Ho: B1=0 and orthogonality conditions are valid

Anderson-Rubin Wald test F(2,394831)= 6.41 P-val=0.0016

Anderson-Rubin Wald test Chi-sq(2)= 12.83 P-val=0.0016

Stock-Wright LM S statistic Chi-sq(2)= 12.83 P-val=0.0016

NB: Underidentification, weak identification and weak-identification-robust test statistics heteroskedasticity-robust

Number of observations	N =	394840
Number of regressors	K =	8
Number of endogenous regressors	K1 =	1
Number of instruments	L =	9
Number of excluded instruments	L1 =	2

IV (2SLS) estimation

Estimates efficient for homoskedasticity only
Statistics robust to heteroskedasticity

	Number of obs =	394840	
	F(7,394832) =	2168.28	
	Prob > F =	0.0000	
Total (centered) SS =	9.28579e+13	Centered R2 =	0.0565
Total (uncentered) SS =	1.33649e+14	Uncentered R2 =	0.3444
Residual SS =	8.76159e+13	Root MSE =	14896

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
totalinc_moth	-2573.787	770.8604	-3.34	0.001	-4084.645	-1062.928
age_mother	828.8278	24.26747	34.15	0.000	781.2644	876.3912

agelstbth_moth		-496.1662	36.19682	-13.71	0.000	-567.1107	-425.2217
boylst		-32.24841	47.69818	-0.68	0.499	-125.7351	61.23831
black_mother		5368.359	99.3033	54.06	0.000	5173.729	5562.99
hisp_moth		-78.27182	173.3934	-0.45	0.652	-418.1167	261.5731
othrace_moth		3409.79	182.1183	18.72	0.000	3052.845	3766.735
_cons		-4494.166	373.6379	-12.03	0.000	-5226.483	-3761.849

 Underidentification test (Kleibergen-Paap rk LM statistic): 1690.204
 Chi-sq(2) P-val = 0.0000

Weak identification test (Cragg-Donald Wald F statistic): 849.249
 (Kleibergen-Paap rk Wald F statistic): 849.002
 Stock-Yogo weak ID test critical values: 10% maximal IV size 19.93
 15% maximal IV size 11.59
 20% maximal IV size 8.75
 25% maximal IV size 7.25

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

 Hansen J statistic (overidentification test of all instruments): 1.887
 Chi-sq(1) P-val = 0.1695

Instrumented: morekids
 Included instruments: age_mother agelstbth_moth boylst black_mother hisp_moth
 othrace_moth
 Excluded instruments: boys2 girls2

(est4 stored)

 Regression: IV - Log of total income (family) - Main Sample - Using Two Sons
 and Two Daughters Instruments

First-stage regressions

First-stage regression of morekids:

Statistics robust to heteroskedasticity
 Number of obs = 394840

morekids		Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
boys2		.052459	.0020861	25.15	0.000	.0483702 .0565477
girls2		.0698382	.0021396	32.64	0.000	.0656446 .0740318
age_mother		.0302059	.0002291	131.86	0.000	.0297569 .0306549
agelstbth_moth		-.0451303	.0002645	-170.61	0.000	-.0456488 -.0446119
boylst		.0007576	.0020983	0.36	0.718	-.0033549 .0048701
black_mother		.071419	.0024032	29.72	0.000	.0667089 .0761292
hisp_moth		.1562174	.0043905	35.58	0.000	.1476122 .1648226
othrace_moth		.0721126	.0044715	16.13	0.000	.0633487 .0808765
_cons		.3546682	.0071315	49.73	0.000	.3406907 .3686457

 F test of excluded instruments:

F(2,394831) = 849.00

Prob > F = 0.0000

Sanderson-Windmeijer multivariate F test of excluded instruments:

F(2,394831) = 849.00

Prob > F = 0.0000

 Summary results for first-stage regressions

				(Underid)		(Weak id)
Variable	F(2,394831)	P-val	SW Chi-sq(2)	P-val	SW F(2,394831)	
morekids	849.00	0.0000	1698.04	0.0000	849.00	

NB: first-stage test statistics heteroskedasticity-robust

Stock-Yogo weak ID F test critical values for single endogenous regressor:

10% maximal IV size	19.93
15% maximal IV size	11.59
20% maximal IV size	8.75
25% maximal IV size	7.25

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for i.i.d. errors only.

Underidentification test
 Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)
 Ha: matrix has rank=K1 (identified)
 Kleibergen-Paap rk LM statistic Chi-sq(2)=1690.20 P-val=0.0000

Weak identification test
 Ho: equation is weakly identified
 Cragg-Donald Wald F statistic 849.25
 Kleibergen-Paap Wald rk F statistic 849.00

Stock-Yogo weak ID test critical values for K1=1 and L1=2:

10% maximal IV size	19.93
15% maximal IV size	11.59
20% maximal IV size	8.75
25% maximal IV size	7.25

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Weak-instrument-robust inference
 Tests of joint significance of endogenous regressors B1 in main equation
 Ho: B1=0 and orthogonality conditions are valid
 Anderson-Rubin Wald test F(2,394831)= 0.63 P-val=0.5320
 Anderson-Rubin Wald test Chi-sq(2)= 1.26 P-val=0.5320
 Stock-Wright LM S statistic Chi-sq(2)= 1.26 P-val=0.5318

NB: Underidentification, weak identification and weak-identification-robust test statistics heteroskedasticity-robust

Number of observations	N =	394840
Number of regressors	K =	8
Number of endogenous regressors	K1 =	1
Number of instruments	L =	9
Number of excluded instruments	L1 =	2

IV (2SLS) estimation

Estimates efficient for homoskedasticity only
 Statistics robust to heteroskedasticity

		Number of obs =	394840
		F(7,394832) =	2391.52
		Prob > F =	0.0000
Total (centered) SS =	751697.7839	Centered R2 =	0.0555
Total (uncentered) SS =	45654616.9	Uncentered R2 =	0.9844
Residual SS =	709976.9993	Root MSE =	1.341

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
logincfam						
morekids	-.0331194	.0694845	-0.48	0.634	-.1693064	.1030676
age_mother	.0433455	.0022056	19.65	0.000	.0390226	.0476684

agelstbth_moth		.0352686	.003224	10.94	0.000	.0289497	.0415875
boylst		.005582	.0042927	1.30	0.193	-.0028316	.0139956
black_mother		-.5832828	.0097958	-59.54	0.000	-.6024822	-.5640834
hisp_moth		-.5003488	.0195226	-25.63	0.000	-.5386124	-.4620853
othrace_moth		-.2231589	.0165599	-13.48	0.000	-.2556157	-.1907021
_cons		8.74936	.034679	252.30	0.000	8.68139	8.81733

 Underidentification test (Kleibergen-Paap rk LM statistic): 1690.204
 Chi-sq(2) P-val = 0.0000

Weak identification test (Cragg-Donald Wald F statistic): 849.249
 (Kleibergen-Paap rk Wald F statistic): 849.002
 Stock-Yogo weak ID test critical values: 10% maximal IV size 19.93
 15% maximal IV size 11.59
 20% maximal IV size 8.75
 25% maximal IV size 7.25

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

 Hansen J statistic (overidentification test of all instruments): 1.049
 Chi-sq(1) P-val = 0.3057

Instrumented: morekids
 Included instruments: age_mother agelstbth_moth boylst black_mother hisp_moth
 othrace_moth
 Excluded instruments: boys2 girls2

 (est5 stored)

 Regression: IV - Total income besides mother - Main Sample - Using Two Sons
 and Two Daughters Instruments

First-stage regressions

 First-stage regression of morekids:

Statistics robust to heteroskedasticity
 Number of obs = 394840

morekids		Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
boys2		.052459	.0020861	25.15	0.000	.0483702 .0565477
girls2		.0698382	.0021396	32.64	0.000	.0656446 .0740318
age_mother		.0302059	.0002291	131.86	0.000	.0297569 .0306549
agelstbth_moth		-.0451303	.0002645	-170.61	0.000	-.0456488 -.0446119
boylst		.0007576	.0020983	0.36	0.718	-.0033549 .0048701
black_mother		.071419	.0024032	29.72	0.000	.0667089 .0761292
hisp_moth		.1562174	.0043905	35.58	0.000	.1476122 .1648226
othrace_moth		.0721126	.0044715	16.13	0.000	.0633487 .0808765
_cons		.3546682	.0071315	49.73	0.000	.3406907 .3686457

 F test of excluded instruments:
 F(2,394831) = 849.00
 Prob > F = 0.0000
 Sanderson-Windmeijer multivariate F test of excluded instruments:
 F(2,394831) = 849.00
 Prob > F = 0.0000

 Summary results for first-stage regressions

Variable	F(2,394831)	P-val	(Underid)	SW Chi-sq(2)	P-val	(Weak id)	SW F(2,394831)
morekids	849.00	0.0000		1698.04	0.0000		849.00

NB: first-stage test statistics heteroskedasticity-robust

Stock-Yogo weak ID F test critical values for single endogenous regressor:

10% maximal IV size	19.93
15% maximal IV size	11.59
20% maximal IV size	8.75
25% maximal IV size	7.25

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for i.i.d. errors only.

Underidentification test

Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)
 Ha: matrix has rank=K1 (identified)
 Kleibergen-Paap rk LM statistic Chi-sq(2)=1690.20 P-val=0.0000

Weak identification test

Ho: equation is weakly identified
 Cragg-Donald Wald F statistic 849.25
 Kleibergen-Paap Wald rk F statistic 849.00

Stock-Yogo weak ID test critical values for K1=1 and L1=2:

10% maximal IV size	19.93
15% maximal IV size	11.59
20% maximal IV size	8.75
25% maximal IV size	7.25

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Weak-instrument-robust inference

Tests of joint significance of endogenous regressors B1 in main equation
 Ho: B1=0 and orthogonality conditions are valid
 Anderson-Rubin Wald test F(2,394831)= 3.52 P-val=0.0296
 Anderson-Rubin Wald test Chi-sq(2)= 7.04 P-val=0.0296
 Stock-Wright LM S statistic Chi-sq(2)= 7.05 P-val=0.0295

NB: Underidentification, weak identification and weak-identification-robust test statistics heteroskedasticity-robust

Number of observations	N =	394840
Number of regressors	K =	8
Number of endogenous regressors	K1 =	1
Number of instruments	L =	9
Number of excluded instruments	L1 =	2

IV (2SLS) estimation

Estimates efficient for homoskedasticity only
 Statistics robust to heteroskedasticity

	Number of obs =	394840
	F(7,394832) =	2625.08
	Prob > F =	0.0000
Total (centered) SS =	2442700.822	Centered R2 = 0.0697
Total (uncentered) SS =	42331214.97	Uncentered R2 = 0.9463
Residual SS =	2272327.233	Root MSE = 2.399

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]
income_nonmoth					
morekids	.0778845	.1243117	0.63	0.531	-.1657619 .3215309
age_mother	.008519	.0039442	2.16	0.031	.0007885 .0162494

agelstbth_moth		.0943366	.0057728	16.34	0.000	.0830221	.105651
boylst		.015309	.0076731	2.00	0.046	.00027	.0303479
black_mother		-1.638173	.0194129	-84.39	0.000	-1.676221	-1.600124
hisp_moth		-.659714	.0316276	-20.86	0.000	-.7217031	-.597725
othrace_moth		-.3842044	.0256924	-14.95	0.000	-.4345606	-.3338483
_cons		8.0811	.0605494	133.46	0.000	7.962425	8.199775

 Underidentification test (Kleibergen-Paap rk LM statistic): 1690.204
 Chi-sq(2) P-val = 0.0000

Weak identification test (Cragg-Donald Wald F statistic): 849.249
 (Kleibergen-Paap rk Wald F statistic): 849.002
 Stock-Yogo weak ID test critical values: 10% maximal IV size 19.93
 15% maximal IV size 11.59
 20% maximal IV size 8.75
 25% maximal IV size 7.25

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

 Hansen J statistic (overidentification test of all instruments): 6.617
 Chi-sq(1) P-val = 0.0101

Instrumented: morekids
 Included instruments: age_mother agelstbth_moth boylst black_mother hisp_moth
 othrace_moth
 Excluded instruments: boys2 girls2

 (est6 stored)

 Regression: IV - Mother worked - Married Sample - Using Two Sons and Two
 Daughters Instruments

 First-stage regressions

First-stage regression of morekids:

Statistics robust to heteroskedasticity
 Number of obs = 254652

morekids		Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
boys2		.0585321	.0025713	22.76	0.000	.0534924 .0635718
girls2		.0791107	.0026559	29.79	0.000	.0739051 .0843162
age_mother		.0302007	.0002935	102.92	0.000	.0296255 .0307759
agelstbth_moth		-.0438521	.0003275	-133.92	0.000	-.0444939 -.0432103
boylst		-.0006553	.0025871	-0.25	0.800	-.0057261 .0044154
black_mother		.0632568	.0042604	14.85	0.000	.0549064 .0716071
hisp_moth		.1650835	.0058074	28.43	0.000	.1537012 .1764658
othrace_moth		.0588497	.0053646	10.97	0.000	.0483353 .0693641
_cons		.332647	.0090421	36.79	0.000	.3149247 .3503694

 F test of excluded instruments:
 F(2,254643) = 702.79
 Prob > F = 0.0000
 Sanderson-Windmeijer multivariate F test of excluded instruments:
 F(2,254643) = 702.79
 Prob > F = 0.0000

 Summary results for first-stage regressions

			(Underid)		(Weak id)
Variable	F(2,254643)	P-val	SW Chi-sq(2)	P-val	SW F(2,254643)
morekids	702.79	0.0000	1405.64	0.0000	702.79

NB: first-stage test statistics heteroskedasticity-robust

Stock-Yogo weak ID F test critical values for single endogenous regressor:

10% maximal IV size	19.93
15% maximal IV size	11.59
20% maximal IV size	8.75
25% maximal IV size	7.25

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for i.i.d. errors only.

Underidentification test

Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)
 Ha: matrix has rank=K1 (identified)
 Kleibergen-Paap rk LM statistic Chi-sq(2)=1397.25 P-val=0.0000

Weak identification test

Ho: equation is weakly identified
 Cragg-Donald Wald F statistic 703.04
 Kleibergen-Paap Wald rk F statistic 702.79

Stock-Yogo weak ID test critical values for K1=1 and L1=2:

10% maximal IV size	19.93
15% maximal IV size	11.59
20% maximal IV size	8.75
25% maximal IV size	7.25

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Weak-instrument-robust inference

Tests of joint significance of endogenous regressors B1 in main equation
 Ho: B1=0 and orthogonality conditions are valid
 Anderson-Rubin Wald test F(2,254643)= 10.24 P-val=0.0000
 Anderson-Rubin Wald test Chi-sq(2)= 20.49 P-val=0.0000
 Stock-Wright LM S statistic Chi-sq(2)= 20.48 P-val=0.0000

NB: Underidentification, weak identification and weak-identification-robust test statistics heteroskedasticity-robust

Number of observations	N =	254652
Number of regressors	K =	8
Number of endogenous regressors	K1 =	1
Number of instruments	L =	9
Number of excluded instruments	L1 =	2

IV (2SLS) estimation

Estimates efficient for homoskedasticity only
 Statistics robust to heteroskedasticity

		Number of obs =	254652
		F(7,254644) =	1051.62
		Prob > F =	0.0000
Total (centered) SS =	63460.33183	Centered R2 =	0.0472
Total (uncentered) SS =	134510	Uncentered R2 =	0.5505
Residual SS =	60463.59917	Root MSE =	.4873

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]
workedind_moth	-.1089361	.0278795	-3.91	0.000	-.1635788 -.0542933
age_mother	.0215888	.0008958	24.10	0.000	.0198331 .0233446

agelstbth_moth		-.0260644	.001273	-20.48	0.000	-.0285594	-.0235694
boylst		.0007381	.0019494	0.38	0.705	-.0030827	.0045588
black_mother		.1897601	.0044107	43.02	0.000	.1811153	.1984049
hisp_moth		.0098259	.0076475	1.28	0.199	-.0051629	.0248148
othrace_moth		.0595756	.0059276	10.05	0.000	.0479576	.0711935
_cons		.4442434	.014173	31.34	0.000	.4164649	.472022

 Underidentification test (Kleibergen-Paap rk LM statistic): 1397.253
 Chi-sq(2) P-val = 0.0000

Weak identification test (Cragg-Donald Wald F statistic): 703.044
 (Kleibergen-Paap rk Wald F statistic): 702.794
 Stock-Yogo weak ID test critical values: 10% maximal IV size 19.93
 15% maximal IV size 11.59
 20% maximal IV size 8.75
 25% maximal IV size 7.25

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

 Hansen J statistic (overidentification test of all instruments): 5.680
 Chi-sq(1) P-val = 0.0172

Instrumented: morekids
 Included instruments: age_mother agelstbth_moth boylst black_mother hisp_moth
 othrace_moth
 Excluded instruments: boys2 girls2

(est1 stored)

 Regression: IV - Weeks worked (moth) - Married Sample - Using Two Sons and Two
 Daughters Instruments

First-stage regressions

First-stage regression of morekids:

Statistics robust to heteroskedasticity
 Number of obs = 254652

morekids		Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
boys2		.0585321	.0025713	22.76	0.000	.0534924 .0635718
girls2		.0791107	.0026559	29.79	0.000	.0739051 .0843162
age_mother		.0302007	.0002935	102.92	0.000	.0296255 .0307759
agelstbth_moth		-.0438521	.0003275	-133.92	0.000	-.0444939 -.0432103
boylst		-.0006553	.0025871	-0.25	0.800	-.0057261 .0044154
black_mother		.0632568	.0042604	14.85	0.000	.0549064 .0716071
hisp_moth		.1650835	.0058074	28.43	0.000	.1537012 .1764658
othrace_moth		.0588497	.0053646	10.97	0.000	.0483353 .0693641
_cons		.332647	.0090421	36.79	0.000	.3149247 .3503694

 F test of excluded instruments:

F(2,254643) = 702.79

Prob > F = 0.0000

Sanderson-Windmeijer multivariate F test of excluded instruments:

F(2,254643) = 702.79

Prob > F = 0.0000

 Summary results for first-stage regressions

Variable	F(2,254643)	P-val	(Underid)	SW Chi-sq(2)	P-val	(Weak id)	SW F(2,254643)
morekids	702.79	0.0000		1405.64	0.0000		702.79

NB: first-stage test statistics heteroskedasticity-robust

Stock-Yogo weak ID F test critical values for single endogenous regressor:

10% maximal IV size	19.93
15% maximal IV size	11.59
20% maximal IV size	8.75
25% maximal IV size	7.25

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for i.i.d. errors only.

Underidentification test

Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)

Ha: matrix has rank=K1 (identified)

Kleibergen-Paap rk LM statistic Chi-sq(2)=1397.25 P-val=0.0000

Weak identification test

Ho: equation is weakly identified

Cragg-Donald Wald F statistic 703.04

Kleibergen-Paap Wald rk F statistic 702.79

Stock-Yogo weak ID test critical values for K1=1 and L1=2:

10% maximal IV size	19.93
15% maximal IV size	11.59
20% maximal IV size	8.75
25% maximal IV size	7.25

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Weak-instrument-robust inference

Tests of joint significance of endogenous regressors B1 in main equation

Ho: B1=0 and orthogonality conditions are valid

Anderson-Rubin Wald test F(2,254643)= 9.72 P-val=0.0001

Anderson-Rubin Wald test Chi-sq(2)= 19.43 P-val=0.0001

Stock-Wright LM S statistic Chi-sq(2)= 19.43 P-val=0.0001

NB: Underidentification, weak identification and weak-identification-robust test statistics heteroskedasticity-robust

Number of observations	N =	254652
Number of regressors	K =	8
Number of endogenous regressors	K1 =	1
Number of instruments	L =	9
Number of excluded instruments	L1 =	2

IV (2SLS) estimation

Estimates efficient for homoskedasticity only
Statistics robust to heteroskedasticity

		Number of obs =	254652
		F(7,254644) =	1577.81
		Prob > F =	0.0000
Total (centered) SS =	121769885.8	Centered R2 =	0.0657
Total (uncentered) SS =	213877412	Uncentered R2 =	0.4681
Residual SS =	113770943	Root MSE =	21.14

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
wks_wrked_moth						
morekids	-5.033607	1.209315	-4.16	0.000	-7.403821	-2.663393
age_mother	1.24094	.0388117	31.97	0.000	1.164871	1.31701

agelstbth_moth		-1.233476	.0553025	-22.30	0.000	-1.341867	-1.125085
boylst		-.0299711	.0845652	-0.35	0.723	-.1957158	.1357736
black_mother		10.64188	.210188	50.63	0.000	10.22992	11.05384
hisp_moth		.6930784	.3267491	2.12	0.034	.0526619	1.333495
othrace_moth		4.031409	.2688973	14.99	0.000	3.50438	4.558438
_cons		8.239153	.6015446	13.70	0.000	7.060147	9.418158

Underidentification test (Kleibergen-Paap rk LM statistic): 1397.253
Chi-sq(2) P-val = 0.0000

Weak identification test (Cragg-Donald Wald F statistic): 703.044
(Kleibergen-Paap rk Wald F statistic): 702.794

Stock-Yogo weak ID test critical values: 10% maximal IV size 19.93
15% maximal IV size 11.59
20% maximal IV size 8.75
25% maximal IV size 7.25

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Hansen J statistic (overidentification test of all instruments): 2.640
Chi-sq(1) P-val = 0.1042

Instrumented: morekids
Included instruments: age_mother agelstbth_moth boylst black_mother hisp_moth
othrace_moth
Excluded instruments: boys2 girls2

(est2 stored)

Regression: IV - Mother's hours worked - Married Sample - Using Two Sons and
Two Daughters Instruments

First-stage regressions

First-stage regression of morekids:

Statistics robust to heteroskedasticity

Number of obs = 254652

morekids		Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
boys2		.0585321	.0025713	22.76	0.000	.0534924 .0635718
girls2		.0791107	.0026559	29.79	0.000	.0739051 .0843162
age_mother		.0302007	.0002935	102.92	0.000	.0296255 .0307759
agelstbth_moth		-.0438521	.0003275	-133.92	0.000	-.0444939 -.0432103
boylst		-.0006553	.0025871	-0.25	0.800	-.0057261 .0044154
black_mother		.0632568	.0042604	14.85	0.000	.0549064 .0716071
hisp_moth		.1650835	.0058074	28.43	0.000	.1537012 .1764658
othrace_moth		.0588497	.0053646	10.97	0.000	.0483353 .0693641
_cons		.332647	.0090421	36.79	0.000	.3149247 .3503694

F test of excluded instruments:

F(2,254643) = 702.79

Prob > F = 0.0000

Sanderson-Windmeijer multivariate F test of excluded instruments:

F(2,254643) = 702.79

Prob > F = 0.0000

Summary results for first-stage regressions

				(Underid)		(Weak id)
Variable	F(2,254643)	P-val	SW Chi-sq(2)	P-val	SW F(2,254643)	
morekids	702.79	0.0000	1405.64	0.0000	702.79	

NB: first-stage test statistics heteroskedasticity-robust

Stock-Yogo weak ID F test critical values for single endogenous regressor:

10% maximal IV size	19.93
15% maximal IV size	11.59
20% maximal IV size	8.75
25% maximal IV size	7.25

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for i.i.d. errors only.

Underidentification test

Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)
 Ha: matrix has rank=K1 (identified)
 Kleibergen-Paap rk LM statistic Chi-sq(2)=1397.25 P-val=0.0000

Weak identification test

Ho: equation is weakly identified
 Cragg-Donald Wald F statistic 703.04
 Kleibergen-Paap Wald rk F statistic 702.79

Stock-Yogo weak ID test critical values for K1=1 and L1=2:

10% maximal IV size	19.93
15% maximal IV size	11.59
20% maximal IV size	8.75
25% maximal IV size	7.25

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Weak-instrument-robust inference

Tests of joint significance of endogenous regressors B1 in main equation
 Ho: B1=0 and orthogonality conditions are valid
 Anderson-Rubin Wald test F(2,254643)= 11.53 P-val=0.0000
 Anderson-Rubin Wald test Chi-sq(2)= 23.05 P-val=0.0000
 Stock-Wright LM S statistic Chi-sq(2)= 23.05 P-val=0.0000

NB: Underidentification, weak identification and weak-identification-robust test statistics heteroskedasticity-robust

Number of observations	N =	254652
Number of regressors	K =	8
Number of endogenous regressors	K1 =	1
Number of instruments	L =	9
Number of excluded instruments	L1 =	2

IV (2SLS) estimation

Estimates efficient for homoskedasticity only
 Statistics robust to heteroskedasticity

		Number of obs =	254652
		F(7,254644) =	1588.93
		Prob > F =	0.0000
Total (centered) SS =	85611975.31	Centered R2 =	0.0629
Total (uncentered) SS =	156619100	Uncentered R2 =	0.4877
Residual SS =	80228968.55	Root MSE =	17.75

hourswked_moth	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]
morekids	-4.551036	1.01498	-4.48	0.000	-6.54036 -2.561712
age_mother	.7702831	.0326727	23.58	0.000	.7062459 .8343204

agelstbth_moth		-1.243293	.046314	-26.84	0.000	-1.334067	-1.152519
boylst		.0464209	.0709949	0.65	0.513	-.0927265	.1855683
black_mother		9.589993	.1765472	54.32	0.000	9.243967	9.936019
hisp_moth		2.714624	.292346	9.29	0.000	2.141637	3.287612
othrace_moth		5.111789	.2346618	21.78	0.000	4.651861	5.571718
_cons		20.17442	.5165179	39.06	0.000	19.16206	21.18677

 Underidentification test (Kleibergen-Paap rk LM statistic): 1397.253
 Chi-sq(2) P-val = 0.0000

Weak identification test (Cragg-Donald Wald F statistic): 703.044
 (Kleibergen-Paap rk Wald F statistic): 702.794
 Stock-Yogo weak ID test critical values: 10% maximal IV size 19.93
 15% maximal IV size 11.59
 20% maximal IV size 8.75
 25% maximal IV size 7.25

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

 Hansen J statistic (overidentification test of all instruments): 3.556
 Chi-sq(1) P-val = 0.0593

Instrumented: morekids
 Included instruments: age_mother agelstbth_moth boylst black_mother hisp_moth
 othrace_moth
 Excluded instruments: boys2 girls2

(est3 stored)

 Regression: IV - Total Income (mother) - Married Sample - Using Two Sons and
 Two Daughters Instruments

First-stage regressions

First-stage regression of morekids:

Statistics robust to heteroskedasticity
 Number of obs = 254652

morekids		Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
boys2		.0585321	.0025713	22.76	0.000	.0534924 .0635718
girls2		.0791107	.0026559	29.79	0.000	.0739051 .0843162
age_mother		.0302007	.0002935	102.92	0.000	.0296255 .0307759
agelstbth_moth		-.0438521	.0003275	-133.92	0.000	-.0444939 -.0432103
boylst		-.0006553	.0025871	-0.25	0.800	-.0057261 .0044154
black_mother		.0632568	.0042604	14.85	0.000	.0549064 .0716071
hisp_moth		.1650835	.0058074	28.43	0.000	.1537012 .1764658
othrace_moth		.0588497	.0053646	10.97	0.000	.0483353 .0693641
_cons		.332647	.0090421	36.79	0.000	.3149247 .3503694

 F test of excluded instruments:
 F(2,254643) = 702.79
 Prob > F = 0.0000
 Sanderson-Windmeijer multivariate F test of excluded instruments:
 F(2,254643) = 702.79
 Prob > F = 0.0000

Summary results for first-stage regressions

			(Underid)		(Weak id)
Variable	F(2,254643)	P-val	SW Chi-sq(2)	P-val	SW F(2,254643)
morekids	702.79	0.0000	1405.64	0.0000	702.79

NB: first-stage test statistics heteroskedasticity-robust

Stock-Yogo weak ID F test critical values for single endogenous regressor:

10% maximal IV size	19.93
15% maximal IV size	11.59
20% maximal IV size	8.75
25% maximal IV size	7.25

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for i.i.d. errors only.

Underidentification test

Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)

Ha: matrix has rank=K1 (identified)

Kleibergen-Paap rk LM statistic Chi-sq(2)=1397.25 P-val=0.0000

Weak identification test

Ho: equation is weakly identified

Cragg-Donald Wald F statistic 703.04

Kleibergen-Paap Wald rk F statistic 702.79

Stock-Yogo weak ID test critical values for K1=1 and L1=2:

10% maximal IV size	19.93
15% maximal IV size	11.59
20% maximal IV size	8.75
25% maximal IV size	7.25

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Weak-instrument-robust inference

Tests of joint significance of endogenous regressors B1 in main equation

Ho: B1=0 and orthogonality conditions are valid

Anderson-Rubin Wald test F(2,254643)= 2.43 P-val=0.0878

Anderson-Rubin Wald test Chi-sq(2)= 4.86 P-val=0.0878

Stock-Wright LM S statistic Chi-sq(2)= 4.87 P-val=0.0876

NB: Underidentification, weak identification and weak-identification-robust test statistics heteroskedasticity-robust

Number of observations	N =	254652
Number of regressors	K =	8
Number of endogenous regressors	K1 =	1
Number of instruments	L =	9
Number of excluded instruments	L1 =	2

IV (2SLS) estimation

Estimates efficient for homoskedasticity only
 Statistics robust to heteroskedasticity

		Number of obs =	254652
		F(7,254644) =	1192.67
		Prob > F =	0.0000
Total (centered) SS =	5.34921e+13	Centered R2 =	0.0492
Total (uncentered) SS =	7.35355e+13	Uncentered R2 =	0.3084
Residual SS =	5.08607e+13	Root MSE =	14132

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
totalinc_moth	-1785.247	809.4178	-2.21	0.027	-3371.677	-198.817
age_mother	665.2369	25.83818	25.75	0.000	614.595	715.8788

agelstbth_moth		-366.7584	37.3575	-9.82	0.000	-439.9777	-293.539
boylst		34.28677	56.62401	0.61	0.545	-76.69425	145.2678
black_mother		8640.6	162.9464	53.03	0.000	8321.231	8959.969
hisp_moth		1095.596	217.5815	5.04	0.000	669.1443	1522.048
othrace_moth		4668.562	224.285	20.82	0.000	4228.972	5108.153
_cons		-3660.704	404.0962	-9.06	0.000	-4452.718	-2868.69

 Underidentification test (Kleibergen-Paap rk LM statistic): 1397.253
 Chi-sq(2) P-val = 0.0000

Weak identification test (Cragg-Donald Wald F statistic): 703.044
 (Kleibergen-Paap rk Wald F statistic): 702.794
 Stock-Yogo weak ID test critical values: 10% maximal IV size 19.93
 15% maximal IV size 11.59
 20% maximal IV size 8.75
 25% maximal IV size 7.25

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

 Hansen J statistic (overidentification test of all instruments): 0.058
 Chi-sq(1) P-val = 0.8105

Instrumented: morekids
 Included instruments: age_mother agelstbth_moth boylst black_mother hisp_moth
 othrace_moth
 Excluded instruments: boys2 girls2

(est4 stored)

 Regression: IV - Log of total income (family) - Married Sample - Using Two
 Sons and Two Daughters Instruments

First-stage regressions

First-stage regression of morekids:

Statistics robust to heteroskedasticity
 Number of obs = 254652

morekids		Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
boys2		.0585321	.0025713	22.76	0.000	.0534924 .0635718
girls2		.0791107	.0026559	29.79	0.000	.0739051 .0843162
age_mother		.0302007	.0002935	102.92	0.000	.0296255 .0307759
agelstbth_moth		-.0438521	.0003275	-133.92	0.000	-.0444939 -.0432103
boylst		-.0006553	.0025871	-0.25	0.800	-.0057261 .0044154
black_mother		.0632568	.0042604	14.85	0.000	.0549064 .0716071
hisp_moth		.1650835	.0058074	28.43	0.000	.1537012 .1764658
othrace_moth		.0588497	.0053646	10.97	0.000	.0483353 .0693641
_cons		.332647	.0090421	36.79	0.000	.3149247 .3503694

 F test of excluded instruments:

F(2,254643) = 702.79

Prob > F = 0.0000

Sanderson-Windmeijer multivariate F test of excluded instruments:

F(2,254643) = 702.79

Prob > F = 0.0000

 Summary results for first-stage regressions

Variable	F(2,254643)	P-val	(Underid)	SW Chi-sq(2)	P-val	(Weak id)	SW F(2,254643)
morekids	702.79	0.0000		1405.64	0.0000		702.79

NB: first-stage test statistics heteroskedasticity-robust

Stock-Yogo weak ID F test critical values for single endogenous regressor:

10% maximal IV size	19.93
15% maximal IV size	11.59
20% maximal IV size	8.75
25% maximal IV size	7.25

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for i.i.d. errors only.

Underidentification test

Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)

Ha: matrix has rank=K1 (identified)

Kleibergen-Paap rk LM statistic Chi-sq(2)=1397.25 P-val=0.0000

Weak identification test

Ho: equation is weakly identified

Cragg-Donald Wald F statistic 703.04

Kleibergen-Paap Wald rk F statistic 702.79

Stock-Yogo weak ID test critical values for K1=1 and L1=2:

10% maximal IV size	19.93
15% maximal IV size	11.59
20% maximal IV size	8.75
25% maximal IV size	7.25

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Weak-instrument-robust inference

Tests of joint significance of endogenous regressors B1 in main equation

Ho: B1=0 and orthogonality conditions are valid

Anderson-Rubin Wald test F(2,254643)= 0.46 P-val=0.6319

Anderson-Rubin Wald test Chi-sq(2)= 0.92 P-val=0.6319

Stock-Wright LM S statistic Chi-sq(2)= 0.92 P-val=0.6318

NB: Underidentification, weak identification and weak-identification-robust test statistics heteroskedasticity-robust

Number of observations	N =	254652
Number of regressors	K =	8
Number of endogenous regressors	K1 =	1
Number of instruments	L =	9
Number of excluded instruments	L1 =	2

IV (2SLS) estimation

Estimates efficient for homoskedasticity only
Statistics robust to heteroskedasticity

	Number of obs =	254652	
	F(7,254644) =	1043.96	
	Prob > F =	0.0000	
Total (centered) SS =	289288.6391	Centered R2 =	0.0341
Total (uncentered) SS =	30583039.24	Uncentered R2 =	0.9909
Residual SS =	279414.6353	Root MSE =	1.047

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]
logincfam					
morekids	-.0481636	.0602393	-0.80	0.424	-.1662305 .0699033
age_mother	.0400091	.0019555	20.46	0.000	.0361765 .0438418

agelstbth_moth		.0229538	.0027482	8.35	0.000	.0175673	.0283402
boylst		.005605	.0041914	1.34	0.181	-.00261	.0138199
black_mother		-.1390953	.0110582	-12.58	0.000	-.160769	-.1174215
hisp_moth		-.3319087	.0190627	-17.41	0.000	-.3692708	-.2945465
othrace_moth		-.1900053	.0179065	-10.61	0.000	-.2251015	-.1549092
_cons		9.24983	.0307988	300.33	0.000	9.189465	9.310194

Underidentification test (Kleibergen-Paap rk LM statistic): 1397.253
Chi-sq(2) P-val = 0.0000

Weak identification test (Cragg-Donald Wald F statistic): 703.044
(Kleibergen-Paap rk Wald F statistic): 702.794

Stock-Yogo weak ID test critical values: 10% maximal IV size 19.93
15% maximal IV size 11.59
20% maximal IV size 8.75
25% maximal IV size 7.25

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Hansen J statistic (overidentification test of all instruments): 0.309
Chi-sq(1) P-val = 0.5786

Instrumented: morekids
Included instruments: age_mother agelstbth_moth boylst black_mother hisp_moth
othrace_moth
Excluded instruments: boys2 girls2

(est5 stored)

Regression: IV - Total income besides mother - Married Sample - Using Two Sons
and Two Daughters Instruments

First-stage regressions

First-stage regression of morekids:

Statistics robust to heteroskedasticity
Number of obs = 254652

morekids		Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
boys2		.0585321	.0025713	22.76	0.000	.0534924 .0635718
girls2		.0791107	.0026559	29.79	0.000	.0739051 .0843162
age_mother		.0302007	.0002935	102.92	0.000	.0296255 .0307759
agelstbth_moth		-.0438521	.0003275	-133.92	0.000	-.0444939 -.0432103
boylst		-.0006553	.0025871	-0.25	0.800	-.0057261 .0044154
black_mother		.0632568	.0042604	14.85	0.000	.0549064 .0716071
hisp_moth		.1650835	.0058074	28.43	0.000	.1537012 .1764658
othrace_moth		.0588497	.0053646	10.97	0.000	.0483353 .0693641
_cons		.332647	.0090421	36.79	0.000	.3149247 .3503694

F test of excluded instruments:

F(2,254643) = 702.79

Prob > F = 0.0000

Sanderson-Windmeijer multivariate F test of excluded instruments:

F(2,254643) = 702.79

Prob > F = 0.0000

Summary results for first-stage regressions

			(Underid)		(Weak id)
Variable	F(2,254643)	P-val	SW Chi-sq(2)	P-val	SW F(2,254643)
morekids	702.79	0.0000	1405.64	0.0000	702.79

NB: first-stage test statistics heteroskedasticity-robust

Stock-Yogo weak ID F test critical values for single endogenous regressor:

10% maximal IV size	19.93
15% maximal IV size	11.59
20% maximal IV size	8.75
25% maximal IV size	7.25

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for i.i.d. errors only.

Underidentification test

Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)
 Ha: matrix has rank=K1 (identified)
 Kleibergen-Paap rk LM statistic Chi-sq(2)=1397.25 P-val=0.0000

Weak identification test

Ho: equation is weakly identified
 Cragg-Donald Wald F statistic 703.04
 Kleibergen-Paap Wald rk F statistic 702.79

Stock-Yogo weak ID test critical values for K1=1 and L1=2:

10% maximal IV size	19.93
15% maximal IV size	11.59
20% maximal IV size	8.75
25% maximal IV size	7.25

Source: Stock-Yogo (2005). Reproduced by permission.
 NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Weak-instrument-robust inference

Tests of joint significance of endogenous regressors B1 in main equation
 Ho: B1=0 and orthogonality conditions are valid
 Anderson-Rubin Wald test F(2,254643)= 0.89 P-val=0.4115
 Anderson-Rubin Wald test Chi-sq(2)= 1.78 P-val=0.4115
 Stock-Wright LM S statistic Chi-sq(2)= 1.78 P-val=0.4110

NB: Underidentification, weak identification and weak-identification-robust test statistics heteroskedasticity-robust

Number of observations	N =	254652
Number of regressors	K =	8
Number of endogenous regressors	K1 =	1
Number of instruments	L =	9
Number of excluded instruments	L1 =	2

IV (2SLS) estimation

Estimates efficient for homoskedasticity only
 Statistics robust to heteroskedasticity

		Number of obs =	254652
		F(7,254644) =	937.14
		Prob > F =	0.0000
Total (centered) SS =	413535.1801	Centered R2 =	0.0288
Total (uncentered) SS =	29630912.29	Uncentered R2 =	0.9864
Residual SS =	401628.2355	Root MSE =	1.256

	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]
income_nonmoth					
morekids	.0244004	.0721538	0.34	0.735	-.1170184 .1658192
age_mother	.0298403	.0023424	12.74	0.000	.0252492 .0344314

age1stbth_moth		.0376083	.0032909	11.43	0.000	.0311582	.0440585
boylst		.0055843	.0050174	1.11	0.266	-.0042497	.0154183
black_mother		-.4051247	.0149373	-27.12	0.000	-.4344013	-.3758481
hisp_moth		-.4118938	.0222746	-18.49	0.000	-.4555511	-.3682364
othrace_moth		-.3019369	.0202633	-14.90	0.000	-.3416523	-.2622215
_cons		9.049703	.0364806	248.07	0.000	8.978203	9.121204

Underidentification test (Kleibergen-Paap rk LM statistic): 1397.253
Chi-sq(2) P-val = 0.0000

Weak identification test (Cragg-Donald Wald F statistic): 703.044
(Kleibergen-Paap rk Wald F statistic): 702.794

Stock-Yogo weak ID test critical values: 10% maximal IV size 19.93
15% maximal IV size 11.59
20% maximal IV size 8.75
25% maximal IV size 7.25

Source: Stock-Yogo (2005). Reproduced by permission.

NB: Critical values are for Cragg-Donald F statistic and i.i.d. errors.

Hansen J statistic (overidentification test of all instruments): 1.639
Chi-sq(1) P-val = 0.2005

Instrumented: morekids
Included instruments: age_mother age1stbth_moth boylst black_mother hisp_moth
othrace_moth
Excluded instruments: boys2 girls2

(est6 stored)

```

. /* Question 4(b):
> Having more excluded instruments than endogenous regressors
> (overidentification) can be advantageous in a couple of ways.
> First, if the instruments satisfy the necessary assumptions
> (validity and relevance) and they're not weak, then the
> overidentified 2SLS has greater asymptotic efficiency than
> IV regression.
>
> Additionally, 2SLS allows us to perform a means of falsification
> of our IV strategy. With more than two instruments, we can
> perform an Overidentifying Restrictions Test, to check if we have
> evidence against the null hypothesis that are
> instruments are all valid.
> */
.
. /* Question 4(c):
> A potential concern is that the instruments may be weak, in which
> additional instruments increases the bias of 2SLS.
> */
.
. /* Question 4(d):
> Using the F-test for excluded instruments, we once again find the
> instrument is relevant (we reject the null of underidentification)
> and we find that weak instruments is not a problem.
> */
.
. /* Question 4(e):
> Looking at the results for the OIR test, we reject the null
> hypothesis that all the instruments are valid for the labor supply
> variables (mother work, weeks worked, and hours worked), but not for
> the income variables. This may cast doubt on the validity of these
> instruments.
> */
.
.
.
.
.

```

```

.
.
.
.
. *****
. /* Fully written out method (looong) for running regressions.
>
>
> **** Main Sample
> *** OLS Estimates
> eststo clear
> eststo: reg workedind_moth morekids age_mother agelstbth_moth ///
>         boy1st boy2nd black_mother hisp_moth othrace_moth ///
>         if Main==1, robust
> eststo: reg wks_wrked_moth morekids age_mother agelstbth_moth ///
>         boy1st boy2nd black_mother hisp_moth othrace_moth ///
>         if Main==1, robust
> eststo: reg hourswked_moth morekids age_mother agelstbth_moth ///
>         boy1st boy2nd black_mother hisp_moth othrace_moth ///
>         if Main==1, robust
> eststo: reg totalinc_moth morekids age_mother agelstbth_moth ///
>         boy1st boy2nd black_mother hisp_moth othrace_moth ///
>         if Main==1, robust
> eststo: reg logincfam morekids age_mother agelstbth_moth ///
>         boy1st boy2nd black_mother hisp_moth othrace_moth ///
>         if Main==1, robust
> esttab using "OLSMain", title("OLS Estimates of Effects of Children on
Parents' Labor Supply (Main sample)") ///
>         label wrap noabbrev rtf compress one replace
>
>
> *** IV Regression Esimates
> eststo clear
> eststo: ivreg2 workedind_moth age_mother agelstbth_moth boy1st ///
>         boy2nd black_mother hisp_moth othrace_moth ///
>         (morekids = samesex) if Main==1, first robust
>
> eststo: ivreg2 wks wrked moth age mother agelstbth moth boy1st ///
>         boy2nd black_mother hisp_moth othrace_moth ///
>         (morekids = samesex) if Main==1, first robust
> eststo: ivreg2 hourswked_moth age_mother agelstbth moth boy1st ///
>         boy2nd black_mother hisp_moth othrace_moth ///
>         (morekids = samesex) if Main==1, first robust
> eststo: ivreg2 totalinc moth age mother agelstbth moth boy1st ///
>         boy2nd black_mother hisp_moth othrace_moth ///
>         (morekids = samesex) if Main==1, first robust
> eststo: ivreg2 logincfam age_mother age_mother agelstbth_moth boy1st ///
>         boy2nd black_mother hisp_moth othrace_moth ///
>         (morekids = samesex) if Main==1, first robust
> esttab using "IVMain", title("IV Estimates of Effects of Children on
Parents Labor Supply (Main sample)") ///
>         label wrap noabbrev rtf compress one replace
>
>
> ***** Married Sample
> *** OLS Estimates
> eststo clear
> eststo: reg workedind_moth morekids age_mother agelstbth_moth ///
>         boy1st boy2nd black_mother hisp_moth othrace_moth ///
>         if Married==1, robust
> eststo: reg wks_wrked_moth morekids age_mother agelstbth_moth ///
>         boy1st boy2nd black_mother hisp_moth othrace_moth ///
>         if Married==1, robust
> eststo: reg hourswked_moth morekids age_mother agelstbth_moth ///
>         boy1st boy2nd black_mother hisp_moth othrace_moth ///
>         if Married==1, robust
> eststo: reg totalinc_moth morekids age_mother agelstbth_moth ///
>         boy1st boy2nd black_mother hisp_moth othrace_moth ///
>         if Married==1, robust

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>     eststo: reg logincfam morekids age_mother agelstbth_moth ///
>             boy1st boy2nd black_mother hisp_moth othrace_moth ///
>             if Married==1, robust
>     esttab using "OLSMarried", ///
>             title("OLS Estimates of Effects of Children on Parents Labor Supply
(Married sample)") ///
>             label wrap noabbrev rtf compress one replace
>
>     *** IV Regression Esimates
>     eststo clear
>     eststo: ivreg2 workedind_moth age_mother agelstbth_moth boy1st ///
>             boy2nd black_mother hisp_moth othrace_moth ///
>             (morekids = samesex ) if (Married==1), robust
>     eststo: ivreg2 wks_wrked_moth age_mother agelstbth_moth boy1st ///
>             boy2nd black_mother hisp_moth othrace_moth ///
>             (morekids = samesex ) if (Married==1), robust
>     eststo: ivreg2 hourswked_moth age_mother agelstbth_moth boy1st ///
>             boy2nd black_mother hisp_moth othrace_moth ///
>             (morekids = samesex ) if (Married==1), robust
>     eststo: ivreg2 totalinc_moth age_mother agelstbth_moth boy1st ///
>             boy2nd black_mother hisp_moth othrace_moth ///
>             (morekids = samesex ) if (Married==1), robust
>     eststo: ivreg2 logincfam age_mother agelstbth_moth boy1st ///
>             boy2nd black_mother hisp_moth othrace_moth ///
>             (morekids = samesex ) if (Married==1), robust
>     esttab using "IVMarried", ///
>             title("IV Estimates of Effects of Children on Parents Labor Supply
(Married sample)") ///
>             label wrap noabbrev rtf compress one replace
>     */
.
.
end of do-file

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