Linking ATUS & CPS Data

July 1, 2016

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Minnesota Population Center

CPS is sampling frame for ATUS

- CPS is a short panel survey – *households* are surveyed up to 8 times in a 16 month period
  - 4-8-4 design
  - Housing units are constant, individuals are not necessarily
- In selected households exiting CPS, one individual is invited to participate in ATUS
  - Usually 2-5 months after finishing CPS rotation

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CPS Rotation Pattern

	Month-in-sample (MIS)							
	MIS-1	**MIS-2**	**MIS-3**	**MIS-4**	**MIS-5**	**MIS-6**	**MIS-7**	**MIS-8**
Year 1								
January	A	XX	WW	VV	MM	L1	K1	J1
February	B	A	XX	WW	NN	MM	L1	K1
March	C	B	A	XX	OO	NN	MM	L1
April	D	C	B	A	PP	OO	NN	MM
May	E	D	C	B	QQ	PP	OO	NN
June	F	E	D	C	RR	QQ	PP	OO
July	G	F	E	D	SS	RR	QQ	PP
August	H	G	F	E	TT	SS	RR	QQ
September	I	H	G	F	UU	TT	SS	RR
October	J	I	H	G	VV	UU	TT	SS
November	K	J	I	H	WW	VV	UU	TT
December	L	K	J	I	XX	WW	VV	UU
Year 2								
January	M	L	K	J	A	XX	WW	VV
February	N	M	L	K	B	A	XX	WW
March	O	N	M	L	C	B	A	XX
April	P	O	N	M	D	C	B	A
May	Q	P	O	N	E	D	C	B
June	R	Q	P	O	F	E	D	C
July	S	R	Q	P	G	F	E	D
August	T	S	R	Q	H	G	F	E
September	U	T	S	R	I	H	G	F
October	V	U	T	S	J	I	H	G
November	W	V	U	T	K	J	I	H
December	X	W	V	U	L	K	J	I

Green: follow a CPS rotation pattern over time

Orange: any given month has groups at eight different points in the CPS rotation

Source: American Time Use Survey User's Guide (Bureau of Labor Statistics and U.S. Census Bureau 2008).

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CPS Rotation Pattern Implications

- Under no circumstances are all ATUS respondents from a given year able to be found in a particular month during the previous year

- Only a subsample of ATUS respondents can potentially link to any given CPS month

- Additional reasons individuals may not be found even if they should have been based on the CPS rotation pattern
  - Some households won't have responded during that month
  - Some individuals will have moved into the household after that month
  - Some individuals may not have been eligible for the supplement of interest in that month

- Conclusion: weights must be considered

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Final CPS Month/Year for 2003 ATUS Respondents

Final Year/Month in CPS for January 2003 Respondents and All 2003 Respondents

	January only	All 2003	
	2002	2002	2003
January	0	0	1,747
February	0	0	1,713
March	0	0	1,680
April	0	0	1,704
May	0	0	1,709
June	0	0	1,732
July	0	0	1,734
August	20	20	1,674
September	273	285	1,411
October	1,356	1,552	309
November	210	1,743	0
December	0	1,707	0

Sources of variation

ATUS respondents entered the ATUS 2 to 5 months after completing CPS

- January 2003 ATUS respondents finished CPS in August-November 2002

Not everyone finished the CPS at the same time

- 2003 ATUS respondents finished CPS between August 2002 and October 2003

What You Know and What You Can Do

- What you know from ATUS
  - Month and Year of participation in CPS MIS8

- What you can figure out from ATUS
  - When ATUS respondents *should* have been in the CPS

- Opportunities for linking to CPS
  - Link ATUS respondents to a CPS supplement fielded once (e.g. May 2004 Work Schedules Supplement)
  - Link ATUS respondents to a CPS supplement fielded annually or biannually (e.g. March ASEC or June Fertility)
  - Link ATUS respondents to all CPS observations
  - Get spouse/parent/other household member characteristics from some previous month

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ATUS/CPS Linking Variables

Linking keys

ATUS-X name		**RENAME ATUS-X**
HRHHID_CPS8		HRHHID
HRHHID2_CPS8		HRHHID2
HRSERSUF_CP_(2003 & 2004)		to create HRHHID2
HRSAMPLE_CP_(2003 & 2004)		to create HRHHID2
HUHHNUM_CPS_(2003 & 2004)		to create HRHHID2
LINENO_CPS8		ULINENO

See ATUS user's guide ... mechanics

Other helpful variables   **Variables to check links**
MONTH_CPS8   AGE_CPS8
YEAR_CPS8   SEX_CPS8
CASEID   RACE_CPS8
LINENO

ATUS/CPS Linking Variables

Linking keys

ATUS-X name	**IPUMS-CPS name**
CPSIDP	CPSIDP

Other helpful variables	**Variables to check links**
MONTH_CPS8	AGE_CPS8
YEAR_CPS8	SEX_CPS8
CASEID	RACE_CPS8
LINENO	

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What is CPSIDP?

- An MPC-created unique identifier that
    1) Bridges changes in CPS linking keys
    2) Allows users to easily link CPS & ATUS data

- Unique across the entire series of data

- A time-saving alternative to navigating different coding schemes, linking keys, and the CPS rotation pattern on your own

- Fully documented in Drew, Flood, & Warren 2014 (*Journal of Economic and Social Measurement)*

Example

- Link ATUS respondents to most recent CPS Volunteer Supplement (September)
  - MIS = 5-8
  - HRMONTH = 9
  - Merge on linking keys, HRMIS, HRYEAR4, HRMONTH (or CPSIDP from IPUMS-CPS)
- At most one link per person, but expect some non-matches because of non-response and changing household composition

Prepare ATUS-X File

- Decide which CPS month(s)/year(s) you want to link with ATUS

- "Create" records for all months that ATUS respondent should have been in CPS based on YEAR_CPS8 and MONTH_CPS8
  - I use STATA's EXPAND command to create 8 observations per person (number of times they should have been in CPS) and then recode month/year (to match the month/year the respondent should have been in CPS)

- Keep only records that correspond to your month(s)/year(s) of interest

ATUS-X Data

CASEID	MONTH_CPS8	YEAR_CPS8	MOINCPS
1	9	2002	8
2	10	2002	8
3	11	2002	8
4	1	2003	8

Expanded Respondent Record

CASEID	MONTH _CPS8	YEAR _CPS8	MOINCPS	HRMIS	HRYEAR4	HRMONTH
1	9	2002	8			
1	9	2002	8			
1	9	2002	8			
1	9	2002	8			
1	9	2002	8			
1	9	2002	8			
1	9	2002	8			
1	9	2002	8			

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Create HRMIS

CASEID	MONTH_CPS8	YEAR_CPS8	MOINCPS	HRMIS	HRYEAR4	HRMONTH
1	9	2002	8	1		
1	9	2002	8	2		
1	9	2002	8	3		
1	9	2002	8	4		
1	9	2002	8	5		
1	9	2002	8	6		
1	9	2002	8	7		
1	9	2002	8	8		

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Populate Year/Month

CASEID	MONTH_CPS8	YEAR_CPS8	MOINCPS	HRMIS	HRYEAR4	HRMONTH
1	9	2002	8	1	2001	6
1	9	2002	8	2	2001	7
1	9	2002	8	3	2001	8
1	9	2002	8	4	2001	9
1	9	2002	8	5	2002	6
1	9	2002	8	6	2002	7
1	9	2002	8	7	2002	8
1	9	2002	8	8	2002	9

Retain Relevant Records

CASEID	MONTH _CPS8	YEAR _CPS8	MOINCPS	HRMIS	HRYEAR4	HRMONTH
1	9	2002	8	1	2001	6
1	9	2002	8	2	2001	7
1	9	2002	8	3	2001	8
1	9	2002	8	4	2001	9
1	9	2002	8	5	2002	6
1	9	2002	8	6	2002	7
1	9	2002	8	7	2002	8
1	9	2002	8	8	2002	9

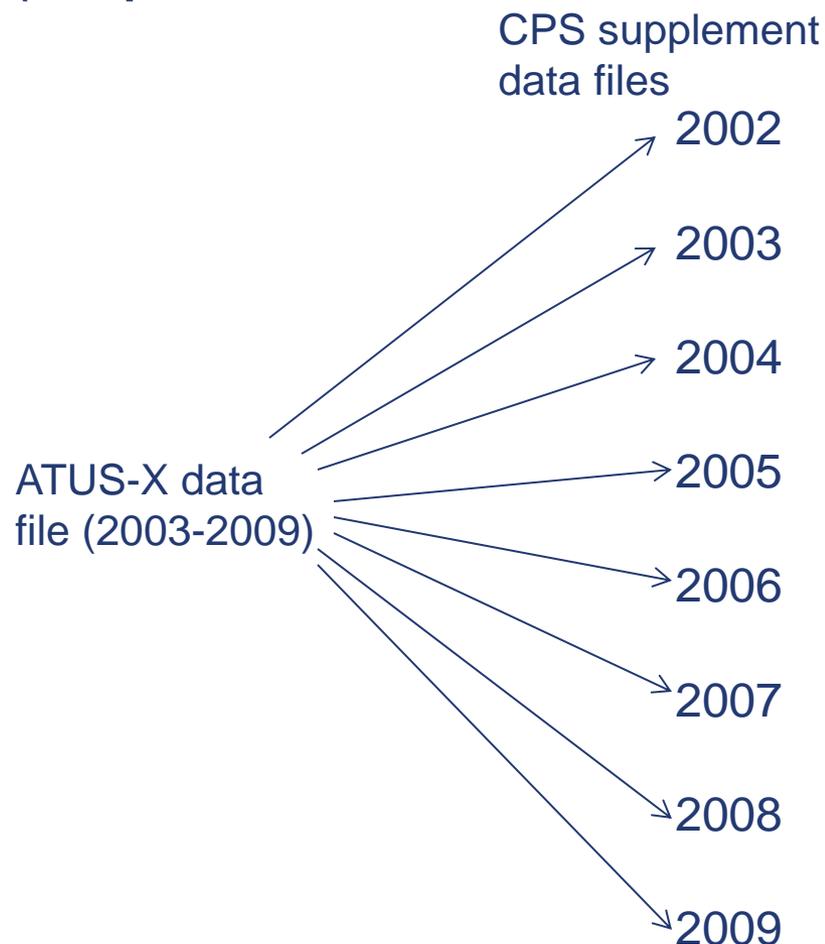# Prepare CPS Files

- IPUMS-CPS (http://cps.ipums.org/cps/)
  - Currently has all basic monthly data through December 2014 (and more is always being added)
  - Just like ATUS, so you'll already know how to use it!
- The only place to get

CPSIDP

Perform Merge!

Example: Link ATUS respondents to most recent CPS Volunteer Supplement (September 2002-2009)

CPS supplement data files

- Decide whether you want to link to most recent (MIS 5-8) or earlier in the CPS rotation pattern (MIS 1-4)

- Keep only respondents whose HRMONTH=9 & HRMIS>=5 & HRMIS<=8

- Perform 1 to 1 merge with ATUS data file and each CPS file separately
  - Merge on linking keys, HRMIS, HRYEAR4, HRMONTH (or CPSIDP)
  - Each respondent should link to only one September data file with these restrictions

- While selected ATUS respondents should be in this supplement, you won't find them all because of movement into households and non-response

ATUS-X data file (2003-2009)

2002
2003
2004
2005
2006
2007
2008
2009

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Validity of Linked Records

- ## Check that AGE, SEX, and RACE match for all linked cases

  - Madrian, Brigitte C. and Lefgren, Lars John, A Note on Longitudinally Matching Current Population Survey (CPS) Respondents (November 1999). NBER Working Paper Series,Vol. t0247, pp. -, 1999. Available at SSRN: http://ssrn.com/abstract=226653

- ## Adjust ATUS weights so that linked file is representative

  - http://www.atusdata.org/atus/linked_docs/linked_generic.pdf

ATUS-X Linked Data Files

- Linked data files available
  - September Volunteer
  - October School Enrollment
  - December Food Security
- Or, use CPSIDP to easily create linked data files
  - re-weighting the data still required