

# Five-Year ACS Data in Private Sector Information Products

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# Topics

- The Nielsen Demographic Update
- ACS Challenges
- ACS Benefits

# Nielsen Demographic Update

# Nielsen Demographic Update

- “Claritas”
  - Part of Nielsen (global information company)
  - Supplier of demographic and related products
  - Used mostly for business applications
- Among the “Claritas” products
- “Demographic Update”

# Nielsen Demographic Update

- Timing
  - Produced every year
    - Current year estimates
    - 5 year projections
- Content
  - Basic totals (Population, Households, etc.)
  - Characteristics (age, race, income, etc.)
- Geography
  - All block groups nationwide
  - Sums to larger areas
  - BGs are key
  - Limited interest in cities/towns
  - Emphasis on statistical geographies

# Nielsen Demographic Update

- Mass Production
- Based on census data
  - Decennial (short form)
    - Population and HH totals
    - Age/sex, race/ethnicity
  - Long form
    - Income
    - Home value
    - Long list of “ratio-adjusted” items
      - Education, employment, language, marital status, etc. etc.
      - (Census distributions ratio-adjusted to estimated universe)
- Need to transition from long form to ACS

# ACS Challenges

# ACS Challenges

## More frequent updates

- Used to integrating census once per decade
  - One big transition, and it's done
- ACS: New data every year
  - Like a new SF3 every year
  - Mega processing of block group data
  - Oh those summary files !!



# ACS Challenges

## The decennial data are gone

- Challenge for product designers
- All those reports and files
  - Have column or field for “2000 census”
  - Want column or field for “2010 census”
  - “2000 Census”    “2011 Estimate”    “2016 Projection”
- Have “2010 census” for decennial data
  - But not for ACS items
  - ACS does not fit in “Trend Report” format
- What is Product Management to do?

# ACS Challenges

## Moving Base Year for Estimates

- Current methods
  - Start with census (fixed at 2000)
  - Estimate forward expanding distance to current year
  - An additional year with each Update
- ACS-based methods
  - Start with ACS (a base that moves!)
  - Estimate a fixed distance to current year
  - Estimating from a moving ACS base year
- But what is the ACS base year?

# ACS Challenges

## What is the ACS base year?

- **1Y, 3Y and 5Y data with each release**
  - Which to use?
  - Tradeoff between currency and reliability
  - No basis to assume one consistently better
- How to resolve in mass production environment?
  - Hedge bets between currency and reliability?
  - If 5Y only: No choice. Use 5Y data
  - If 5Y and 3Y only: Average the two?
  - If 5Y, 3Y and 1Y (larger areas): Average 3Y and 1Y?
- Useful to have multiple years

# ACS Challenges

## What is the ACS base year?

- **Challenge of period estimates**
  - Clients want point-in-time estimates
  - How to build from period estimates base?
- Need to designate a single year for . . .
  - 2005-2009 5Y data
  - 2007-2009 3Y data
- Default to middle year of ACS period?
  - Technically not correct
  - But feasible for mass production
  - We are testing the assumption

# ACS Challenges

## Period estimates as proxies for point estimates

- Compared 3Y ACS (2006-2008)
  - With 1Y 2006, 2007 2008
- Results in paper
- Now comparing 5Y ACS (2005-2009)
  - With 1Y 2005, 2006, 2007, 2008, 2009
- Focused on
  - HHs by type and size
  - HH income
  - Housing value

# ACS Challenges

## Period estimates as proxies for point estimates

- Findings

- Multi-year not that bad as single year
- Generally closest to middle year
  - But not always
  - 2006-2008 income closest to 2008
- More important:
- Multi-year as proxy for 1Y – Often less error than 2000 as proxy for current year

# ACS Challenges

## Large Errors and Outliers

- BG data known to have large errors
  - Intended for use in aggregations
- But some outliers truly conspicuous
  - Could undermine user acceptance of ACS
  - Or of estimates based on ACS
- Problem: many ACS estimates based on very few responses
- Check an example

# ACS Challenges

BG 17 077 0190.00 2

HH Type & Size	ACS 2005-09	2000 SF1	2000 SF3
Total Households	271	273	260
Family 2-persons	75	75	83
Family 3-persons	46	54	45
Family 4-persons	18	30	29
Family 5-persons	0	18	18
Family 6-persons	0	8	0
Family 7+ persons	0	7	16
Nonfamily 1 person	46	71	50
Nonfamily 2 persons	0	7	19
Nonfamily 3 persons	0	2	0
Nonfamily 4 persons	0	0	0
Nonfamily 5 persons	0	1	0
Nonfamily 6 persons	0	0	0
Nonfamily 7 persons	<b>86</b>	<b>0</b>	<b>0</b>



# ACS Challenges

- Too many nonfam 7+
  - Maybe 1 captured by ACS sample
  - Weighted to 100 percent
- But why weighted up so high?
  - Nonfam 7+ is rare
  - Many BGs with 1 or 2 have none captured by ACS
  - ACS shows “0”
  - Where ACS does capture a “7+” HH
  - Have to weight extra
  - Compensate for “0” BGs that should be “1” or “2”
  - So aggregations more accurate

# ACS Challenges

- Dilemma
  - Could improve accuracy of BG estimate
  - Reduce weight
  - Show fewer 7+ households
  - But this would decrease accuracy for aggregations
  - (unless 7+ HHs added elsewhere)
  
  - Error in individual BGs can enhance accuracy of aggregations
  - Reducing BG error could increase error of aggregations

# ACS Challenges

## Option we are testing

- Maintain two distributions for each BG (and each table)
  - 1. ACS “as provided”
  - 2. ACS “contextual”
- Contextual distribution
  - Composite of BG in question – and nearby BGs
- When using ACS . . . .
  - Weighted average – “provided” and “contextual”
  - Contextual weight greater for BGs with few ACS responses
  - Focus on unweighted units more than MOEs
- Objective
  - Improve individual BGs without impairing aggregations
  - With a process we can explain to users

# ACS Benefits

# ACS Benefits

- More frequent updates
  - Not stuck on 2010 for next 10 years
  - Improved control total estimates
  - Often better than aging decennial data
- Opportunity to improve and expand “estimates”
  - Consider the “ratio adjusted” items
  - Not really estimates
  - But ACS provides a true “update”
  - Can actually call these “estimates” now
- ACS could make honest people out of Sales reps ;)

# Thank You

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