Project 9:

Generating Weighted Average Annual Calendar Year Education Expenditure

Project 9

Calculate the calendar year education mean by the number of children in the household for the US population in 2017

In this project you will:

- Learn about calendar year versus collection year in CE
- Calculate calendar year population estimates using expenditure data from MTBI

Calendar Year Estimates

Two Main Differences:

- Use 5 quarters of data, but only select months that fall in the calendar year (Numerator)
- Population weights are adjusted based on the number of months in the calendar year the CU could report (Denominator)

Population Weights

- Need another adjustment to FINLWT21
  - Adjust weights based on the number of months that could have been included
  - MO_SCOPE: "Months in Scope"

MO_SCOPE

Quarter 1 (FMLI171x)					
Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017	March 2017
			0		
			X	1	
			X	X	2

Quarter 5 (FMLI181)					
Oct 2017	Nov 2017	Dec 2017	Jan 2018	Feb 2018	March 2018
X	X	X	3		
	X	X		2	
		X			1

MO_SCOPE

Quarter 2-4 (FMLI172-174)					
Jan 2017	Feb 2017	March 2017	April 2017	May 2017	June 2017
X	X	X	3		
	X	X	X	3	
		X	X	X	3

Population Weights

- Multiply FINLWT21 by MO_SCOPE / 3
- Still need to adjust to account for quarterly weights, so divide by 4.
- …wait – did you say 4?? But I'm using 5 quarters?!

  Yes…but you're really only using 1/3 of the first quarter and 2/3 of the fifth quarter. So, dividing by 4 is easier then saying divide by:

  $(1/3)*1 + 1 + 1 + 1 + (2/3)*1 = 4$

Quick Guide to Adjusting Population Weights

FMLI171x	*POPWEIGHT* = FINLWT21 [(QINTRVMO-1)/3]/4
FMLI172	*POPWEIGHT* = FINLWT21 (3/3) / 4
FMLI173	*POPWEIGHT* = FINLWT21 (3/3) / 4
FMLI174	*POPWEIGHT* = FINLWT21 (3/3) / 4
FMLI181	*POPWEIGHT* = FINLWT21 [(4-QINTRVMO)/3]/4

Expenditures in Scope

- REF_YR
  - Identifies the reference year of the expenditure
- REF_MO
  - Identifies the reference year of the expenditure

Project 9 Steps

1. Append all five quarters of MTBI data.
2. Create calendar year education expenditures:
   - For each NEWID, create an EDUCA variable by summing the following UCC's, if REF_YR = 2017:
     - Tuition: 670110, 670210, 670410, 670901
     - Test: 670903
     - Books: 660110, 660210, 660410, 660901, 660902
     - Other: 67092
3. Append all five quarters of FMLI data
4. Merge FMLI and MTBI
5. Create weighted expenditures by multiplying EDUCA by FINLWT21
6. Create population weights using months in scope (MO_SCOPE)
7. Aggregates: Sum the weighted expenditure by number of children
8. Populations: Sum the population weights by number of children
9. Means: Calculate annual means for each of the group by dividing the aggregates by the population weights by number of children

Project 9 Results

Weighting Calendar Mean

Count	# of Children	Education Expenditure
18,856	0 Children	$940.39
5,293	1 Child	$1,663.51
3910	2 Children	$2,080.90
1,586	3 Children	$1,835.49
750	More than 3 Children	$1,634.23