

Requirements for a Web-based Statistical Calculator

Presented by
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A typical problem for data users

- Assignment: Get the most recent estimate of mean family income for families with children for Cecil County, Maryland. Compare this to the mean family income for families with children for the state of Maryland. Need this asap!
- User decides that she must hand over the estimates she derives along with the standard errors for these estimates

After some digging...

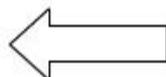
- ACS data from the 2009 1-year data release contains the most recent data for this assignment. But, there are some problems and limitations:
- If the aggregated data products are used, we can only create this mean income for families with “own children”
- We can’t use the PUMS data because Cecil County does not coincide with PUMA boundaries.
- After discussing issues with client, they decide to use aggregated ACS data products for families with own children.

As we will see, the assignment has several parts

1. Calculate the numerator for the mean
2. Calculate the denominator for the mean
3. Calculate the ratio (the mean itself)
4. Must do the above for Cecil County and the state of Maryland
5. Do a statistical comparison between the two mean incomes



Create New Estimates compare Estimates



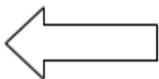
New choices for user

B11003. FAMILY TYPE BY PRESENCE AND AGE OF OWN CHILDREN UNDER 18 YEARS - Universe: FAMILIES
Data Set: 2009 American Community Survey 1-Year Estimates

	Maryland		Cecil County, Maryland	
	Estimate	Margin of Error (+/-)	Estimate	Margin of Error (+/-)
Total:	1,391,688	11,881	26,207	1,544
Married-couple family:	1,012,157	11,510	21,466	1,728
With own children under 18 years:	433,179	8,504	9,988	1,239
Under 6 years only	104,043	4,965	2,156	682
Under 6 years and 6 to 17 years	85,164	4,284	1,471	595
6 to 17 years only	243,972	6,770	6,361	1,089
No own children under 18 years	578,978	8,914	11,478	1,423
Other family:	379,531	9,357	4,741	1,243
Male householder, no wife present:	89,905	5,409	1,706	706
With own children under 18 years:	42,604	3,932	934	551
Under 6 years only	14,273	2,124	648	534
Under 6 years and 6 to 17 years	5,932	1,513	0	285
6 to 17 years only	22,399	2,599	286	212
No own children under 18 years	47,301	3,668	772	381
Female householder, no husband present:	289,626	7,554	3,035	880
With own children under 18 years:	165,292	5,124	1,763	841
Under 6 years only	31,814	3,144	97	139
Under 6 years and 6 to 17 years	24,126	2,578	252	282
6 to 17 years only	109,352	4,305	1,414	792
No own children under 18 years	124,334	5,584	1,272	507

The table needed to create the denominator estimate for the mean family income for families with own children is shown to the left. However, there are two menu choices at the top of the screen available to the user. These two menu choices contain the Statistical Calculator features.

Create New Estimates compare Estimates



New choices for user

B11003. FAMILY TYPE BY PRESENCE AND AGE OF OWN CHILDREN UNDER 18 YEARS - Universe: FAMILIES
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Create New Estimates Geography

Use Current geo areas

Check if areas are to be combined

Different geo areas

Check if areas are to be combined

Type of Estimate to Create

Sum

Ratio

proportion

Maryland

Cecil County, Maryland

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The user is presented with a set of choices, first for geography and then for the type of estimate. In this scenario, the user has told the app to use the currently selected geographies as separate geographic entities and to create a ratio estimate.

NOTE: Had the user put an X in the box labeled "Check if areas are to be combined", a message would appear explaining why this cannot be done for the two current geo areas.

Create New Estimates compare Estimates



New choices for user

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Create New Estimates Geography

Use Current geo areas

Check if areas are to be combined

Different geo areas

Check if areas are to be combined

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Ratio

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Table ID containing estimate(s) for numerator of ratio:

Table ID containing estimate(s) for denominator of ratio:

Once the app knows what type of estimate the user is requesting, it asks the user to provide the information on the data sources for the requested estimate. In this case, the user provides the ids of the table containing the estimates for the numerator and the the table containing the estimates for the denominator.

Numerator:

► **Table: B19128 AGGREGATE FAMILY INCOME IN THE PAST 12 MONTHS (IN 2009 INFLATION-ADJUSTED DOLLARS) BY FAMILY TYPE BY PRESENCE OF OWN CHILDREN UNDER 18 YEARS**

Universe : FAMILIES

The user is presented with a table shell for the numerator data source, B19128 and checks the 3 cells needed to create the numerator

	Check the cell(s) needed
Aggregate family income in the past 12 months (in 2009 inflation-adjusted dollars):	
Married-couple family:	
With own children under 18 years	X
No own children under 18 years	
Other family:	
Male householder, no wife present:	
With own children under 18 years	X
No own children under 18 years	
Female householder, no husband present:	
With own children under 18 years	X
No own children under 18 years	

Denominator

► **Table: B11003 FAMILY TYPE BY PRESENCE AND AGE OF OWN CHILDREN UNDER 18 YEARS**
Universe : FAMILIES

Example:

	Check the cell(s) needed
Total:	
Married-couple family:	
With own children under 18 years:	X
Under 6 years only	
Under 6 years and 6 to 17 years	
6 to 17 years only	
No own children under 18 years	
Other family:	
Male householder, no wife present:	
With own children under 18 years:	X
Under 6 years only	
Under 6 years and 6 to 17 years	
6 to 17 years only	
No own children under 18 years	
Female householder, no husband present:	
With own children under 18 years:	X
Under 6 years only	
Under 6 years and 6 to 17 years	
6 to 17 years only	
No own children under 18 years	

Then the user is prompted to select the cell(s) needed from the denominator data source, B11003. The user checks the 3 cells needed to create the denominator.

[Create New Estimates](#)
[compare Estimates](#)


[New choices for user](#)

	Mean Family Income Families with Own Children	90% Margin of Error
Maryland	\$104,100	\$3,083
Cecil County, Maryland	\$81,975	\$17,559

Show Margin of Error at a different confidence level

- 95% level
- 99% Level
- Other level - specify:

<Enter percent, eg 99.9>

Label for the new estimate:

Other comments:

Save

What is a “Statistical Calculator”?

- Next Steps for developing requirements for an SC Tool
 - Want to include other reviewers
 - Plan to do a webinar on the SC Tool idea later this Fall
 - Planning to hold a session on the SC Tool Requirements at upcoming SDC/CIC conf. at Census Bureau
- How to contact us and get a copy of the requirements if you want to participate in developing these requirements:

Send email to Doug Hillmer. dhillmer1@yahoo.com or

Jane Traynham, Maryland State Data Center, JTraynham@mdp.state.md.us