Improving the utility of 3-year ACS data: A Transportation Perspective

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Abstract:
The transportation data community is one of the largest users of the Decennial Census Long Form data. Since the 1970 Census, the transportation community has commissioned a multi-million dollar custom tabulation. With the elimination of the Census long from these tabulations called the Census Transportation Planning Products will use the ACS results. Therefore the transportation community has a great deal of interest and concern with making the ACS the best that it can be. Workplace-based tables are a welcomed addition to the ACS standard tabulations. But, the transportation community has some concerns about the ACS 3-year standard products and we will offer some recommendations to improve the utility of the ACS 3-year data. This paper includes discussion of:

1) improving data quality by improving response rates and weighting methods,
2) adding home-to-work flow tables,
3) adding home-to-work distance variable,
4) establishing a geographic unit with blanket "wall to wall" coverage for 3-year ACS tabulations, and
5) finding alternatives to data suppression for both the 1-year and 3-year ACS standard and custom tabulations.

Keywords: 3-year ACS, Transportation Planning Data, Census Data Utility,

Disclaimer: Any views expressed, unless otherwise stated, are those of the authors and not necessarily those of the Federal Highway Administration, or the U.S. Department of Transportation.

1.0 Introduction/Background

1.1 Early History

Historically, the transportation data community is one of the largest users of the Decennial Census Long Form data. For the last four decennial censuses (1970 through 2000), the transportation community commissioned a custom tabulation under what is now called the Census Transportation Planning Products (CTPP) program. The CTPP was used in virtually every region in the U.S. Any future CTPP will now use the ACS results. (Christopher, 2002)

Within the transportation data community, the Census Bureau's Continuous Measurement (CM) concept has been discussed since the mid 1990s. In 1994, the US Department of Transportation's (USDOT) Bureau of Transportation Statistics (BTS) sponsored a workshop and commissioned a panel to address the Census Bureau plans to implement "continuous measurement" as a replacement to the decennial census "long form" for the 2000 Census 2000. The workshop panel concluded that it was inadvisable for the Census Bureau to replace the Census 2000 "long form" until sufficient testing on CM could be conducted. The panel recommended that a CM test be done in parallel with the Census 2000 "long form." While currency of data was seen as a major benefit of a CM approach, the panel raised several questions about the CM approach:

- "the panel would like a examination of alternatives to maintain and increase user access to data… or shielding personal data through creative means of disclosure avoidance,"
- "The high sampling error, compared with long form data would reduce the suitability of data for various applications,"
- "the potential exists for reduced response rates if the data are not collected in a decennial census…which would then negatively impact quality or increase the cost of data collection."
- "the panel was very concerned about the accuracy of place-of-work geocoding.. and recommended that the Census Bureau update business addresses…on a level comparable to that made for household addresses." (US Department of Transportation, 1996).

Soon after the USDOT-BTS sponsored workshop, the Committee on National Statistics (CNSTAT) released its report "Modernizing the U.S. Census" (NAS, 1996). In that report, CNSTAT also concluded that CM should not be used as a substitute for the long form in 2000. In short CNSTAT thought that it was premature to drop the long form for the 2000 Census.

So, the "long form" was saved for 2000, additional testing on the CM was done and the ACS began full implementation in 2005 with the addition of the group quarters sample in 2006. Now, we are at the point in time where multi-year accumulated samples from the ACS are beginning to be publicly available.

1.2 Use of Census Data in Transportation

In the 1950's and 1960's, large metropolitan areas conducted large sample surveys (about 5 percent of households) to capture household daily weekday travel. One of the objectives of these large sample surveys was to build origin/destination matrices to use in travel demand models. With rising costs of conducting in-home interviews, these surveys were replaced with much smaller samples that would capture trip generation rates, and

trip length frequency distribution so that the origin/destination matrix could be modeled or synthesized (Smith, 1979 and Stopher, 1982).

Thus, the availability of an origin/destination matrix for small geographic areas built from decennial census long form journey-to-work data evolved into a cost effective data set for transportation planners. Not only was the Census-developed origin-destination matrix valuable for model validation it became a primary source for analyzing various transportation policies. The transportation community hoped that in time, a similar matrix could be developed for non-work trips.

There are a myriad of applications of Census data used in transportation planning, including but not limited to travel demand modeling, estimating day time populations for emergency response, transportation investment decisions including Federal Transit "New Starts" programs, locations of populations with limited English proficiency, and environmental justice. Many previous applications have been documented in four conference reports (TRB 1997, TRB 1995, TRB 1985, TRB 1984). Results from the most recent national conference held in 2005 are included at http://www.trb.org/conferences/2005/censusdata/ (accessed May 7, 2009).

Table 1 Key Variables in ACS for Transportation Planning

Residence	Residence location
	Household size
	Number of Workers
	Vehicles Available
	Income
	Lifecycle stage
Person	Worker status
	Age, Sex, Race, Hispanic Origin
	Disability
	Ability to speak English (Exec Order on Limited English Proficiency)
Journey-to-work	Work location
	Mode to Work
	Departure time (and imputed Arrival time)
	Travel Time to Work

Table 1 lists the key ACS variables used in transportation planning. In addition, there are three main parts to the data tabulation developed under the CTPP. Data are tabulated at the residence location, the workplace location and for the flows between home and work.

> **Residential data**: The distribution of households by characteristics such as household size, number of workers, number of vehicles and income has been used in the trip generation phase of travel demand models. Several, but not all, of the needed multi-way tables previously only available in prior CTPP Part 1 products have now been included in the ACS standard table set. These tables are used in survey design for household travel surveys, and when combined with PUMS, are now used to simulate household microdata records. Residence data are often used in trend analysis, e.g. travel mode to work and travel time to work. Comparisons by geography and by household and person characteristics such as age, race, Hispanic origin and poverty status are used to test the equitable distribution of transportation resources.

Workplace data: The ACS standard table set now includes some workplace-based tables. In the current ACS 3-year standard products, workplace tables are limited to Counties and Places with the same 20,000 population threshold level based on residential population. Workplace-based tables were previously only available from CTPP Part 2. Estimates of workers by Industry, and by Arrival Time, and Travel mode to work are important for employer-based transportation demand programs. As climate change and reductions in greenhouse gas emissions are of increasing interest, understanding commuting behavior at the workplace geography is as important as residence geography.

Flow between home and work: The ACS standard products currently do not include any flow tables. In May 2004, USDOT requested that a county-to-county worker count be added to the ACS standard product set but it was not included. Therefore, tables paid for under the CTPP remain the only publically available survey data set that includes home-to-work flows. The Census Bureau's Longitudinal Employment-Household Dynamics (LEHD) program includes synthetic home-to-work flow, but the reliance on State-provided QCEW records for employer addresses used as a proxy for workplace location troubles many transportation planners. An NCHRP sponsored small research project included some comparisons between CTPP2000, 2006 ACS and the LEHD at the block group level. This project is not yet complete. Results will be posted at http://www.trb.org/TRBNet/ProjectDisplay.asp?ProjectID=2403 (accessed July 8, 2009).

By this point in time, the transportation community had hoped that a CTPP data product using the first 3-years of ACS would be available. However, because of long, and at times protracted discussions with the Census Bureau's Disclosure Review Board (DRB) in 2008 about disclosure risk and protections of individual confidentiality, the first transportation data product using ACS data was delayed and is now planned for release in the Spring of 2010. It will use 2006, 2007 and 2008 ACS records and be available for areas over 20,000 people. The first "small area" CTPP data product is planned to use the 2006-2010 ACS records and for disclosure reasons will likely require the production of synthetic tables.

2.0 Concerns about the shift to ACS

2.1 ACS may be more current but it is "blurry"

The biggest advantage of the ACS compared to the decennial census "long form" is to improve the currency of data. The release of ACS (12 month) data within one year of the data collection (September release of data from the previous calendar year) has been an important benefit of the ACS. This data, available for all states and for geographic units with over 65,000 people has proved useful for large area trend analysis. But the 3-year ACS (36 months of accumulated samples) becomes problematic when rapid changes occur, for example, housing prices or gasoline prices in the last 18 months. For example, a house in Phoenix that someone may have reported as valued at $400,000 in 2006, might be valued at $230,000 in 2008. Thus, 3-year accumulations of housing values are less useful than a snapshot (point) data, especially for multivariate analysis.

2.2 Data quality is reduced due to lower response rates than expected

The ACS methodology includes personal visit for a sub-sample of respondents who do not respond by mail or telephone. The sub-sampling rate varies from 1:2 to 1:3 for mailable addresses to 2:3 for unmailable ones. That is, areas with the lowest expected mail back rates have the highest follow-up in an attempt to obtain a more even overall response rate. As a result, the Census Bureau reports out a weighted response rate which accounts for the differential follow-up and puts the ACS weighted response rate at upwards of 97 percent. Current estimates of the "unweighted" response rate (the proportion of final interviews compared to the initial sample of housing unit addresses) are between 66 and 68 percent.[1] In 1996, the Census Bureau estimated that over 85 percent of *occupied* housing units would be successfully surveyed in the ACS (USDOT, BTS report, p.11) but because the sample size is far lower than expected, fewer samples in each geographic unit are collected, which in turn lowers the statistical reliability and weakens the data.

2.3 Lack of weighting at the sub-county level results in problematic results

The Census Bureau has cautioned users that they should NOT use the ACS results to report numbers, but that users should instead use the distributions to describe characteristics of an area.

Because the ACS weighting process is limited to county-level geography, place totals can be problematic. This problem was first identified when the 2005 1-year ACS data were released. Some cities that experienced growth between 2000 and 2005 found 2005 ACS tabulations showing that their population had declined compared to Census 2000 results. (City of Oakland, CA was one example). Since the Census Bureau continues to weight data based on county level geography, similar results in other cities have led some MPO planners' to reject the use of the 2005-2007 ACS 3-year data.[2]

A similar problem is occurring with population estimates for Urbanized Areas. Urbanized Areas as defined by the Census Bureau are a key unit of geography for transportation. Highway and transit funding formulas, and requirements for metropolitan planning processes as mandated by federal law (23 USC 134) and project eligibility use Urbanized Area boundaries and population counts. While the population estimates that are being shown for the 3-year ACS data are currently not being "officially" used in any transportation funding formulas, local agencies are starting to ask some hard questions. Most recently a group of Texas transit operators began discussing the need to change the federal funding formulas for transit based on "perceived" growth in their Urbanized Areas given ACS estimates.

Because the ACS releases numbers while cautioning users not to use them there is a conflicting message being sent. Some experienced analysts are able to take independent population control numbers and adjust the ACS estimates, but there are many casual users who do not have the time or ability to adjust the ACS.

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[1] ACS Using the Data: Quality Measures http://www.census.gov/acs/www/acs-php/quality_measures_sample_2006.php (accessed June18, 2009)

[2] Thabet Zakaria, DVRPC, post to CTPP listserv, June 18, 2009. http://www.chrispy.net/pipermail/ctpp-news/2009-June/001975.html (accessed June 19, 2009) Thabet Zakaria, DVRPC post to CTPP listserv, December, 2006 on review of 2005 ACS 1-year results: http://www.chrispy.net/pipermail/ctpp-news/2006-December/001524.html

2.4 Rules to protect individual confidentiality are excessive

The transportation data community is starting to wonder if the trade-offs between currency and the amount of data suppressed in the ACS standard tabulations, and even more restrictive rules imposed on custom tabulations are worthwhile. Although not specific to disclosure proofing, the Census Bureau applies several techniques during its normal processing that inherently protects confidentiality. Data swapping, imputation, top coding (of at least travel time), income indexing to the last collection year are all done before any tabulation occurs and help to protect the data. These might not be specific confidentially protection techniques but they all contribute to reduce the ability to breach an individual's confidentiality. Even the population threshold of 20,000 for the 3-year ACS helps protect the data by restricting geographic reporting.

Specific to disclosure proofing we believe that not only do the above procedures eliminate the need for any further confidentiality restrictions but the fact people often change their residence and/or workplace locations, their travel mode and time leaving to go to work further reduces the probability of a confidentiality breach in the data. We believe that the accumulation of ACS records over 36 months in the 3-year tabulation, and 60 months in the 5-year tabulation, affords enough built-in protections to individual confidentiality that no additional measures are needed. Westat developed a disclosure risk estimate for the CTPP using 3-years of ACS records which is documented in Krenzke and Hubble (2009).

For the first CTPP product to use the ACS, the original plan was to commission tables from the 2005-2007 ACS while limiting it to geographic units meeting the 20,000 population threshold, similar to the standard ACS 3-year product. A requested table list was submitted in February 2008 with an anticipated delivery in the Spring of 2009. The Census Bureau DRB approved the list, but each table with the variable "Means of Transportation to Work" was subject to a threshold of 3 unweighted records for each category of Means of Transportation (http://trbcensus.com/drb/03122008.pdf, accessed July 8, 2009). This rule came as a complete surprise because it was exceedingly more restrictive than the previous requirement for CTPP2000. For the CTPP2000 custom tabulation the flow from home-to-work was subject to a threshold of 3 unweighted records, but it was for each geographic pair, not for each category of Means of Transportation. We determined that these restrictions would result in such massive data suppression as to make the results unusable.

The DRB said that this rule was added because we had requested 17 variables cross-tabulated with the Means of Transportation and a synthetic microdata record could be created. According to the DRB, the CTPP synthetic microdata record could be matched to an ACS Public Use Microdata Sample (PUMS) record, more information added and because the CTPP data was for an area of only 20,000 people, a risk of disclosing an individual was possible. The CTPP table list was subsequently reduced to only 5 variables cross-tabulated with the Means of Transportation and this restriction was removed (http://trbcensus.com/products/3-year_ACS/drbapproval-09apr22final.pdf, accessed July 8, 2009).

Because of all the concerns with disclosure avoidance and expectations that the DRB rules will only become more restrictive over time, the transportation community has a project that is just starting. NCHRP 08-79 "Identifying Credible Alternatives for producing 5-year CTPP Data Products from the ACS" is a $500K effort that will explore

statistical techniques for producing small area data from the ACS that preserves individual confidentiality and yet provides transportation data community with useable information. We hope that a synthetic data approach will be developed that meets both the needs of the Census Bureau's DRB and the transportation data community.

The burden of developing techniques to reduce the need for data suppression and for disclosure avoidance should not be limited to the transportation data community. We are not mathematical statisticians, but we suggest that the Census Bureau consider new approaches, for example:

- Adding more noise to individual records before tabulation. Because the data are tabulated into variable class bins, e.g. Household Income range "25,000 to 34,999" by adding noise, a household might fall into the bin above or below their current bin, or remain in the same bin. This would also reduce the risk of matching to a specific PUMS record.
- Developing synthetic microdata records that can be used in an "on demand" table generation system for geographic areas consistent with the 20,000 population threshold of the 3-year ACS data.

3.0 Enhancing the Utility of 3-year ACS data for transportation

3.1 Improve Data Usability

The Census Bureau should research methods to improve the ratio of completed surveys to the initial address sample (aka unweighted response rate) in the ACS. The assumptions that the response rate would mirror the response rate to the Census 2000 "long form" without the benefit of a full-scale media campaign have proven to be overly optimistic. An increase in the sample size would increase the cost of conducting the ACS, but would reduce the need for data suppression on statistical grounds. There would however, still be a concern with suppression for disclosure reasons.

Freddie Navarro, Census Bureau staff, at the Transportation Research Board meeting in January 2009 noted that Census 2010 population counts would be used to update the weights for the ACS data. But little to no information on this process has been forthcoming. Consequently, we would all benefit from more information about the Census Bureau's planned methods and timeframe. Key questions are:

- When will the ACS use the 2010 Census for weighting? When will the 3-year ACS have the 2010 Census results incorporated. And, when will the 5-year ACS results have the 2010 Census counts incorporated?
- What is the geographic scale of the weighting adjustment to 5-year ACS after the Census 2010? Does the Census Bureau plan to limit this to the county level for the county-estimates program, or have they thought about weighting adjustments at the census tract level or other sub-county level?

Without improvements to sample weighting, the benefits of a larger ACS sample might not be worth the additional cost.

3.2 Add home-to-work flow tables

The transportation community is very happy that the ACS standard tabulations now include some, but not enough, workplace tabulations. If the ACS standard tabulation would add a home-to-work flow table, we would be even happier. The first step would

be to produce county-to-county flow tables with a count of workers. With the ACS 3-year data, this could include only those counties that meet the 20,000 population threshold. Even if only 60 percent of counties currently meet the 20,000 population threshold, this large scale origin-destination matrix would be useful for travel demand model validation.

The next step would be for the ACS 3-year table set to add a PUMA-to-PUMA flow table, again of worker counts alone. About 25 percent of workplace addresses do not have sufficient detail for block level geocoding, which would be needed to have workplaces coded to PUMA. Currently the Census Bureau is "not required to code workplaces down to this level." However, the Census Bureau is currently conducting research funded by the Federal Highway Administration and the American Association of State Highway Transportation Officials to test a system to impute workplace locations at the block level. When it has been fully tested and "hopefully" implemented into the standard ACS data processing stream, a PUMA-to-PUMA flow table would be possible.

3.3 Add home-to-work distance variable

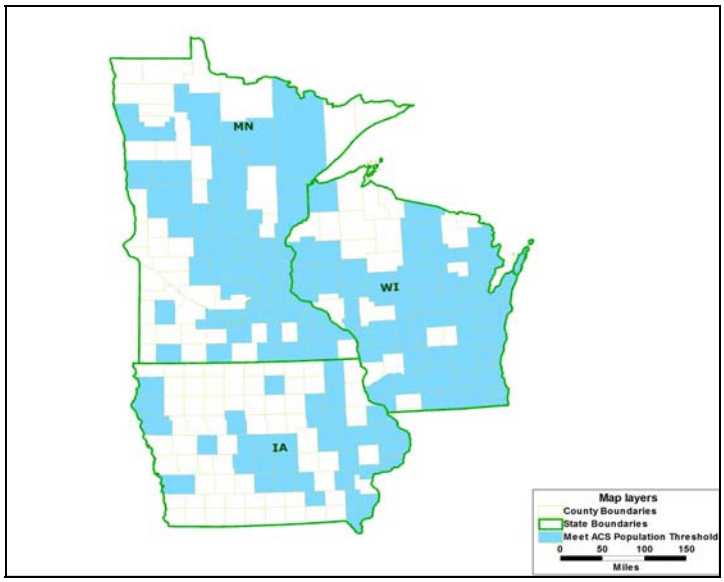
For transportation planning and policy analysis, the distance (in miles) people commute is a very important variable. Trip length frequency distributions are central to building good travel demand models and in analyzing the affects of transportation on urban form, congestion, energy consumption, vehicular emissions and greenhouse gases. Policy discussions are currently underway in Congress tying the distance people commute into a performance metric for tackling the nation's progress to reduce greenhouse gas emissions (http://transportation.house.gov/Media/file/Highways/HPP/Surface%20Transportation%20Blueprint.pdf, accessed July 8, 2009).

Today, there are many highway networks in the public domain that could be used to estimate a roadway network-based travel distance, which are more accurate than a "crow's fly" distance, or a "great circle route" distance. Adding a travel distance to ACS and reporting it in a frequency distribution with a mean and median would benefit the transportation planning community. While people in the U.S. typically report fairly accurate travel times, they are less accurate in reporting distances (Battelle, 1997). Therefore, we expect a distance that is based on the home location and workplace location estimated from a roadway network to be relatively accurate. We had informal discussions with Census Bureau staff, but they ultimately rejected this as part of the standard ACS processing.

3.4 Eliminate the "Swiss Cheese" effect

There is a real problem using ACS data when doing regional or sub-regional analysis. The only geographic units in the 3-year ACS with blanket coverage are States and PUMAs. Although PUMAs have national blanket coverage, the population threshold is 100,000. The lack of a geographic unit that provides blanket coverage at the 20,000 population threshold results in what we call the "Swiss Cheese" effect. Figure 1 shows the counties in the 3-state area (WI, MN and IA) that meet or do not meet the 20,000 population threshold.

Figure 1. Example of 2005-2007 ACS reporting at the County Level



A new geographic unit designed for the 3-year ACS population threshold would allow for finer grained geographic tabulation without the "swiss cheese" effect. All ACS data users, not just transportation planners, would benefit by the addition of a geographic unit to provide "blanket" coverage. The ACS tabulation threshold of 20,000 people and lack of a geographic unit for blanket coverage results in disjointedness in the applicability of ACS results.

If census tracts have approximately 4,000 persons, then an aggregation of 4 to 6 census tracts should generally be sufficient to form a tabulation geographic unit for 3-year ACS summaries. For this paper, let's call it a SuperTract. If there are 65,000 census tracts, and each SuperTract had an average of 5 tracts, then there would be 13,000 SuperTracts. In urban areas, a SuperTract might be equivalent to a city neighborhood. In rural areas, a SuperTract might be an accumulation of multiple counties.

We understand that there have been internal discussions about this concept at the Census Bureau but that they have not progressed beyond the conceptual stage.

3.5 Reduce the Amount of Data Suppressed

Right now, the transportation data community is using the 2005-2007 ACS 3-year standard tabulations and has created a set of 5 profile sheets (http://ctpp.transportation.org, accessed July 8, 2009). These profile sheets not only include the ACS data but data from Census 2000 and the CTPP2000 along with calculated MOEs and where possible significance tests.

For the 3-year ACS tabulations, the Census Bureau uses a Coefficient of Variation (CoV) test to determine whether or not a table can be released. If the test is not met, the table is suppressed. During the production of the profiles we found that there is even more suppression than might be expected because of the CoV test applied to the ACS 3-year tables. Table 2 shows the total number of counties followed by those with data for three of the 5 profile sheets. The reduction or loss of data is quite telling but more importantly very frustrating to the analyst. Even where you expect to get ACS data it might not be

there which we believe only helps to discredit the utility of the ACS and should be remedied.

Table 2. Counties with ACS 3-year data (2005-2007)

Number of Counties	Count	Percent
Total	3,219	100%
20,000 pop threshold	1,882	58%
Part 1 Profile 3 : Mode to Work by Travel Time [3]	1,395	43%
Part 1 Profile 3 Mode to Work by Departure Time[4]	659	20%
Part 2 Profile 2 Mode to work by Industry at Place of Work[5]	855	26%

3.6 Revise the Mode to Work Question to add "light rail"

The production of the profile sheets listed above also shed some light on another problematic area, the lack of the choice "Light rail" for the question on "Means of Transportation to Work." The ACS 3-year data for Houston revealed a problem. In Houston, a new "light rail" system was started on January 1, 2004 and has experienced record-setting ridership increases while the ACS shows transit mode choice as flat with a significant increase in the "other" mode. This will become even more problematic as other cities are moving to build new "light rail" lines. Phoenix just opened it's "light rail" line this past year. Incidentally, in San Diego, where the light rail system is called "The Trolley", this did not create a problem, since respondents were most likely to choose "streetcar or trolley car" on the ACS questionnaire. San Diego is the only light rail system, out of about 30 in the U.S., which calls its system a trolley.

We understand that the Census Bureau requires that changes to the ACS questionnaire, including changes in the choices, as well as changes to the text in the question wording, require full testing. While any cycle of changes in questions might not be implemented for quite some time, 2015 perhaps, it is not too late to begin the process of change.

4.0 Conclusions

It is somewhat early from the transportation users' perspective to be able to capture the entire universe of changes that could increase the utility of the ACS 3-year data. After all, there has only been one data release and the ACS is at best, only slowly "catching on". As people begin to work with the data more it is likely that additional issues will arise. For example, we only identified the impact of the ACS questionnaire form on Houston's mode choice results in April 2009 after reviewing our transportation profile sheets that included both the results from Census 2000, CTPP2000, and the 2005-2007 ACS.

[3] ACS Table B08134
[4] ACS Table B08132
[5] ACS Table C08526

As this paper has shown, the issues for the transportation community loosely fall into two general categories. First there are more generic concerns about the overall shift to ACS and second there are some specific fixes that could be made. Of course, several of the issues could fall in either or both of the general categories. In terms of concerns over the shift to the ACS, four have been identified and listed below. As none of these are fatal flaws in themselves, when considered together they do start to impugn the integrity of the data.

Concerns about the shift to ACS

- ACS may be more current but it is blurry
- Data quality is reduced due to lower response rates than expected
- Lack of weighting at the sub-county level results in problematic results
- Protecting individual confidentiality is excessive

The next group of issues fall into a group we consider to be fixes, changes and issues that we have heard from users in the transportation community that we would like to see addressed. Most of these items are seen as things that could be addressed with little effort and would only help increase the utility of the data.
Items and changes that would enhance the utility of the ACS

- Improve data quality
- Add home-to-work flow tables
- Add home to-to-work distance variable
- Eliminate the “Swiss Cheese” effect
- Reduce the amount of data suppressed
- Revise the mode to work question to add “light rail”

As far as making changes to the ACS we seem to be at a crossroads. The Census Bureau should reconsider its approach to Title 13 and the protection of individual confidentiality. New techniques should be explored that protect individuals while allowing the data that have been collected at considerable cost to be useable.

The Census Bureau has shown great courage and innovative thinking in switching to the ACS methodology, but does not seem to be applying the same kind of innovative thinking to develop methods that protect individual confidentiality while releasing useful data products. Instead the Census Bureau relies on data suppression as the standard tool. We find this to be somewhat of a dilemma which might explain why we have guarded optimism regarding the ACS.

We have used the phrase “guarded optimism” before to describe the potential for the ACS results to be used in transportation planning applications. So far, in our data community, there has been outright rejection by a few and a lot of caution by others.

Our main objective for the transportation data product (CTPP) and ultimately the ACS is to obtain a reliable small area home-to-work origin-destination matrix, along with variables such as travel mode, travel time, and departure time, combined with limited

household characteristics such as vehicle ownership, household size, and household lifecycle (including number of workers). The Census Bureau sold the concept of the ACS as a replacement of the decennial census "long form" and we hope that our key product from the long form will still be produced from the ACS with trustworthy results.

However, the small sample size of ACS, and increasing restrictions by the DRB on data considered releasable are pushing the transportation community to review alternate data sources. One small research project to examine the concept of combining ACS with the LEHD at the microdata level was aborted for lack of Census Bureau staff time to participate. We hope a new National Cooperative Highway Research Project on data synthesis to reduce the risk of individual disclosure using the ACS will address the DRB issues. Alternatives to be explored will likely continue explorations of LEHD On the Map, expanding the USDOT National Household Travel Survey (NHTS) to be more similar in scale to the household travel surveys conducted in the 1950's, or a decentralized approach to data collection with local (regional) and State surveys.

All ACS data users, not just those of us in the transportation data community, need to ask ourselves whether the ACS is sufficiently replacing the decennial census long form, and if the benefits of more current data for large geography and reduced reliability for small area geography have been a good trade.

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