

Problems with the Urban and Metropolitan Area Definitions

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Introduction

The turn of the century brought major changes to the way urban and metropolitan areas in the United States were defined. Urbanized Areas (UAs) and Metropolitan Statistical Areas (MSAs, previously with slightly varying names) were first defined in the mid-twentieth century. The next four decades saw some gradual changes and evolution in the definitions, but no major modifications. Then the Office of Management and Budget (OMB) produced new, very different, expanded standards for defining metropolitan areas (and other areas), relying heavily on commuting patterns and eliminating the earlier use of “metropolitan character” (U.S. Office of Management and Budget 2000). And the Census Bureau completely revised the way in which UAs and other urban areas were defined (U.S. Bureau of the Census 2002).

The new MSA definition produced major changes to the extent of many large MSAs, with areas that had been single MSAs in 1999/2000 being subdivided into 2 or more MSAs in 2003. A prior research note (Ottensmann 2016) documents the changes that resulted, comparing the MSAs delineated before and after the change in the definition.

This raised the initial question being addressed in this note: What exactly was it about the new MSA definition that led to the delineation of these smaller MSAs? It turned out that answering this question led one down a rabbit hole, with the new MSAs depending on the extent of the UAs delineated under the new urban standards. And it further turned out that the extent of the UAs depended on the MSAs delineated in 1999 using the old 1990 standard. In other words, the definitions were essentially circular!

So the next question becomes, what happened with the next iteration in 2010? For the UAs, the Census Bureau proposed retaining the status quo in the definition for the largest areas but eliminating it for the smaller areas (U.S. Bureau of the Census 2010). But this is not what they ultimately chose to do. Instead, they made the ridiculous decision to completely freeze the set of UAs as they were delineated in 2000. Whether an area would be a single UA or multiple UAs would depend not on conditions in 2010. Rather, the determination was based on conditions in 2000 and before (U.S. Bureau of the Census 2011). For half a century the Census Bureau had allowed the extent of UAs to evolve, resulting in the occasional combination of formerly separate UAs when areas had grown together and were more appropriately considered parts of a combined urban entity. Dallas and Fort Worth represent an excellent example of this. The Census

Bureau has now said that continuing evolution of the urban system would no longer be recognized!

The 2010 metropolitan area standards were little changed from those published in 2000 (U.S. Office of Management and Budget 2000). The circularity remained, with the definition starting with the UAs and depending critically on the extent of those areas. So there would be little or no evolution of the MSAs as well.

This note addresses problems with the new MSA and UA definitions. It begins with a discussion of issues relating to the reliance on commuting in the new MSA definition. Next is the examination of how the new definition resulted in the smaller MSAs and the circular interdependence of the MSA and UA definitions. The following section deals with the decision to freeze the set of UAs for 2010, considering not only the specifics of the decision but very critically how it came about and how the Census Bureau chose to present the decision. To end on a more forward-looking note, the final section presents some initial thoughts about better approaches for MSA and UA definition.

Issues with the Use of the Commuting Criterion

In creating the new MSA definition, OMB discussed the complex and ad hoc character of the measures of metropolitan character used in the prior definition and argued that the increasing variety of settlement patterns in metropolitan areas made metropolitan character less relevant (U.S. Office of Management and Budget 1998, 2000). For this reason, they decided to drop those measures and said that urban form would no longer be considered in the definition of MSAs. Only integration would be considered. That was not really correct, as is discussed later in the section proposing new ways to define MSAs and UAs. But they certainly did eliminate form and metropolitan character as criteria for the adding of outlying counties to an MSA. Commuting interchange with the central counties became the sole criterion.

Commuting to the center served as a very good measure of metropolitan integration—when a major portion of workers were commuting to the center. But metropolitan employment has moved away from the center. In many areas, more commuting occurs from suburb to suburb than to the central city. As with settlement patterns, commuting patterns have become far more complex. This is not to say that commuting is not a good measure for metropolitan integration. But it should be considered far more carefully, with perhaps more nuanced approaches taken in determining how it is to be used and what commuting thresholds would be appropriate in different situations.

To be sure, the commuting criterion in the current MSA definition involves the level of commuting interchange with the central counties, which will be more than just the CBD or the old central city. Because of how the central counties are defined, as those areas with substantial presence of the UA, the central counties will likely include significant amounts of the suburban employment. But this can still vary significantly across areas, depending upon the locations of county boundaries, the amounts of employment in the outlying counties, and so on.

To the extent that outlying counties capture more employment, more of the workers residing in those counties may be working within their counties or in other outlying counties as opposed to commuting to the central counties. Furthermore, rapidly growing outlying counties can have substantial construction employment, which by its very nature has to be located within those counties. Again, to the extent that these workers come from outlying counties, there will be a lower percentage of commuting interchange with the central counties.

Consider this situation, which almost seems like a paradox: From one census to the next, an outlying county can have more workers who reside in that county commuting to the central counties while at the same time the percentage of the workers residing in that county and commuting to the central counties declines. All that is required is that the number of workers who reside in that county and work in that county or other outlying counties rises more rapidly than the number of workers commuting to the central counties. And for a growing county, this is entirely plausible. Depending on the values of the percentages, this can potentially make the difference in whether or not an outlying county qualifies for inclusion in an MSA.

Understanding the nature of contemporary commuting is perhaps even more important in a second aspect of the MSA definition involving the decision to merge adjacent CBSAs (Core-Based Statistical Areas; MSAs and Micropolitan Statistical Areas) into a single MSA. The definition treats such areas exactly the same as outlying counties, requiring that they meet the same commuting interchange threshold of 25 percent. But those areas will likely have higher employment levels than typical outlying counties, possibly very much higher in the case of adjacent MSAs. So there will be more opportunities for workers living in those areas to also work in their areas rather than commuting to the central counties of the other area. This will make it less likely that an adjacent CBSA would qualify for merger with an MSA.

These adjacent CBSAs may also be attractive sources of employment opportunities for the residents of some of the outlying counties. They could attract commuting that might otherwise flow to the original MSA. One could have the situation where the percentage of workers in an outlying county commuting to both the original MSA and to the adjacent CBSA exceeds and possibly vastly exceeds 25 percent but does not exceed that level for either area alone. This would seem to suggest that the outlying county is strongly integrated with the two areas, but even if the areas were merged, that outlying county would not qualify for inclusion in the MSA because commuting to either set of central counties did not exceed the threshold.

Here is another interesting possibility. Consider an outlying county considered for addition to an MSA, adjacent to and beyond several outlying counties that have already been added. Suppose half of the workers in that county commuted to places of employment in the other outlying counties that had become part of the MSA. But fewer than 25 percent commuted to the central counties of the MSA. Is it really appropriate to conclude that this county is not integrated with the MSA and should not be added?

None of this is meant to suggest that commuting is not a good tool for measuring metropolitan integration. The point is that things are far more complex than might be immediately apparent.

The Confusing Logic of the Metropolitan Area Definition

The new definition of MSAs starts with the UAs, and the extent of the resulting MSAs is necessarily highly dependent upon the extent of the UAs (U.S. Office of Management and Budget 2000). The reason is quite simple. All of the counties having a significant presence of the UA constitute the central counties of the MSA and become the core of the MSA. The larger the UA, the larger will be this starting core of the MSA. If two UAs were to be combined, the MSA central counties would be defined by that larger UA.

Conversely, if you have 2 UAs that are adjacent and separate, each forming the core of their own MSA, it is highly unlikely that these areas could ever become part of a single MSA, especially for larger UAs and MSAs. This is because each of the MSAs will have a large employment base within its own area. A large proportion of the workers residing in each MSA will work in their own MSA. Even if there were very large commuting flows between the two MSAs, it is very likely that they would not reach the 25 percent threshold required for their merger.

An example would be the San Francisco-Oakland MSA and the San Jose MSA. They are very large and each has high levels of employment. Large numbers commute from each area to the other. Nevertheless, the numbers commuting are not sufficient to meet the threshold to allow merger into a single unified MSA. If the San-Francisco-Oakland UA and the San Jose UA had been combined into a single, larger UA (there is a large, continuous area of urbanization between San Francisco and San Jose), then by definition the central counties of the San Francisco-Oakland MSA would be combined with the central counties of the San Jose MSA as the starting point for the single MSA. No commuting condition required.

This makes it clear that the extent of MSAs depends very much on the extent of the UAs used in delineating those MSAs. So the next critical question becomes, what determines the extent of the UAs? What determines whether an area is a single UA or is split into 2 or more UAs?

For this, of course, one must turn to the UA definition for the 2000 UAs (U.S. Bureau of the Census 2002). Delineation of UAs begins with the identification of areas of contiguous urban settlement, blocks or block groups (for 2000) that meet the minimum density criterion. But these areas of contiguous urban settlement can extend over extremely large areas. A continuous area of urbanization existed from northeastern Maryland through Springfield, Massachusetts. So some method is required to split the largest agglomerations up into the final UAs.

The definition provides for the splitting into separate UAs of urban agglomerations that are initially identified as areas of contiguous urban settlement. There are some technical provisions for splitting when areas are contiguous because of hops and jumps. But the more important criterion states that the starting point for considering splits will be the MSA, CMSA (Consolidated Metropolitan Statistical Area), and PMSA (Primary Metropolitan Statistical Area) boundaries as defined for the 2000 census, delineated in 1999, and based on the metropolitan area standards published in 1990 (U.S. Office of Management and Budget 1990, 1998). Large urban agglomerations will be split into separate UAs at the boundaries between MSAs, PMSAs, and CMSAs where the distance along which the areas are contiguous is less than 3 miles.

Note that the decision to include the PMSA boundaries as locations where splits could be made is critical, as many of the splits were made at those boundaries. The PMSAs were subdivisions of some of the MSAs with populations over one million (and whether or not an eligible MSA would be subdivided took into account local opinion). The PMSAs were in no sense “primary,” as the areas of which they were a part were defined as MSAs along with all other MSAs. The MSAs that were subdivided were then confusingly renamed CMSAs, though they were in no sense “consolidated,” having been defined prior to the creation of the PMSAs using exactly the same criteria as the other MSAs. So it would have been at least as logical to only provide for splits at the MSA and CMSA boundaries.

Consider the example of the San Francisco-Oakland and San Jose UAs delineated using the 2000 Census data. I measured the distance at the narrowest point of contiguity between San Francisco and San Jose, near the PMSA boundary, as 2.5 miles. That’s less than 3 miles. So the UA was split. (An aside here: this area of 2.5 mile contiguity was on the peninsula, between San Francisco and San Jose. There was an additional area of contiguity in the East Bay, between Oakland and San Jose that extended for 0.7 miles. So the total distance of contiguity was about 3.2 miles. And the definition is ambiguous as to whether it is referring to the length of the location of maximum contiguity between the areas or the total length of contiguity.)

The Los Angeles and Riverside-San Bernardino-Ontario UAs were also split. The length of the line of contiguity there was 2.7 miles. It seems there could be a pattern here. Was the 3-mile contiguity standard an arbitrary value that happened to be chosen or was it selected to assure that (at least) these areas would be split into separate UAs? This certainly would have been possible, as the 2000 urban area criteria were not published until March 2002. Boundary files for the 2000 UAs available on the Census website are dated May 2002. So the delineation of the UAs had to have been completed or very nearly completed by the time of the publication of the criteria.

To extend the discussion of the length of the areas of contiguity, for the 2010 UAs, the narrowest point of contiguity for the San Francisco-Oakland and San Jose areas increased to 3.3 miles on the peninsula and an additional 1.5 miles in the East Bay. The narrowest point between Los Angeles and Riverside-San Bernardino-Ontario was 8.7 miles. and the length of the line of maximum contiguity between Washington and

Baltimore was 3.9 miles. So if the 2000 standard had been in effect for 2010, these three areas would not have been split. (More on what actually happened for 2010 in the following section.)

Consider how these various definitions relate to one another. The definition and delineation of the MSAs depends on the definition and delineation of the UAs. And the definition and delineation of the UAs depends on the definition and delineation of the MSAs (and CMSAs and PMSAs). This is almost a circular definition. It is not quite, because the MSAs delineated in 2003 and defined in 2000 depend upon the UAs delineated for the 2000, and defined in 2002. And the 2002 definition of the UAs depends on the MSAs, CMSAs, and PMSA delineated in 1999 for the 2000 census, using the definition published in 1990.

But it is certainly at least highly problematic to be using such a nearly circular definition. And it would have become more questionable if continued to the 2010 UA and MSA definitions. In that case you could have the MSAs delineated in 2013 depending on the 2010 UAs, which depended on the MSAs defined in 2000, first delineated in 2003, and updated in 2009, which depended on the 2000 UAs, which depended on the MSAs, CMSAs, and PMSA delineated in 1999 and defined in 1990. Whew!

What actually happened with the 2010 UA delineation is the subject of the next section, and what was done was much worse!

The Absolutely Insane Decision on Urbanized Areas for 2010

The proposal for changing the urban area standards for 2010 devoted several pages to the topic of splitting of UAs (U.S. Bureau of the Census 2010). The report described how the identification of contiguous areas of urban settlement would produce some very extensive agglomerations, with the largest stretching from northeastern Maryland through Springfield, Massachusetts. This was followed by the rationale for splitting some of the areas:

The Census Bureau anticipates that many data users would find these large agglomerations to be inconvenient for meaningful analysis, and therefore, proposes that they be split in some consistent fashion.

No indication is provided that any consideration is to be given to whether or not areas should be considered as integrated urban areas as opposed to a collection of areas that, while now contiguous, should more properly be considered as multiple urban areas. Few would doubt that the extremely large agglomeration in the Northeast, centered on New York, should be considered among the latter, as multiple urban areas. For any of the remaining agglomerations, the answer is not as obvious.

Convenience for analysis is a strange criterion to offer. This presupposes knowledge of the nature of the analyses that will be undertaken using the UA data. I have not seen that put forward as a rationale for the definition of either UAs or MSAs in the past. The

very reason for defining UAs (and MSAs) and reporting data for these areas is that such areas were seen to be meaningful and worthy of attention in addition to all of the other units for which data are provided.

The proposal was made to split those contiguous agglomerations with populations greater than 1 million by using the boundaries of MSAs as they were defined in 2000 and delineated in 2009, though users were offered the opportunity to comment on the alternatives of using lower population thresholds. So the smaller areas of continuous settlement would be considered to be single UAs, which would likely have led to the combination of some formerly separate UAs. The status quo would have been maintained for the larger areas.

Of course, splitting using the MSA boundaries meant that those agglomerations covering areas that were divided into two or more MSAs would be split (with no consideration being given to the extent of contiguity). Those areas of continuous settlement within the boundaries of what was delineated as a single MSA would not be split. And remember, the delineations of the MSAs depended upon the prior delineation of the UAs for 2000 and whether areas of continuous settlement were split at that time.

Realizing that the potential combination of UAs that had been separate areas in 2000 could be an issue, the proposal included a list of areas that encompassed multiple UAs in 2000 and either were contiguous in 2000 or were close enough that they might become single, continuous urban agglomerations in 2010. Also included were the latest population estimates for these areas. Numbers 6, and 7 on the list in terms of population, with populations of about 5,900,000 and 5,000,000, were San Francisco-Oakland-San Jose and Dallas-Fort Worth. Note that Dallas-Fort Worth was on the list because two smaller UAs could potentially become contiguous with the Dallas-Fort Worth UA, resulting in their combination. According to the proposed splitting criterion, San Francisco-Oakland and San Jose would be separate UAs. On the other hand, Dallas-Fort Worth would remain a single UA, because Dallas-Fort Worth was a single MSA.

It is hard to see how analytical convenience could be a reasonable basis for this disparate treatment. If it were to be more convenient for many analysts to have San Francisco-Oakland and San Jose delineated as separate UAs, why wouldn't it be equally convenient to have Dallas and Fort Worth as separate UAs?

As discussed in the previous section, the difference in treatment ultimately depends on the circular nature of the UA and MSA definitions. Dallas and Fort Worth were to be a single UA in 2010 because they were within the combined MSA delineated in 2009, which would most likely have resulted from Dallas-Fort Worth having been a single UA in 2000, presumably because the length of contiguity along the PMSA boundary as delineated in 1999 separating Dallas and Fort Worth exceeded 3 miles. To their credit, the Census Bureau does acknowledge the conundrum:

This approach, however, results in some circularity of outcomes—the metropolitan statistical area and NECTA definitions that would be used to split large agglomerations are those that were defined on the basis of Census 2000 data, including Census 2000 urban area definitions; the 2010 UAs resulting from the splitting process will form the cores of metropolitan statistical areas and NECTAs.

But they leave it with that. Nothing further is said about this. Certainly no suggestion is made that this presents a problem that needs to be addressed, either at this time or sometime in the future.

The failure in the proposal to address the interdependence of the UA and MSA definitions is unfortunate. The proposal to continue the splitting of the urban agglomerations with populations greater than 1 million using MSA boundaries would have just perpetuated the problem for these areas (though the proposal represented an improvement by proposing to not split the smaller areas).

But implementing the changes proposed would have been far preferable to the ridiculous action which the the Census Bureau ultimately chose: The Census Bureau froze the set of UAs as they existed in 2000 (U.S. Bureau of the Census 2011). Additions were to be made of new urban territory, and boundaries between UAs might see minor adjustments. But UAs that existed as separate entities in 2000 would continue as separate UAs in 2010. The only changes to the inventory of UAs would be additions where area populations grew to meet the minimum threshold and deletions where area populations fell below that level. So obviously the general extent of nearly all UAs would continue to exist largely unchanged.

This is madness. To my knowledge, this is the first time that the Census Bureau or OMB has decided to delineate UAs or MSAs based not on a set of criteria that would be applied to the current data but rather determined that areas established in the past would continue to exist with only small changes. Over the history of UAs and MSAs, the extent of the areas has been allowed to evolve. As formerly separate areas have grown together and become highly interdependent, the UA and MSA delineations changed to reflect the new reality that the two (or more) areas should then be considered to be a single area.

Had a policy of freezing UAs ensuring the separate existence of the original UAs been in effect since the start of the UA program in 1950, Dallas and Fort Worth would continue to be separate UAs and very possibly separate MSAs. Instead, the UAs were combined into the single Dallas-Fort Worth UA starting in 1980. And it is as Dallas-Fort Worth that most people identify this area. Of course Dallas and Fort Worth continue as separate cities. But one sees few references to the Dallas or Fort Worth urban or metropolitan areas. They are now considered to be part of an integrated area, and properly so. The same with Tampa and St. Petersburg, for example. There are numerous UAs that have been combined over the decades as they have grown together and as it has become more appropriate to see them as single, combined areas.

The Census 2010 UA definition eliminates the possibility of combination. If continued, the general extent and identify of UAs (and very possibly MSAs, to the extent the definition continues to be dependent on the UAs), will have been frozen in time as of 2000. The growth and evolution of urban and metropolitan areas that the Census and OMB have so wonderfully reported over time will no longer be reflected in their data. The freezing of the set of UAs has to be one of the worst decisions made by the Census Bureau, certainly the most awful involving the definition of urban areas. (I'm exempting some of the decisions made over the past centuries regarding the treatment of race.)

Looking back to the 2000 UA definition (U.S. Bureau of the Census 2002), there is a certain irony with the decision to freeze the UAs in 2010. The 2000 definition was a complete revision (and remarkable improvement) compared with the prior definitions. One point made strongly in that definition was that, contrary to the earlier UA standards, there would be no "grandfathering" of UAs going forward. The prior policy they were referring to was not one that kept UAs from being merged, of course. Rather, it was a policy that said once an area had been designated a UA, it could remain as a UA even if it lost population and no longer met current UA criteria. This only affected a few of the very smallest UAs, of course, but they complained loud and long. The Census Bureau held its ground, insisting on statistically consistent areas with no grandfathering. With the 2010 UA definition, the Census Bureau has now instituted what has to be by far the largest, most extensive, and most consequential grandfathering in its history.

So what caused this horrible and unprecedented decision? Had it come about because the Census Bureau finally realized the confused interdependence and circular logic associated with the UA and MSA definitions, decided that they were unable to deal with the problem for the 2010 UA definition, and were temporarily freezing the set of UAs for this one census only in order to come up with a better approach later? This might have been forgivable. But this was not what happened.

The final notice for the 2010 UA standards (U.S. Bureau of the Census 2011) provides the basis for understanding what did happen (and how the Census Bureau sought to divert attention from the reality of what they were doing). But first a brief primer on the format of these *Federal Register* notices on the standards for delineating the UAs and MSAs. The process of formally changing the standards involves prior publication in the *Federal Register* of a notice reporting the proposed changes to the standards, with the public being provided with the opportunity to submit comments. The final notice with the standards is then a long document steeped in bureaucratic language (and sometimes bureaucratic covering of backsides).

The 2010 urban area standards notice includes these sections: A summary of changes made to the proposed standards published in the previous notice; a history of the urban standards program; summaries of comments made on the proposed standards and the responses to those comments; the changes to the proposed standards; and only after all that, the new 2010 urban area standards. The notice is 14 pages long, 14 pages of

small type in 3 columns on each page, over 16,000 words. Of those 14 pages, just over 4 pages at the end are devoted to the standards themselves.

Only a minuscule fraction of users of the UAs and MSAs will actually read the detailed standards for the areas published in the *Federal Register*. The somewhat larger fraction of the remainder who actually want to understand how the areas are defined will undoubtedly be satisfied with the summaries provided on the Census website. Of those who do turn to the formal notices, nearly all will likely skip to the final pages with the standards themselves (especially if they have looked at these notices in the past). So only a very tiny fraction of a very tiny fraction of all users are likely to read through the entire notice. And it is those early sections that tell the story. To do so here, numerous direct quotations from the notice are included.

Starting with the first section, the summary of changes from the original proposal: The information in this section is presented in the form of a table, with statements describing the original criteria in the proposal and the changed criteria in the final standards. As these are out of the context of the entire set of standards, they are likely meaningless to those not intimately familiar with those standards and with what had been proposed. But in this notice, it is worse. The relevant entries for the topic “Splitting Large Urban Agglomerations,” could charitably be called misleading at best. This is the proposed criterion:

The urban agglomeration encompasses at least 1,000,000 people. Split occurs at the metropolitan statistical area boundary (or metropolitan New England city and town area), and compensates for incorporated place and census designated place boundaries to attempt to avoid splitting places between urban areas.

And this is the final criterion:

The agglomeration consists of urbanized areas defined separately for Census 2000. Split location is guided by location of Census 2000 urbanized area boundaries. Potential split locations will also consider metropolitan statistical area, county, place, and/or minor civil division boundaries as well as distance from each component urbanized area.

The first talks about urban agglomerations over one million and when and where splits are to be made (and by implication states that smaller agglomerations are not to be split). The second starts by saying the agglomeration consists of urbanized areas defined separately for Census 2000 and goes on to discuss the details of the split locations. Both seem to be talking about the splitting of urban agglomerations, leading one, based on the first, to be thinking they are addressing when splits are to be made. But that is not the case. The first sentence of the final criterion states that they are referring to agglomerations that are urbanized areas based on those urbanized areas defined for Census 2000. At issue is not whether areas are to be split. The only issue relating to splitting in the final criterion is the minor detail of where the line between areas that have already been deemed to be separate is to be drawn. In other words, the

second is saying that the set of UAs from 2000 is to be frozen, without really saying that, instead taking that as the starting point for a standard that, as far as splitting is concerned, relates only to the drawing of the line. The fact of large agglomerations being split has already been established by reference to the 2000 UAs. I consider this to be obfuscation.

The history section provides background on past practices of urban area delineation. It is not directly relevant to the question being considered here. Although it may be worth noting that there is nothing in this history about urbanized areas suggesting that the areas “have historically developed as the functional units of 50 years of urbanized area delineation.” (I am not sure what this is even supposed to mean.) The fact that the history does not say anything like that is noted here as the quoted statement about the history is made later in the presentation of the standards.

The next section consists of summaries of the comments made regarding the proposed changes and the Census Bureau responses. Of course, for comments to have been made, people will need to have read (or been apprised of) the proposed changes. The commenters are most likely those whose work is directly affected by the details of the urban delineation. Comments will generally come directly from those affected, from their representatives in professional organizations, and from Members of Congress who have been contacted by their constituents on the matter. The latter may well be given special weight in the consideration.

The key to what happened comes in the first summary of “Comments Pertaining to the Proposed Criteria for Splitting Large Urban Agglomerations.” The notice reports that 160 of the total of 179 comments submitted related to this topic. The commenters were concerned that certain UAs in 2000 would be merged under the proposed criterion and that this would affect the receipt of certain federal funds. (I am guessing that Federal Highway Administration allocations to Metropolitan Planning Organizations were a major source of concern.) The Census response to these comments was to completely cave:

In response to the comments regarding criteria for splitting large agglomerations, the Census Bureau will adopt criteria ensuring that urbanized areas defined for Census 2000 continue to be identified as separate urbanized areas for the 2010 Census, but only if these areas continue to qualify as urbanized under the 2010 urban area delineation criteria. The boundary used to split large agglomerations will be based on the locations of Census 2000 urban area boundaries. To the extent possible, this will facilitate continuity and comparability between the Census 2000 and the 2010 Census urban area definitions.

This was one place in the document in which the Census Bureau was this direct in stating that they were going to freeze the UAs as they existed in 2000. (But even then, they refer to the “criteria for splitting large agglomerations” when their action applies to all areas.) Perhaps they felt that this level of clarity was necessary to assure the commenters that the Census Bureau was responding to their protests. They may also have felt freer to be this straightforward in the response to the comments believing that

for the most part the only people reading the summaries of the comments and the responses would be those who made the comments in the first place.

The Census Bureau and OMB have consistently maintained that the UAs and MSAs are delineated only for statistical purposes without consideration of how they might be employed for other purposes such as for federal programs, including for funding. This is certainly appropriate and the only reasonable position, as multiple programs having conflicting priorities may want to use the areas, making agreement on areas for those purposes difficult or impossible. The notice reports that 17 comments took issue with this position and suggested that the urban area criteria take into account such nonstatistical uses. The response by the Census Bureau was to nobly uphold the policy of not considering other uses of the urban area delineation. Of course, the Census Bureau in practice ignored this policy in agreeing to ditch their proposed criteria for splitting and instead freezing the UAs as they existed in 2000. They go on to describe how they are striving to provide the best delineation of urban areas so they “provide a better reflection of the redistribution of population and how it affects the current state of urbanism,” despite the fact that basing the UAs on what existed in 2000 can hardly reflect the redistribution of the population since 2000 or the current state of urbanism in 2010. But just to be sure those commenters protesting the splitting proposal understand that their concerns are being met, this is followed by reassurance:

Nonetheless, the Census Bureau will apply urban agglomeration split and individual urban area merge criteria to ensure, to the greatest extent possible, the continued existence of all urbanized areas defined for the Census 2000; although the actual urban territory these areas comprise may differ. [Note that any “merge criteria” would only affect the UAs to the extent that an area that was a contiguous UA in 2000 became two areas that were no longer contiguous.]

The “nonetheless” is acknowledging the contradiction between the broadly stated principle of providing “a better reflection of the redistribution of population” and the freezing of the UAs. It’s also interesting that here they say that they will ensure continued existence “to the extent possible.” Unless they intended this as a qualification to cover the situation where a few very small UAs would be dropped if their populations fell below the minimum, this would seem to be an attempt to divert attention from the fact that in all other cases, they were completely freezing the set UAs as they existed in 2000. So the “extent possible” included all but a few small UAs that lost population and fell below the minimum threshold.

In the section discussing the changes to the proposed urban area criteria, this is the way the freezing of the UAs is described:

The Census Bureau adopted criteria that will ensure that Census 2000 urbanized areas will continue to be recognized as separate urbanized areas if these areas continue to qualify as urbanized under the 2010 Census urban area delineation criteria. Adoption of these criteria will facilitate continuity and comparability between the two decades’ urban definitions.

It's interesting that they now provide the justification of "continuity and comparability," which has not been explicitly stated as an objective before and was not referred in the history of the urban area standards as an objective ever sought in the past. The idea of continuity and comparability was likewise never raised in the notice of proposed changes, which focused on analytical convenience.

In the last section providing the final urban area criteria, this is how the splitting of large agglomerations and merging of urban areas is described:

Population growth and redistribution coupled with the automated urban area delineation methodology that will be used for the 2010 Census may result in large urban agglomerations of continuously developed territory that may encompass urban areas that were defined as separate urbanized areas in Census 2000. Conversely, the delineation methodology may also result in separate urbanized areas that were previously defined as belonging to a single urbanized area. If such results occur, the Census Bureau will apply split and merge criteria guided by the Census 2000 urban area boundaries to the greatest extent possible to ensure the continued recognition of all such urbanized areas.

This seems to place the responsibility for having to do the splitting and merging based on the Census 2000 urbanized areas on "population growth and redistribution coupled with the automated urban area delineation methodology," as if that is causing a problem that needed to be addressed. But the Census started using the automated methodology with the 2000 urban area delineation because that was able to produce better identification of urban areas than the methods used prior. And as far as "population growth and redistribution" creating a problem that needed to be addressed, isn't the urban area delineation intended to reflect population growth and redistribution? (They claimed that earlier.) This is purely obfuscation, providing an attempted justification for their action that does not make any sense. Furthermore, this entire paragraph is couched in terms of how areas will be split or merged "guided by the Census 2000 urban area boundaries." It is not explicit in acknowledging that what is being done is the preservation of the inventory of the UAs as they existed in 2000. As to the phrase "to the greatest extent possible," they are hardly acknowledging that they are considering this "possible" for all but a few small UAs losing population.

Ironically, a slightly more direct statement of what is being done begins the next paragraph addressing the treatment of urban clusters:

The rule to retain the inventory of urbanized areas that continue to separately qualify for the 2010 Census does not apply to urban clusters.

This refers to retaining the inventory of urbanized areas, but it does not explicit refer to the inventory of the areas as they were delineated for 2000. This is not actually acknowledging that the 2000 UAs are being retained and frozen. They go on to justify this different treatment of the urban clusters with the following statement:

The Census Bureau retains previously separate urbanized areas because these urban areas have historically developed as the functional units of 50 years of urbanized area delineation. Mandating this rule for urban clusters would artificially impede these areas from merging to form urbanized areas.

This is the first attempt at justifying the freezing of the UAs by referring to the prior history of UA delineation. They support the freeze by saying “these urban areas have historically developed as the functional units of 50 years of urbanized area delineation” (whatever this might mean; it’s nonsense). This would lead the reader to infer that the UAs are being kept constant without splitting or merging from 2000 to 2010 because UAs have by been kept constant without splitting or merging over the prior 50 years. And this is absolutely false. Of course the statement about the historical development does not actually say this. But asserting that the current freeze is being done because of that history certainly is more than subtly suggesting that the history involved practices comparable to the current policy. This is so completely misleading as to be virtually fraudulent. This is as close to lying as one can get without technically lying.

And remember, because the definition of MSAs starts with the UAs, and since the extent of the UA will have a major effect on the ultimate extent of the MSA, this action in freezing the UAs has the effect of, if not totally freezing, certainly limiting greatly the possibility for MSAs combining. I wonder whether OMB understood the implications and was given an opportunity to weigh in on this very unfortunate decision.

Ideas for Better Metropolitan and Urbanized Area Definition

The circular logic of the MSA definition depending on the UA definition and vice versa creates a dilemma. However, I believe the solution to this problem is not to seek completely different approaches to defining these areas. Rather, we should embrace the interdependence between the two and define the MSAs and UAs simultaneously. The problem has been that the MSA definition has been seen as a question of function, of integration of areas as measured by commuting. And the UA definition has been seen as a question of form, of metropolitan character as measured by population density. But in reality, the definitions of both types of areas necessarily involve both form and function.

The Metropolitan Area Standards Review Committee and OMB with the new metropolitan area definition in 2000 explicitly rejected metropolitan character and form as criteria for defining metropolitan areas, choosing instead to use only commuting for the inclusion of outlying counties (Office of Management and Budget 1998, 2000). They argued that the old definition including the multiple measures of metropolitan character was too complex and ad hoc and that urban settlement patterns had changed and were becoming more varied, both of which were true. However, they really did not exclude form and metropolitan character from the definition, which would likely have failed if they had tried to do so.

The new definition starts with the UA, which is primarily (but not solely) based on form. Counties are included as central counties of an MSA if at least 50 percent of their population is included in urban areas with populations of 10,000 or more or a have a population of at least 5,000 in a single urban areas of at least 10,000. These criteria are very close to the metropolitan character criteria used in the rejected definition. And central counties by definition become part of the MSA. So counties are included in the MSA based exclusively on metropolitan character, with no consideration of commuting at all, unlike the old definition.

Only after the central counties have been designated for an MSA is function considered. Outlying counties are included if they have at least 25 percent commuting interchange with the central counties. This is a pure functional criterion based on a measure of the integration with the central counties.

This is really quite a reasonable way to define a metropolitan area. The inner, built-up portion is recognized and included based on form, which is quite obvious. Outer areas are included based on function, which is appropriate given diverse settlement patterns in those areas. It all works quite well—except that the definition is dependent on the extent of the UA.

So now turning to the UA definition. The Census Bureau would surely argue that the UA definition is based only on form. After all, it is the population density of the blocks and larger areas and some degree of contiguity that determine inclusion of areas in the UA (U.S. Bureau of the Census 2002, 2011). However, when looking at the criteria for the addition of units to the UAs, there are some cracks in the argument that all that matters is form. The UA definition provides for hops and jumps that allow skipping over some territory that does not meet the minimum population density threshold. But these hops and jumps can occur only along roads. This is presumably because the roads allow for interaction between the added territory and the core of the UA. And that's a functional consideration.

But the issue of hops and jumps being matters of function is really quite minor. The serious question of function enters into the decisions whether or not to split large areas of contiguous urban territory into multiple UAs. The 2000 UA definition used the boundaries of MSAs, CMSAs, and PMSAs as defined in 1990 and delineated in 1999 as the basis for making these decisions. And those boundaries were very heavily dependent upon functional considerations.

And this is how it should be in defining the UAs. Whether two areas should be considered as separate UAs or as a single UA is really a functional consideration involving levels of interaction between those areas. The decision does not and cannot depend on solely on consideration of form, as there is little or no basis for making a form-based decision on whether or not to split. (I guess a partial exception might be that a requirement of a common boundary of at least 3 miles where areas are contiguous near a PMSA boundary is a form-based criterion. But that still depends on the location

of the PMSA boundary. And this criterion is quite arbitrary, and it would be better to find more reasonable bases for making the decision.)

But as noted, making the MSA definition dependent on the UAs and making the UA definition dependent on the MSAs creates a circular logic that doesn't make a lot of sense. This undoubtedly contributed to the decision by the Census Bureau to throw up their hands when establishing the 2010 UAs and make the unacceptable decision to simply keep the UAs the same as they were in 2000.

In the remainder of this section, I will offer some very tentative, partial proposals for defining UAs and MSAs simultaneously, approaches that attempt to overcome the dilemma. Given the complexity of the problem (the Metropolitan Area Standard Review Committee worked for nearly a decade on coming up with the new definition), this should be seen only as a very initial starting point requiring a great deal of further study.

Because the process of simultaneous definition and delineation of UAs and MSAs is necessarily very complex, two proposals are offered. The first is a simplified proposal that might work in situations in much of the country in which an area of contiguous urban settlement extends over an area that might be appropriately considered a single UA and MSA or might instead be split into 2 or 3 UAs and MSAs (or some of the parts might become Urban Clusters and Micropolitan Statistical Areas if smaller). I am quite certain, however, that this simple approach would not work for very large areas of contiguous urban settlement, such as in the Northeast, which would have higher levels of interaction and interdependence. So a second, more complex proposal is offered that may be the start of an approach for handling these more complex cases. And the more complex approach would presumably also be intended to work for the simpler cases, applying to the entire country.

So starting with the simpler case. This begins with an area of contiguous urban settlement covering multiple counties with the question being whether this should be considered to be a single UA or whether it should be split into 2 or more UAs. The next step is to identify those counties that include sufficient amounts of the urban agglomeration as central counties. (This could be done using the criterion for identifying central counties used in the current MSA definition or something similar.) These counties would then be central counties for one or more MSAs (or possibly Micropolitan Statistical Areas).

For each county, determine the degree of commuting interchange with the other counties in the initial group of central counties. If the level of commuting falls below some threshold, perhaps 15 percent, remove that county from the initial group. The county that is removed will become a central county for a separate MSA or Micropolitan Statistical Area and the portion of the urban area in this county will be separated from the portion in the other central counties and will be considered part of a separate UA or Urban Cluster.

The commuting threshold of 15 percent is only a tentative suggestion. I offer this because I believe the degree of integration provided with the 25 percent threshold used in the new MSA definition resulted in the excessive fragmentation of MSAs. In addition, highly developed counties with large amounts of employment could have more limited interchange with the remaining counties because of that employment. Finally, the old MSA definition had different commuting thresholds depending on the level of metropolitan character. The lowest threshold was 15 percent, which required the highest levels of metropolitan character. But by inclusion as one of the central counties, by definition these counties have significant metropolitan character, so the lower threshold may very well be reasonable.

After all central counties not meeting the commuting criterion have been removed, the remaining counties constitute the core of an MSA. Then outlying counties can be considered for inclusion based on the level of commuting interchange, as with the current definition. Here, the 25 percent criterion may remain appropriate, though obviously other levels could be considered. By definition, none of the central counties that had been removed can be added back because their commuting fell below the lower threshold, which was why they were removed in the first place. This area will become an MSA. All of the original area of contiguous urban settlement within this area will become part of the corresponding UA.

If multiple central counties have been excluded, they could be combined to form the core of another MSA or Micropolitan Statistical Area if their cross-commuting met some threshold, such as the 15 percent level used for the splitting. Then, for the one or more sets of central counties remaining, outlying counties would be added if commuting to the central counties met the higher threshold. And the areas of contiguous urban settlement within these areas would become part of the corresponding UAs or Urban Clusters.

After this identification of the MSAs and Micropolitan Statistical Areas, some cleanup will be required for the UAs and Urban Clusters. Some portions of the original contiguous urban settlement may be outside an MSA but contiguous to the UA in that MSA. (This is often the case with tendrils of urban settlement extending out from the body of the UA.) These will have to be added back to the UAs or Urban Clusters to avoid having orphan pieces of urban settlement. Some rules for handling the various cases will need to be established.

The more complex case arises with very large areas of contiguous urban settlement that almost certainly require some amount of splitting into multiple MSAs and UAs but that have such high level of interdependence that the procedure outlined for the simpler case will probably fail. The urban areas from Washington to Boston represent the extreme example of this. Identifying areas will likely require consideration not only of levels of commuting but also directions of commuting. And directions of commuting will require prior identification of centers to which that commuting takes place. What is presented here is a starting point for a more complex proposal that might work for these areas. Note that in contrast to the simpler proposal that identifies the central counties for MSAs by subtraction, this proceeds to build up the areas by addition.

The process starts again with the area of contiguous urban settlement, this time potentially much larger. And again, those counties with significant urban presence are identified as central counties using the same type of criteria as before. By definition, these will all be central counties of some MSA or Micropolitan Statistical Area.

The next step is the identification of major centers to which commuting takes place. The ratio of persons working in a county to the number of workers residing in a county is calculated for each county. Counties in which the ratio exceeds some value are considered to be employment counties, and those employment counties contiguous to one another are considered to be employment centers.

The commuting ratio would seem to be very appropriate, as commuting to work is used as the measure of integration in defining MSAs. I have no idea what threshold would work for this purpose. It would obviously be greater than 1, but the value would have to be determined by looking at the number of employment centers identified and their reasonableness. Obviously, the major cities would have to be included. In the Northeast, that would mean Washington, Baltimore, Philadelphia, New York, etc., at an absolute minimum.

The employment centers are the starting sets of central counties for MSAs. The next step is adding other counties from the original larger set of central counties to the groups of central counties for each employment center. A county is added to the employment center if the commuting interchange with the counties in that center exceeds some minimum percentage. I have no idea what an appropriate percentage for this might be. But here is a key part of this process: If a county meets the commuting threshold for addition to 2 employment centers, it is added to both and the the counties in the two sets of central counties are combined, constituting a single set of central counties for a single MSA and UA. This process continues until no more counties can be added to any employment center. Note that not all of the counties in the original large set of central counties will necessarily have been added to the groups of central counties at this point. That is fine and will be addressed in a subsequent step. The key here is that those areas that will be separate MSAs and UAs and those that are combinations of what might otherwise have been considered separate areas will have been identified at this point.

As I stressed, I have no idea of what value should be used for the minimum employment ratio for identifying the employment centers and what value should be used for the minimum commuting interchange with the employment centers for the addition of counties to the groups of central counties. This will have to be determined experimentally, by trial-and-error, to find values that produce results considered to be reasonable. One might object that this is arbitrary, and it is. But it is necessary that one make arbitrary choices for such threshold values for any definitions of MSAs and UAs. And the basis for making such choices is ultimately a subjective judgment.

A few things I would want to see for parts the Northeast: New York should have a set of central counties extending from central New Jersey to some ways into Connecticut. This area should not be divided into multiple MSAs and UAs. Philadelphia should include Wilmington, as that has been a part of the MSA for decades. I am open as to whether Baltimore and Washington should be in a single area. The 2000 CMSA had these areas combined, so that would not be unreasonable. But if they were not combined, I would like to see values that suggest they might be combined with small increases in commuting interchange.

As I said, this is subjective. But as one looks at the potential application across the rest of the country, there are certainly areas where combination would be an absolute requirement. The Census has had the Dallas and Fort Worth UAs combined since 1980, for example, so these could not be separate.

Are there values for the minimum employment ratio and the minimum commuting interchange that will produce reasonable results? I have no idea. I would hope.

Many alternative approaches using commuting data might be tried to create workable sets of urban counties. For example, take the commuting interchanges among all combinations of contiguous counties in the original set of central counties. Combine the two counties with the highest interchange. Now repeat, considering the interchanges among the remaining counties (including with the two that have been joined), select the highest, and join. Continue, stopping when appropriate sets of urban counties have been delineated.

The remainder of the process is relatively straightforward. Counties not already assigned to a set of central counties would be assigned to a set if their commuting interchange with all of the counties in the center exceeded some value such as 15 percent. (This is now getting to the equivalent step in the simpler proposal in which counties were removed based on such a condition.) If a county's commuting interchange exceeded the threshold for 2 or more sets of central counties, it would be assigned to that set for which the percentage were the highest. Any counties not assigned in this step would become central counties for other MSAs or Metropolitan Statistical Areas.

Finally, outlying counties would be assigned to MSAs if their commuting interchange with the central counties exceeded some value such as 25 percent. The result would be the set of MSAs. The separate UAs would be those portions of the original area of contiguous urban settlement within each of those MSAs. And once again, some cleanup would be required for to assign stray pieces of urban settlement that are outside the UA MSAs to the UAs.

Even if the specifics of these proposals do not work, the general approach may provide a roadmap for the simultaneous delineation of MSAs and UAs. Begin with an area of contiguous urban settlement, defined as in the first step of UA delineation. Identify an initial set of central counties in which that urban agglomeration is dominant, as in the

first step of the MSA definition. This is the point at which form affects the process. Next, using some measures of commuting divide these central counties into groups that will be the central counties for individual MSAs or Micropolitan Statistical Area. This is the first place in which function, integration shapes the process. Finish the delineation of the MSAs by assigning outlying counties to the MSAs based on commuting to the central counties, much as is done in the current MSA definition. Finally, designate those portions of the original area of contiguous urban settlement falling within each MSA or Micropolitan Statistical Area as the UA or Urban Cluster associated with that area. And clean up by attaching stray pieces of urban settlement to the UAs or Urban Clusters.

With this approach, the MSAs and UAs are defined and delineated together, avoiding the inconsistencies of the previous definitions. And then perhaps we can move beyond the current freezing of the extent of UAs and MSAs.

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