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Review of Alternative GPCI Payment Locality Structures – Final Report

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SUMMARY

As required by Section 1848(e) of the Social Security Act, the Centers for Medicare and Medicaid Services (CMS) establish the Geographic Practice Cost Index, or GPCI, as part of the Resource-Based Relative Value Scale (RBRVS) method for reimbursing physicians. Like the relative value units (RVUs), which are designed to provide physicians with higher reimbursements for more costly services, the GPCI is split into three components: the physician work GPCI, the practice expense GPCI and the malpractice insurance GPCI. While the RVUs distinguish among services, the GPCI adjusts payments for geographic variation in the costs of providing services. The data used to generate the GPCIs are intended to proxy for the costs of providing care in the existing payment localities. The physician work GPCI compares wages by region for professional workers, using data from the 2000 Census. The practice expense GPCI reflects regional differences in the wages of employees in physician practices, such as nurses and office staff, and differences in median residential rents, which serve as a proxy for office rent. The employee wage data is drawn from the 2000 Census. The rental data are compiled annually by the U.S. Department of Housing and Urban Development. Finally, the malpractice GPCI compares premiums for professional liability insurance based on premium filings submitted to state departments of insurance. The value for each U.S. county is normed to a national index value, so that a GPCI of 1.0 is equal to the national average. GPCIs for a given region or "locality" are then calculated as RVU-weighted averages of the counties included in the locality. The three GPCIs can be summarized into one Geographic Adjustment Factor (GAF), which weights the physician work GPCI at about 52 percent, the practice expense GPCI at 44 percent and the malpractice GPCI four percent.

The current 89 GPCI payment localities were defined in 1996. Since then, many of these localities have experienced shifts in population and economic development. In some localities, areas that were once rural may now be suburban or urban, resulting in changes to the cost structure of rents and wages.

This report considers four potential alternative scenarios for redefining the existing 2009 Fully Implemented GPCI locality configuration:

1. **CMS CBSA:** Based on geographic areas defined by OMB, the CMS CBSA option uses Metropolitan Statistical Areas (MSAs) and Metropolitan Divisions (MDs) to form localities in each state. Counties not included in MSAs are combined into non-MSA rest of state areas.
2. **Separate High Cost Counties From Existing Localities:** Starting with the existing GPCI localities, this scenario iteratively removes high cost counties.
3. **Separate High Cost MSAs from Statewide Localities:** Conceptually similar to the second alternative, the third alternative scenario starts with statewide localities and iteratively removes high cost MSAs.
4. **Statewide Tiers:** The fourth alternative we consider groups counties into tiers within states based on their costs. This option was designated by CMS as "Option 3" in its Proposed Rule (72 FR 38141) of July 12, 2007.

In assessing the alternatives, we consider both the conceptual differences as well as the distributional impacts in terms of the change in the GAF by county, relative to the 2009 Fully Implemented GPCIs and summarized GAFs (the Baseline values used for all comparisons). For the first three of these scenarios, we apply a "smoothing" adjustment that eliminates GAF differences of more than ten percent between adjacent counties.[1] Because all of the alternatives are budget neutral, some counties would have lower GAFs, while others would have higher GAFs under the alternatives.

We first compare the distributional impacts of the four scenarios.[2] As shown in Table 1, all of the alternatives would result in an increase in the number of localities relative to the existing Baseline (2009 Fully Implemented GPCI) locality definitions. The CMS CBSA alternative leads to the largest number of localities because it creates a locality for each MSA or MD within MSA.[3] The Separate MSA alternative creates relatively few localities because it starts with statewide areas and separates only high cost MSAs within the states. All of the additional localities created under the Separate Counties option are single-county localities, representing the highest cost county or counties in existing locality areas. Table 1 also lists localities for the Statewide Tiers; these actually represent between 1 and 5 cost tiers per state,

[1] For a complete discussion of the smoothing methodology, see page 7 of the background section.
[2] In order to condense the executive summary, we opted to discuss only the smoothed data impacts for alternatives locality configurations in which we applied "smoothing." For an analysis of alternative locality configurations without smoothing see sections 1, 2 and 3 of the report
[3] This scenario is most similar to the localities used to pay other Medicare providers, such as hospitals, skilled nursing facilities and ambulatory surgery centers, which allow for a more focused recognition of geographic cost differences.

where counties within the same tier need not be adjacent. This alternative, like the Separate MSAs from Statewide Localities alternative, typically does not yield single-county localities.

Table 1: Number of Localities under Each Scenario

Indicator	Baseline (Unsmoothed)	CMS CBSA	Separate Counties	Separate MSAs	Statewide Tiers
Number of localities	89	523	267	203	140
Average number of counties per locality	36	6	12	16	23

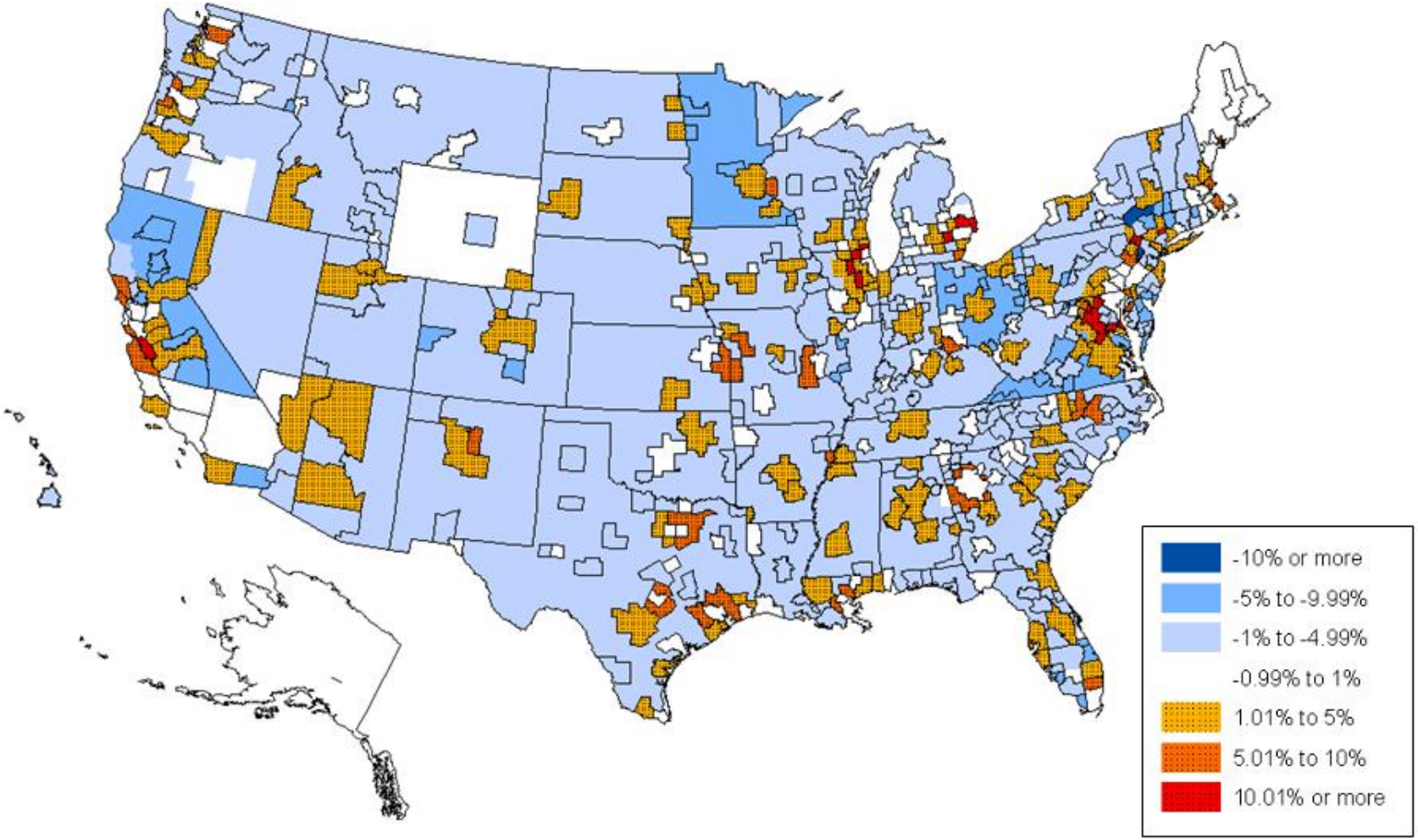
The following maps in Figures 1, 2, 3, and 4 graphically illustrate the impact of each of the scenarios compared to the Baseline. Counties that have a GAF that is more than one percent lower than they have under the existing localities are shaded blue, with the deeper blues indicating a larger percentage decline. Counties with increases greater than one percent are shown in orange, with a deeper shade indicating a larger increase.

As these maps illustrate, the alternatives have different distributional effects on individual counties, and the winners and losers may not be the same across the scenarios. Examining the impacts by counties, our general findings for the scenarios are described below and presented in Table 2:

- **GAF decreases are far more common than GAF increases**. This is largely because the beneficial impacts of changing localities are concentrated in a few counties that have higher costs than other localities in their area, as well as because these changes must be budget neutral. Under the Separate Counties and Separate MSAs options, for example, only the highest cost areas are pulled out from their initial configurations to become new localities.
- **All of the alternative scenarios result in disproportionately lower GAFs for non-MSA counties, although the effect is lowest for the Separate Counties and Separate MSAs options**. On average, counties in MSAs experience increases, while non-MSAs experience decreases. For the CMS CBSA and statewide tier options, the decreases for non-MSAs average about three percent, compared to about one percent under the Separate Counties and Separate MSAs options.[4]
- **The CMS CBSA and Statewide Tiers options would result in a change of greater than one percent for the vast majority of counties**. These options also often leave a small number of counties in the lowest GAF localities in each state.

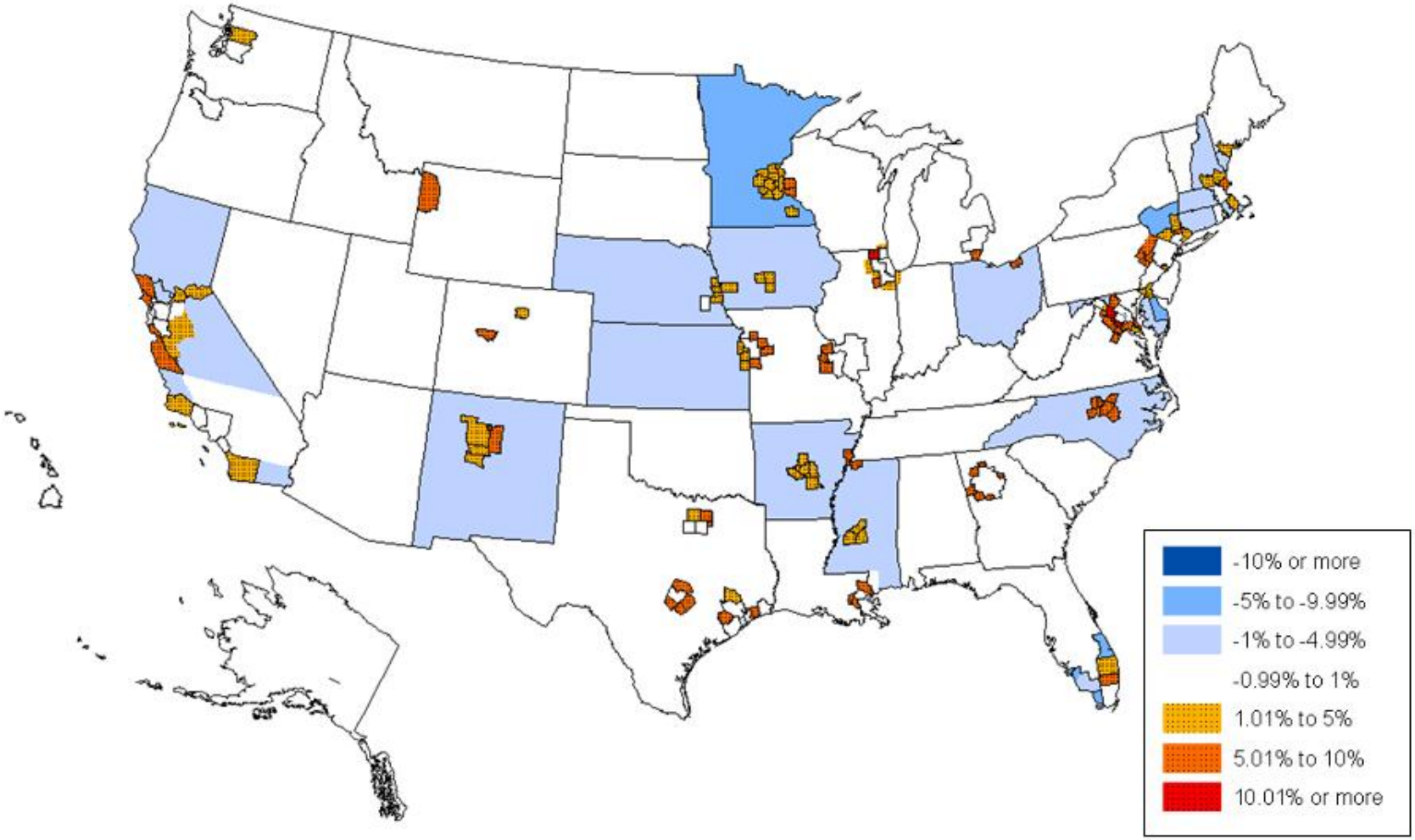
[4] The data used to create these alternatives are the data used to create the 2009 Fully Implemented GPCIs. These data are generally not available for individual counties outside of major metropolitan areas. Therefore, the underlying data do not necessarily capture the full differences in costs across counties, especially in rural areas.

Figure 1: GAF Percent Change: Baseline to CMS CBSA (Smoothed)



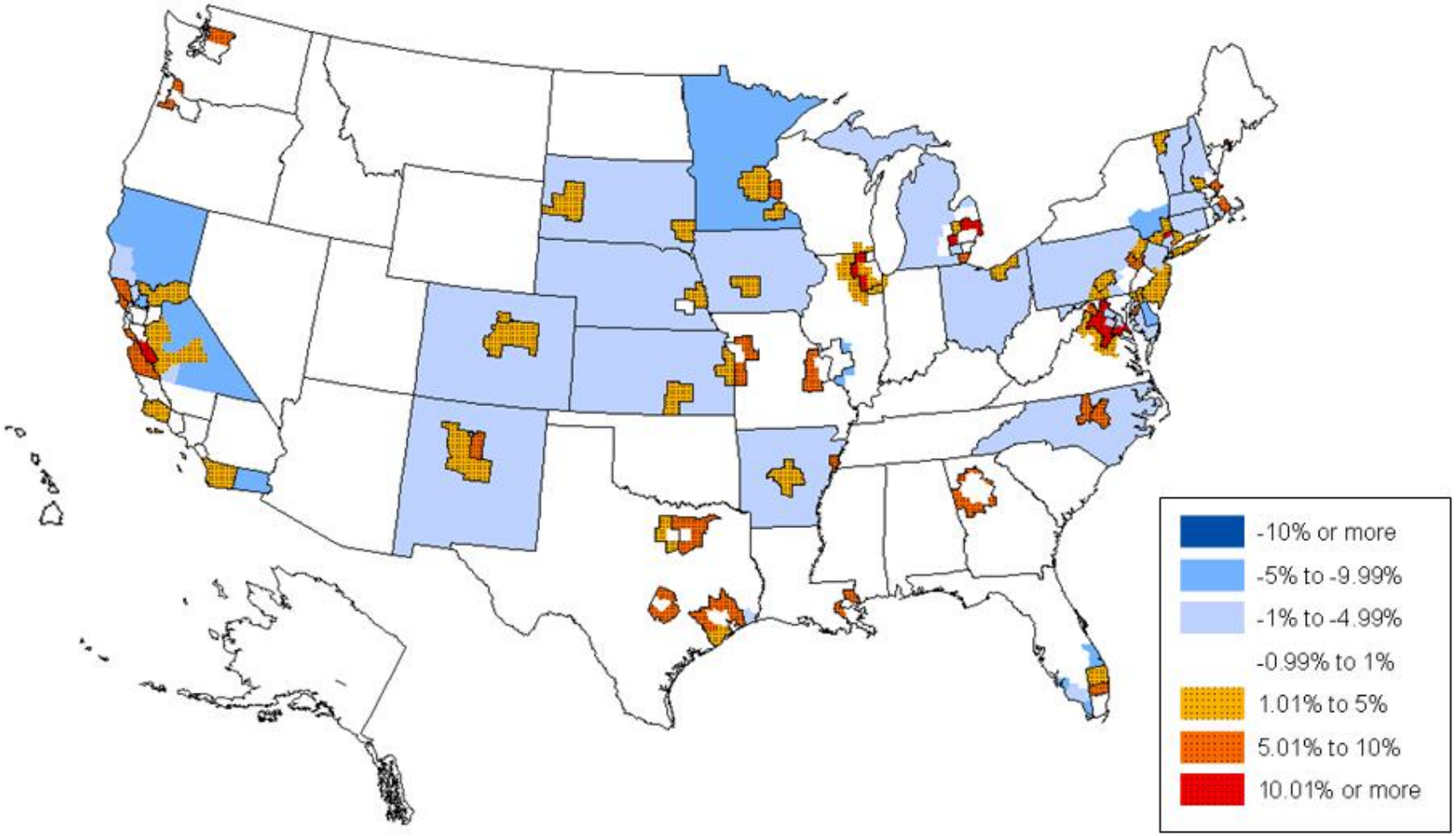
Note: An analysis of the CMS CBSA locality configuration without smoothing (including impact maps) may be found in Sections 1.2 and 1.3 of the report.

Figure 2: GAF Percent Change: Baseline to Separate Counties (Smoothed)



Note: An analysis of the Separate Counties from Existing Localities configuration without smoothing (including impact maps) may be found in Sections 2.2 and 2.3 of the report.

Figure 3: GAF Percent Change: Baseline to Separate MSAs (Smoothed)



Note: An analysis of the Separate MSAs locality configuration without smoothing (including impact maps) may be found in Sections 3.2 and 3.3 of the report.

Figure 4: GAF Percent Change: Baseline to Statewide Tiers

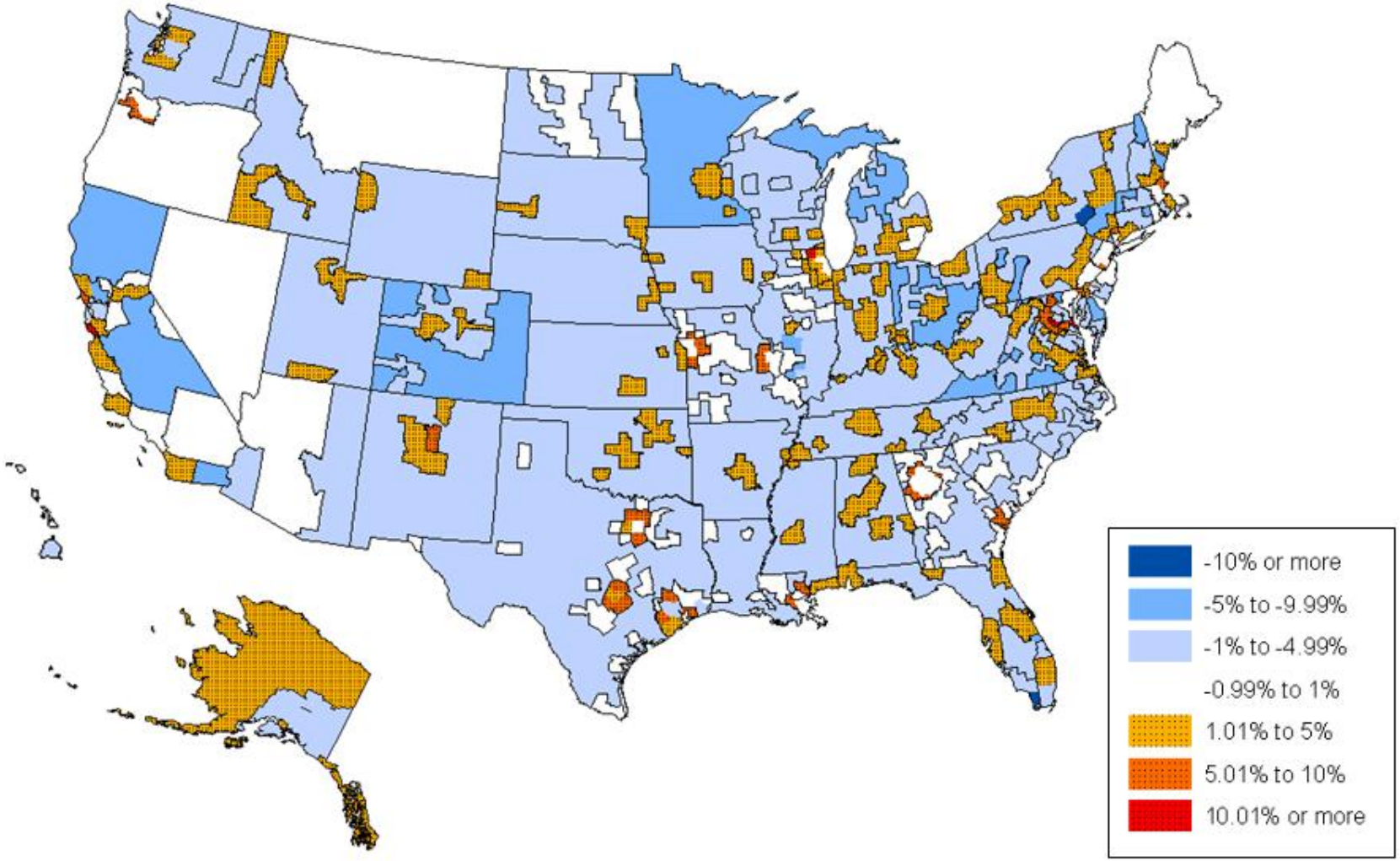


Table 2: Range and Changes in GAFs (Smoothed)

Indicator	CMS CBSA	Separate Counties	Separate MSAs	Statewide Tiers
Range in GAF (Existing=0.418)	0.444	0.432	0.411	0.426
Minimum GAF	0.757	0.776	0.789	0.753
Maximum GAF	1.201	1.207	1.201	1.18
Share of Counties with:				
GAF increases	20%	5%	8%	20%
GAF decreases	79%	60%	58%	77%
No change	1%*	35%*	34%*	3%
Share of Counties with GAF Changes of Less than 1%	11%	69%	63%	13%
Mean percent change	-2%	-1%	-1%	-2%
Largest percent increase	20%	13%	15%	16%
Largest percent decrease	-11%	-8%	-10%	-16%

*Except minimal changes due to budget neutralization following smoothing.

Since it is difficult to fairly judge the alternative locality definitions based only on the distributional effects shown in the maps, we also use conceptual criteria to score these alternatives, presented in Table 3. In particular, we consider the stability of the locality definitions over time, the consistency of the definitions with underlying data, the ease and transparency of calculations, the comparability of the definitions with other localities in Medicare, and the impact of smoothing on each scenario. Our assessment can be summarized as follows:

- **Options based on defined areas (such as CMS CBSA) are more stable over time than alternatives defined based on GAFs.** There is a tradeoff between administrative burden and responsiveness to changing costs.
- **Options based on MSAs are more likely to have data available to match these areas.** Both Census data (used for physician work and practice expense) and HUD data (used for practice expense) should be available for MSAs. Malpractice coverage areas are typically larger than MSAs.
- **The Separate Counties and Separate MSAs variants are the most complicated to calculate.**
- **The CMS CBSA option is best aligned to other Medicare locality definitions.**
- **Smoothing does not significantly alter the overall relative effects of the scenarios, although the application of smoothing impacts notably more counties in the MSA-based scenarios than the others.** Whereas smoothing impacts 92 and 75 counties in the

CMS CBSA and Separate MSAs alternatives, respectively, it impacts only 33 and 54 counties in the Baseline and Separate Counties alternatives.

Table 3: Rank Ordering of Alternatives on Conceptual Criteria
(Ties are scored at the average of the remaining rankings)

Criteria	Baseline	CMS CBSA	Separate Counties	Separate MSAs	Statewide Tiers
Stability over time	1	2	3	4	5
Alignment with underlying data	3	1	4	2	5
Ease of calculation	1	2	4	5	3
Comparability with other Medicare defn	4	1	4	4	4
Impact of Smoothing	1	4	2	3	N/A

A number of comments in response to an interim version of this report (summarized in the Proposed Rule for the Physician Fee Schedule, 74 FR 33535) expressed support for the Separate MSAs option (Scenario 3). Therefore, for this final version, we also calculated the dollar impacts of this scenario, based on 2008 RVUs and the 2008 conversion factor. County impacts would range an increase of nearly $29 million to a decrease of nearly $27 million (with the maximum and minimum dollar impact both occurring for counties in the current Fort Lauderdale locality). Consistent with Table 2, many more counties have decreases in payments than increases. However, 101 counties would receive payment increases of $1 million or more, with 11 experiencing increases above $10 million, although these increases are often small in percentage terms. On the other side, 116 counties would receive payment decreases of $1 million or more, including 6 with decreases of at least $10 million.

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INTRODUCTION

This report examines four alternatives to the current GPCI payment locality structure, based on geographic areas or costs.

As required by Section 1848(e) of the Social Security Act, the Centers for Medicare and Medicaid Services (CMS) establish geographic indices as part of the Resource-Based Relative Value Scale (RBRVS) method for reimbursing physicians. Called the Geographic Practice Cost Index or GPCI, geographic adjustment was first implemented as part of the Medicare physician fee schedule in 1992 and is required to be updated at least every three years. Like the relative value units (RVUs), which are designed to provide physicians with higher reimbursements for more costly services, the GPCI is split into three components: the physician work $GPCI_W$, the practice expense $GPCI_{PE}$ and the malpractice insurance $GPCI_{MP}$. While the RVUs distinguish among services, the GPCI adjusts payments for geographic variation in the costs of providing services. By design, the GPCI balances the goal of accurately adjusting for local cost differences with the goal of ensuring that physicians in less expensive areas, especially rural areas, are not unduly disadvantaged by downward adjustments in the GPCI.

The current GPCIs are calculated for 89 areas, down from an original set of 210 payment areas prior to 1997. Since the physician payment localities were last defined in 1996, there may have been shifts in population and economic development. In some localities, areas that were once rural may now be suburban or urban, resulting in changes to the cost structure of rents and wages. CMS, the General Accounting Office (GAO) and the Medicare Payment Advisory Commission (MedPAC) have all published suggestions for changes and/or improvements to the GPCI payment locality structure.

Core Based Statistical Areas: CBSAs have at least one core urban area with a population of 10,000 or greater. CBSAs may also include adjacent areas having "a high degree of social and economic integration with the core as measured by commuting ties."

Metropolitan Statistical Area: MSAs are core areas with a population of 50,000 or greater, plus adjoining areas that have "a high degree of social and economic integration with the core as measured by commuting ties."

Micropolitan Statistical Area: Micropolitans are core areas with at least one urban area having a population of 10,000 or greater but which also have a total population of less than 50,000, plus adjoining areas that have "a high degree of social and economic integration with the core as measured by commuting ties."

Metropolitan Division: OMB added Metropolitan Divisions in 2003, in order to differentiate smaller groupings of counties within MSAs that have a population of 2.5 million or more. The concept of Metropolitan Divisions replaces that of Primary Metropolitan Statistical Areas (PMSAs).

Source: Office of Management and Budget. November 2007. *Update of Statistical Area Definitions and Guidance on Their Uses*. OMB Bulletin No. 08 – 01.

In this report, we consider potential scenarios for redefining the GPCI locality areas, with analysis that compares these alternative locality configurations to the Fully Implemented CY2009 Payment Structure (the Baseline) now used to calculate GPCI reimbursements. The alternative scenarios distinguish locality payment structures based on two primary characteristics: (1) the base geographic unit used to structure the locality payment option (i.e., counties or Metropolitan Statistical Areas (MSAs)) and (2) whether the payment structure option uses costs to define the areas or uses an external geographical definition. The four scenarios are:

1. **CMS CBSA** – Based on geographic areas defined by OMB, the CMS CBSA option uses Metropolitan Statistical Areas (MSAs) and Metropolitan Divisions (MDs) to form localities in each state. Counties not included in MSAs are combined into non-MSA rest of state areas. This option most closely matches locality definitions used in other aspects of the Medicare program.
2. **Separate High Cost Counties From Existing Localities** – Starting with the existing GPCI localities, this scenario iteratively removes high cost counties.
3. **Separate High Cost MSAs from Statewide Localities** – Conceptually similar to the second alternative, the third alternative scenario starts with statewide localities and iteratively removes high cost MSAs.
4. **Statewide Tiers** – The fourth alternative we consider groups counties into tiers within states based on their costs. This option was described by CMS in its Proposed Rule (72 FR 38141) of July 12, 2007.

Moreover, for three of these four locality definitions, we analyze the scenario with and without the implementation of a smoothing methodology suggested by MedPAC, essentially leading to

seven alternative locality configurations in total.[5] Smoothing is designed to limit the maximum difference in GAFs between any two adjacent counties to ten percent.

Comments on the Interim Report

An interim version of this report was posted on the CMS website on August 21, 2008, and public comments were accepted through November 3, 2008. The scenarios and the comments were summarized in the Proposed Rule for the Physician Fee Schedule, published in the Federal Register July 13, 2009. Many of the comments focused on Scenario 3:

> *Many commenters from the State of California expressed support for option 3 (Separate High Cost MSAs from Statewide Localities) because the commenters believed it would improve payment accuracy (over the current locality configuration) and at the same time mitigate the payment reductions to rural areas that would occur under option 1 (CMS CBSA) and option 4 (Statewide Tiers). The CMA explained that selecting an MSA-based locality approach would provide consistency with the hospital payment system and enable physicians to better compete with hospitals for the local work force. For example, the commenters stated that hospitals located in the Santa Cruz MSA are some of the highest paid in the nation. However, under the PFS locality structure, Santa Cruz County is grouped with the Rest of California locality, which is the lowest paid PFS locality in the State.*
>
> *The Texas Medical Association suggested that we adopt option 3 because it minimizes payment reductions to lower cost rural areas. For example, since option 3 results in the fewest payment localities (as compared to the other alternative locality configurations), it reduces the redistribution effects of separating higher cost areas from rural "rest of State" areas. The commenter also stated that option 3 (Separate MSAs) matches payment with the underlying data better than option 2 (Separate Counties) and option 4 (Statewide Tiers). Some commenters expressed their belief that MSAs are better basic locality units than counties because the cost data is more reliably derived directly from MSAs (instead of counties). Several commenters who supported the adoption of an MSA-based PFS locality structure suggested that option 3 could be used as a transition to the CMS CBSA locality configuration (option 1).*
>
> Excerpt from the CY 2010 PFS NPRM published July 13, 2009 (74 FR 33535)

Based on these comments, this revised version of the report expands the analysis of Scenario 3 by including the estimated dollar impacts for each county.

[5] This report does not include a Statewide Tiers alternative with smoothing because the tiers are constructed according to county GAFs rather than according to county's proximity to and economic relation with metropolitan areas. Whereas the other localities are at least partially defined using geographic location, the Statewide Tiers option defines localities according to GAF, by state.

Report Organization

The report is organized as follows. The background section reviews the data used in the development of the GPCIs and, by extension, in the definition of the cost-based locality scenarios. The background also presents the smoothing methodology applied to each scenario. We then present the Baseline (existing 2009 locality definitions) and each of the alternative scenarios. For each option we provide an overview of the definition of the localities. We also present summary statistics for the GAF values under each definition and consider the county-level impacts of changing from the existing localities to this alternative, first without smoothing and then with smoothing when applied. Lastly, for scenarios with smoothing, we present the impact of the smoothing methodology relative to the unsmoothed scenario.

As noted above, Scenario 3 differs from this basic structure in that it offers an expanded analysis that addresses the dollar impact by county for a potential switch from the Baseline to this scenario.

The final chapter compares the alternatives, offering pros and cons for the different options. Three appendices are not included in the report, but may be found at the following link: http://www.cms.gov/physicianfeesched/downloads/GPCILocalitiesAppendices.zip. Appendix A contains tables listing all counties showing GAF increases and decreases of greater than five percent in any scenario. Both unsmoothed and smoothed GPCI locality values generated under each option are included in Appendix B. Finally, Appendix C provides the dollar impacts of Scenario 3 for all U.S. counties.

BACKGROUND

The scenarios presented in this paper are all based on a common set of "county-level GPCI" values. These values were developed following the methodology used for the 2009 GPCI update, except that all counties were treated as individual localities. (See *Medicare Physician Fee Schedule Geographic Practice Cost Index (GPCI) Fifth Update, Final Report, November 2007*.) In addition, the smoothing methodology we employ is the same across the different scenarios. As background to the analyses that follow, this section reviews the data sources, including important caveats in interpreting the data. It then describes the smoothing methodology.

Data Sources

Although each of the scenarios we present are based on a data set of "county-level GPCI" values, the underlying data do not typically represent physician practice costs in individual counties. That is, the data are not county-level information, because the data sources were chosen to reflect the existing 89 payment localities, rather than individual counties. In practical terms, the four major data sources used in the development of the GPCIs are provided at different geographic levels, usually representing more than a single county. As a result, the county-level values are not necessarily the same as the estimates one would get if the data collection were designed to reflect actual county costs. The specific sources and geographic units are:

Source	Data Used	GPCI	Geographic Unit
Decennial Census	Earnings and employment information for professional occupations and non-physician practice employees	Physician Work Practice Expense	Census Work Area
HUD	Median rent for 2-bedroom apartments	Practice Expense	MSA, HUD FMR Areas, County or New England Towns

Source	Data Used	GPCI	Geographic Unit
Insurance Carrier Rate Filings	Malpractice/professional liability insurance premiums	Malpractice	Insurer rating territories
CMS	Relative value units (RVUs)	All	County

The Physician Work and Practice Expense GPCIs both rely on data on earnings and the number of workers drawn from the 2000 Census. The Census data are provided by "Census work areas." The Census work areas generally represent the smallest reliable units that align with the Medicare payment locality definitions; the data were provided by Census through a special tabulation. There are 545 work areas including the 233 counties that comprise the 19 consolidated metropolitan statistical areas (CMSAs),[6] 262 metropolitan statistical areas (MSAs) or New England County metropolitan areas (NECMAs), and 50 rural "balance of state" areas. For work areas that encompass multiple counties, all counties in the work area were assigned the same occupational data. Census suppresses data in areas with too few observations in a given occupation. For example, Census suppressed data on pharmacists in 28 work areas. All combined, occupation-by-work-area results were suppressed in 74 cases, including 55 in Puerto Rico.

The rent data collected by the U.S. Department of Housing and Urban Development (HUD) are calculated for HUD areas. The HUD areas are commonly metropolitan statistical areas, although in some cases HUD creates its own area definitions. In New England, the areas are defined based on sets of towns, largely based on defined New England City and Town Areas (NECTA). Outside of MSAs and NECTAs, HUD presents rent data for non-metropolitan areas at the county level. In the MSAs and NECTAs, the rent data incorporates information from ongoing housing surveys. In the non-metropolitan counties, the HUD data merely update information from the 2000 Census.

The largest geographical boundaries are typically those used as inputs for the Malpractice GPCI, where the GPCIs rely on insurance carrier rate filings, and therefore use the rating territories defined by insurers. Within a given state, different insurers will have different rate

[6] CMSAs are no longer used in OMB statistical definitions. They represent the MSAs that now include Metropolitan Divisions. Using current terminology, both the 2000 CMSAs and MSAs are now considered MSAs.

boundaries, and the sizes of these boundaries differ by carrier and state. In some states, specific counties or cities may have separate rate territories, but the territories are more often regional. For example, in California, the three insurers included in the malpractice data had nine, six and five territories each, although the insurer with five territories had switched which counties were in which territory.

Finally, the GPCI data are all weighted by RVUs for the purpose of developing national average values as well as aggregating counties within localities. Since RVUs are based on CMS' own claims data, these data are available at fine levels of detail (and represent the universe of data rather than a sample). The RVU information is provided by CMS at the county level.

Caveats

There are three caveats to note as background for these calculations. First, we had to adjust some data to account for missing RVUs. Second, we do not have underlying data for three territories: American Samoa, the Northern Mariana Islands and Guam. Third, the data has not been budget neutralized for updates made to the 2009 GPCIs. We briefly review each of these issues below.

There are two groups of counties or regions that are problematic when using the county-level GPCI values. First, there are 87 counties that had no RVUs in the 2005 RVU file used to create the updated GPCIs. An additional 12 counties had no physician work RVUs, but did have RVUs for practice expense or malpractice insurance. RVUs are used at multiple stages in the GPCI calculation to create weighted averages, including national averages to norm the GPCIs around one. If a county's RVUs are missing at any step in the analysis, the county-level GPCI value for that county is missing. This is not a problem under the existing locality definitions, because the localities are predefined, and the GPCI information from the remaining counties in the locality then determines the locality GPCI. In some of the alternative scenarios, however, county-level GPCI values (summarized as the Geographic Adjustment Factor or GAF) are used to define localities.

To ensure that localities were defined for every county under every scenario, we re-created the county-level GPCI values. We addressed the issue of missing RVUs by setting the RVU values for those counties to very near zero. This prevents the generation of missing values for the county-level GPCIs without affecting the locality level GPCIs as previously calculated.

The second problem is more difficult to resolve. Among the territories, Census data were only available for Puerto Rico, and HUD data were available only for Puerto Rico and the Virgin Islands. No malpractice premium data were available for any of the territories. In the existing GPCIs, Puerto Rico and Virgin Islands are separate localities. For Puerto Rico, the updated GPCIs use the appropriate Census and HUD data and simply keep the previous GPCI value for the malpractice premium. For the Virgin Islands, the updated GPCIs use the available HUD data and set all other values to 1.0, in the absence of other data. This leaves American Samoa, Guam and the Northern Mariana Islands as the only territories without any underlying data. Therefore, following the method used in the existing GPCIs, we assigned these territories the same GPCI values as non-metropolitan Hawaii in all alternative scenarios.

Finally, we note that the values calculated here represent non-budget neutralized GAFs and GPCIs, in the sense that they do not include the budget neutrality factors for the 2009 update of the GPCIs. These changes were minimal. In any case, the budget neutralization primarily addresses changes in the distribution of the RVUs over time. If more resource use growth has occurred in high cost areas than in low cost areas, budget neutralization is required to hold updated GPCIs constant when weighted by RVUs. More importantly, the adjustments required are identical across all of the locality definitions, because the RVU weights are already accounted for in the initial county-level data set.

Although the calculations do not account for the budget neutralization to the 2009 value, all of the alternatives are budget neutral to the baseline. That is, the net RVU-weighted change is identically equal to zero for all scenarios.

Smoothing Methodology

All of the alternative locality configuration scenarios in this report, other than the Statewide Tiers option, include smoothing to eliminate large differences (or "cliffs") between adjacent counties. For all cases, we employ the smoothing methodology recommended by MedPAC for the hospital wage index in their June 2007 report to Congress.[7] MedPAC refers to their smoothing approach as "step smoothing," which is done in four steps:

1. Compare all counties to each adjacent county

[7] See "Additional technical information on constructing a compensation index from BLS data," in the appendix to Chapter 6 of the *Report to the Congress: Promoting Greater Efficiency in Medicare* (June 2007).

2. Find the greatest differences between pairs of adjacent counties
3. If the difference between adjacent counties exceeds ten percent (or another threshold), increase the lower index to 90 percent of the greater index in the pair, and
4. Repeat as needed.

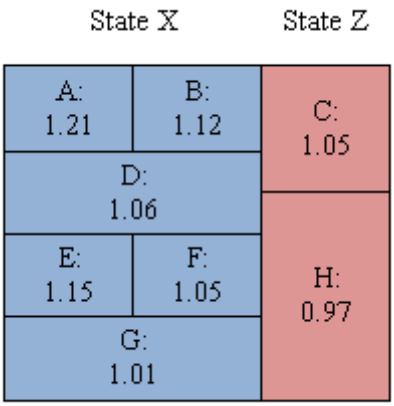
At the end of this process, the smoothed values need to be budget neutralized to account for the increases applied in Step 3 (that is, to keep them budget neutral relative to the existing GPCIs).

We have confirmed with MedPAC analysts that this smoothing is conducted nationwide.[8] Therefore, the smoothing eliminates large differences between adjacent counties even if the counties are in different states. Because the smoothing crosses state boundaries, the budget neutralization is also nationwide. Although the impacts will be very small, this approach does mean that states without any cliffs will help pay for the increased GAFs for counties subject to the smoothing.

The following example details the smoothing approach. Imagine there were only two states with eight counties, as shown below. To implement the smoothing, we compare the GAF value for each county (shown in the figure) to the values for all adjacent counties, as listed below the figure. For each row, we identify the maximum GAF. If this maximum is greater than 110 percent of that county's GAF, the county is assigned a GAF equal to 90 percent of that maximum GAF. Among the counties shown in the figure, only County D and County G have adjacent counties with GAFs greater than 110 percent. In this example, County D's GAF is smoothed to 90% of County A and County G's GAF is set to 90 percent of County E. These new values are shown for Round 1 of the Smoothing. However, County D's new GAF is now more than 110 percent of County H, so in the second round, the GAF for County H also increases.

[8] Personal communication with David Glass and Jeff Stensland, 4/22/08.

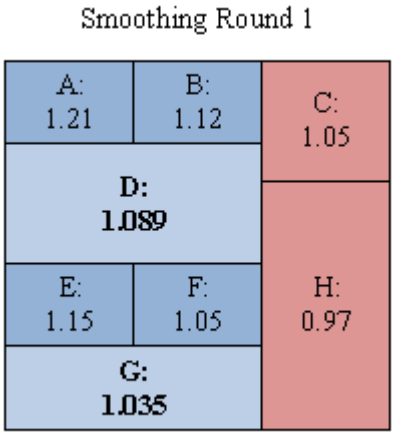
Initial County GAF Values

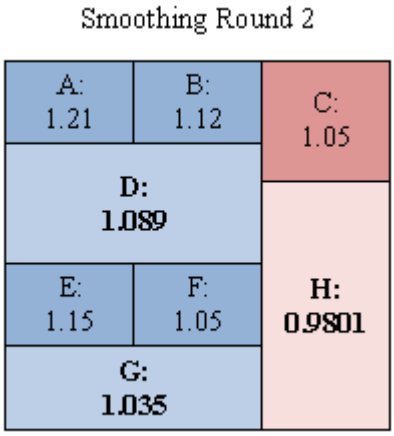


GAF Values for Counties and their Neighbors

County	Value	Adjacent County Values
A	**1.21**	1.12, 1.06
B	1.12	**1.21**, 1.06, 1.05
C	1.05	**1.12**, 0.97, 1.06
D	1.06	**1.21**, 1.12, 0.97, 1.05, 1.15, 1.05
E	**1.15**	1.06, 1.05, 1.01
F	1.05	**1.15**, 1.01, 0.97, 1.06
G	1.01	0.97, **1.15**, 1.05
H	0.97	**1.06**, 1.05, 1.01, 1.05

GAF Values After Smoothing





Notably, for the case of counties *not* belonging to single-county localities, smoothing effectively results in the creation of an additional locality because it raises the GAF of only those counties with cliffs of ten percent or greater. When smoothed counties are the only county in their locality, as sometimes occurs, no additional locality is created. However, as is most often the case, when a county belongs to a locality that also contains other counties, smoothing has the effect of pulling that county out of the old locality and creating a new, single-county locality. In these multi-county locality cases, the GAF of the old locality will be unaffected by the change, with the exception of the budget neutralization applied to all counties, as explained below.

Finally, because Counties D, G and H have higher GAFs after smoothing, the last step is to budget neutralize all values so that they reflect the same total weighted GAF value as prior to the smoothing process. To do this, we calculate the sum of the pre-smoothed RVU-weighted GAFs as a share of the sum of the smoothed RVU-weighted GAFs, or:

$$\frac{\sum_{c=A}^{H}(GAF_{c,unsmoothed} * RVU_c)}{\sum_{c=A}^{H}(GAF_{c,smoothed} * RVU_c)} = \frac{8.62}{8.684} = .993 .$$

In other words, in this example, all of the GAFs (i.e. all of the underlying GPCIs) need to be reduced by 0.7 percent (1-0.993) to account for the increases made in the smoothing process. This example is extreme – in practice, the final reductions are less than 0.1 percent applied for all counties.

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0 BASELINE: FULLY IMPLEMENTED 2009 GPCIS

Unsmoothed Baseline: The "Baseline" locality definitions are the existing 89 localities currently used by CMS to calculate GPCIs.

0.1 Approach to Defining Localities and Calculating GPCIs

The current GPCIs are calculated for 89 areas defined by CMS, as shown on Figure 0-1. The 89 locality structure was established to rationalize the original system of 210 localities established by the Part B carrier with the goals of simplifying payment areas and reducing differences between payment areas. The 1996 locality definitions kept 22 pre-existing statewide localities. For the remaining 28 states, the new localities were calculated by grouping localities where the GAFs were not sufficiently different from the rest of the state to meet the threshold for a separate locality. In Massachusetts, Missouri and Pennsylvania, localities had to be redefined to eliminate non-contiguous subcounty areas. (The use of subcounty level localities was viewed as overly burdensome, since all of the underlying data had to be mapped down to zip codes and city boundaries.)

Geographic Units:

Blend of states, metropolitan areas, individual counties, and "rest of state" areas.

Calculations:

As defined-area localities, the baseline GPCIs are RVU-weighted averages of the county values derived from the GPCI input data. For example, if we denote the county-level values of the inputs for the Physician Work GPCI as $GPCI_{PW,c}$ then for each locality L, the existing locality GPCIs are calculated as:

$$\text{(0.1)} \qquad \text{GPCI}_{\text{PW, L}} = \frac{\sum_{c=1}^{C}(GPCI_{PW,c} * RVU_{PW,c})}{\sum_{c=1}^{C} RVU_{PW,c}},$$

where the value of C depends on the number of counties in the locality. For single county localities, C is equal to 1. For entire state localities, C is equal to the number of counties in the

state. A parallel calculation is done to yield the Practice Expense GPCI for each locality *L*, $GPCI_{PE,L}$, and the Malpractice Premium GPCI for each locality, $GPCI_{MP,L}$.

For comparison purposes, the three GPCIs for any given locality are summarized using the Geographic Adjustment Factor (GAF), calculated for locality *L* as:

$$(0.2)\quad GAF_L = \{[GPCI_{PW,L} * 0.52466] + [GPCI_{PE,L} * 0.43669] + [GPCI_{MP,L} * 0.03865]\}.$$

0.2 Summary Statistics of Localities (Unsmoothed)

To summarize the findings for each alternative, we review summary statistics by locality. In this section, we consider the summary statistics for the Baseline, which will serve as the basis of comparison for each alternative. The core measures we consider for localities include:

Number of localities:	89
Highest GAF:	1.208 (San Mateo, CA)
Lowest GAF:	0.790 (Puerto Rico, PR)
Range in GAF (Highest – Lowest):	0.418

As shown in Table 0-1, another way of summarizing the alternative scenarios is to consider the number of localities generated in each state. Under the Baseline, the smallest number of localities per state is 1 – for the statewide localities – and the highest is 9, found in California. There are as many as 245 counties in a given locality (Rest of Texas) and as few as one county.

Table 0-1: Number of Localities per State, Baseline

State	Baseline Localities	State	Baseline Localities
Alabama	1	Nebraska	1
Alaska	1	Nevada	1
Arizona	1	New Hampshire	1
Arkansas	1	New Jersey	2
California	9	New Mexico	1
Colorado	1	New York	5
Connecticut	1	North Carolina	1
Delaware	1	North Dakota	1
District of Columbia	1	Ohio	1
Florida	3	Oklahoma	1
Georgia	2	Oregon	2
Hawaii	1	Pennsylvania	2
Idaho	1	Puerto Rico	1
Illinois	4	Rhode Island	1
Indiana	1	South Carolina	1
Iowa	1	South Dakota	1
Kansas	1	Tennessee	1
Kentucky	1	Texas	8
Louisiana	2	Utah	1
Maine	2	Vermont	1
Maryland	2	Virgin Islands	1
Massachusetts	2	Virginia	1
Michigan	2	Washington	2
Minnesota	1	West Virginia	1
Mississippi	1	Wisconsin	1
Missouri	3	Wyoming	1
Montana	1	**Total**	**89**

Table 0-2: Number of Counties per Locality, Baseline

	Baseline
Mean	36
Median	12.5
Standard Deviation	44
Maximum	247
Minimum	1
Range	246

0.3 Summary of Smoothing Impact

Baseline Smoothed: The "Baseline Smoothed" locality scenario uses the existing baseline GPCIs but applies the smoothing methodology to eliminate differences exceeding 10 percent between adjacent counties. We provide this option to highlight the impact of the smoothing from the impact of the alternative locality definitions.

Smoothing the Baseline scenario does not change the highest and lowest GAF values and their respective counties. However, because smoothing effectively pulls out high-GAF counties from their former localities when they reside in multi-county localities, the summary statistics for the number of localities per state and counties per locality generally decrease.

Number of GAF decreases:	0
Number of GAF increases:	30
Number with no change*:	3198
Number with less than 1% change:	3206
Mean percentage change:	-0.0%**
Largest percent increase:	7.1% (Santa Cruz, California)
Largest percent decrease:	-0.1% (3195 counties)

**Counties that only experienced a change due to the budget neutrality from smoothing were excluded from the GAF decreases and considered as "no change."*

***Value represents a negative change less than 0.05%.*

The smoothing primarily benefits counties currently included in "Rest of State" localities in California, Pennsylvania and the Virginia/Maryland area, as well as a handful of counties outside Chicago. Overall, 30 counties benefit from smoothing – these are listed in Table 0-6 and depicted in Figure 0-1. Three additional counties had increases due to smoothing but too minimal to offset the (also minimal) decrease due to budget neutralization. All other counties are only affected by the very minor decline of 0.1 percent, the impact of budget neutralization applied to all counties following the smoothing. As a result we have grouped those counties (along with the three minimally decreasing smoothed counties) that only experienced a change due to budget neutrality from smoothing as "no change" since there is no direct effect on these counties.

Figure 0-1: GAF Percent Change: Baseline to Baseline (Smoothed)

Table 0-3: Summary of GAF Differences, Baseline to Baseline (Smoothed)

GAF Differences	Index Value Difference	Percent Difference
Mean	0.000	-0.0%**
RVU Weighted Mean	0.000	0.0%*
Median	0.000	-0.1%
Minimum	-0.001	-0.1%
25th Percentile	0.000	-0.1%
75th Percentile	0.000	-0.1%
Maximum	0.072	7.1%
Range	0.072	7.1%
Std. Dev	0.003	0.3%

* Value represents a positive change less than 0.05%.
**Value represents a negative change less than 0.05%.

Table 0-4: Number of Localities per State, Baseline to Baseline (Smoothed)

State	Baseline	Baseline Smoothed
Alabama	1	1
Alaska	1	1
Arizona	1	1
Arkansas	1	1
California	9	18
Colorado	1	1
Connecticut	1	1
Delaware	1	1
District of Columbia	1	1
Florida	3	3
Georgia	2	2
Hawaii	1	1
Idaho	1	4
Illinois	4	9
Indiana	1	2
Iowa	1	1
Kansas	1	1
Kentucky	1	1
Louisiana	2	2
Maine	2	2
Maryland	2	5
Massachusetts	2	2
Michigan	2	2
Minnesota	1	1
Mississippi	1	1
Missouri	3	3
Montana	1	1
Nebraska	1	1
Nevada	1	1
New Hampshire	1	2
New Jersey	2	2
New Mexico	1	1
New York	5	6
North Carolina	1	1
North Dakota	1	1
Ohio	1	1
Oklahoma	1	1
Oregon	2	2
Pennsylvania	2	8
Puerto Rico	1	1
Rhode Island	1	1
South Carolina	1	1
South Dakota	1	1
Tennessee	1	1
Texas	8	8
Utah	1	1
Vermont	1	1
Virgin Islands	1	1
Virginia	1	3
Washington	2	2
West Virginia	1	1
Wisconsin	1	2
Wyoming	1	1
Total	**89**	**122***

*Including 33 counties affected by Smoothing.

Table 0-5: Number of Counties per Locality, Baseline to Baseline (Smoothed)

	Baseline	Baseline Smoothed
Mean	36	26
Median	12.5	4
Standard Deviation	44	41
Maximum	247	247
Minimum	1	1
Range	246	246

Table 0-6: Counties Impacted by Smoothing of the Baseline

County	State	Baseline GAF			
		Unsmoothed	Smoothed and Budget Neutralized	Value Difference	Percent Difference
Santa Cruz	CA	1.015	1.087	0.072	7.1%
Loudoun	VA	0.955	1.012	0.057	6.0%
Prince William	VA	0.955	1.012	0.057	6.0%
Monroe	PA	0.969	1.024	0.055	5.7%
Northampton	PA	0.969	1.024	0.055	5.7%
Pike	PA	0.969	1.024	0.055	5.7%
Lake	IN	0.944	0.978	0.034	3.6%
McHenry	IL	0.945	0.978	0.033	3.5%
Hillsborough	NH	0.989	1.023	0.034	3.4%
Calvert	MD	0.987	1.012	0.025	2.5%
Charles	MD	0.987	1.012	0.025	2.5%
Frederick	MD	0.987	1.012	0.025	2.5%
Kenosha	WI	0.939	0.959	0.02	2.1%
Merced	CA	1.015	1.036	0.021	2.1%
San Benito	CA	1.015	1.036	0.021	2.1%
Stanislaus	CA	1.015	1.036	0.021	2.1%
DeKalb	IL	0.945	0.959	0.014	1.4%
Grundy	IL	0.945	0.959	0.014	1.4%
Kankakee	IL	0.945	0.959	0.014	1.4%
Kendall	IL	0.945	0.959	0.014	1.4%
Orange	NY	1.037	1.049	0.011	1.1%
Putnam	NY	1.037	1.049	0.011	1.1%
Sacramento	CA	1.015	1.021	0.006	0.6%
San Joaquin	CA	1.015	1.021	0.006	0.6%
Riverside	CA	1.015	1.018	0.003	0.3%
San Bernardino	CA	1.015	1.018	0.003	0.3%
San Diego	CA	1.015	1.018	0.003	0.3%
Berks	PA	0.969	0.969	0.000	0.0%*
Lancaster	PA	0.969	0.969	0.000	0.0%*
Lehigh	PA	0.969	0.969	0.000	0.0%*
Cassia	ID	0.917	0.917	0.000	-0.0%**
Owyhee	ID	0.917	0.917	0.000	-0.0%**
Twin Falls	ID	0.917	0.917	0.000	-0.0%**

*Value represents a positive change less than 0.05%.
**Value represents a negative change less than 0.05%.

1 SCENARIO 1: CMS CBSA

CMS CBSA: The CMS CBSA localities are Metropolitan Statistical Areas (MSAs), or Metropolitan Divisions (MDs) within MSAs, and "non-MSA" rest of state areas.

1.1 Approach to Defining Localities and Calculating GPCIs

The first scenario, called the CMS CBSA option, follows the approach CMS uses to develop geographic payment adjustments for the End Stage Renal Disease (ESRD), the skilled nursing facility ambulatory surgical center (SNF ASC), and home health benefits. The localities are a variant of the Core Base Statistical Areas (CBSAs) established by the Office of Budget and Management. CBSAs include three types of defined areas: Metropolitan Statistical Areas (MSAs), subsets of MSAs known as Metropolitan Divisions (MDs) and Micropolitan Statistical Areas. The CMS CBSA option uses MSAs and, within MSAs the MDs to distinguish urban areas from rural areas but does not use Micropolitan Areas. All non-MSA counties, including Micropolitan Areas, are grouped together in "non-MSA" rest of state areas.

Geographic Units:

MSAs, MSA MDs and non-MSAs. There are no statewide localities in this scenario.

Calculations:

The CMS CBSA localities are similar to the Baseline localities in that they are defined-area localities. The MSAs and MSA MDs were identified using the *January 11, 2008 State and County to CBSA Crosswalk* provided by CMS. All counties in a defined MSA or MSA-MD are combined into a locality, taking the RVU-weighted average value for the GPCIs for the counties in the locality. All counties not comprising MSAs within a state are included in the State's non-MSA locality. This approach is identical to that for the Baseline, using redefined localities.

For example, if we denote the county-level values of the inputs for the Physician Work GPCI as $GPCI_{PW,c}$ then for each MSA, MSA-MD or non-MSA area, the CMS CBSA locality GPCIs are calculated as:

$$\text{(1.1)} \qquad \text{GPCI}_{PW,\,M} = \frac{\sum_{c=1}^{C}(GPCI_{PW,c} * RVU_{PW,c})}{\sum_{c=1}^{C} RVU_{PW,c}}$$

where the value of *C* depends on the number of counties in the MSA, MSA-MD or non-MSA area, denoted by *M*. A parallel calculation is done to yield the Practice Expense GPCI for each area *M*, $GPCI_{PE,M}$, and the Malpractice Premium GPCI for each locality, $GPCI_{MP,M}$. To summarize these GPCIs, GAFs are calculated using the same formula as in (0.1).

1.2 Summary Statistics of Localities (Unsmoothed)

As with the Baseline, we summarize the findings for the CMS CBSA alternative by first examining the summary statistics for the locality. This approach yields a much larger number of localities, compared to the Baseline:

Number of localities:	439
Highest GAF:	1.201 (San Fran-San Mateo-Redwood City, CA)
Lowest GAF:	0.757 (Aguadilla-Isabela-San Sebastián, PR)
Range in GAF:	0.444

Table 1-1: Number of Localities per State, Baseline to CMS CBSA (Unsmoothed)

State	Baseline	CBSA	State	Baseline	CBSA
Alabama	1	12	Nebraska	1	4
Alaska	1	3	Nevada	1	4
Arizona	1	7	New Hampshire	1	3
Arkansas	1	8	New Jersey	2	7
California	9	28	New Mexico	1	5
Colorado	1	8	New York	5	14
Connecticut	1	5	North Carolina	1	15
Delaware	1	3	North Dakota	1	4
District of Columbia	1	1	Ohio	1	13
Florida	3	23	Oklahoma	1	4
Georgia	2	15	Oregon	2	7
Hawaii	1	2	Pennsylvania	2	15
Idaho	1	6	Puerto Rico	1	9
Illinois	4	11	Rhode Island	1	1
Indiana	1	15	South Carolina	1	9
Iowa	1	9	South Dakota	1	3
Kansas	1	4	Tennessee	1	11
Kentucky	1	6	Texas	8	26
Louisiana	2	9	Utah	1	6
Maine	2	4	Vermont	1	2
Maryland	2	6	Virgin Islands	1	1
Massachusetts	2	8	Virginia	1	10
Michigan	2	16	Washington	2	12
Minnesota	1	5	West Virginia	1	7
Mississippi	1	5	Wisconsin	1	13
Missouri	3	8	Wyoming	1	3
Montana	1	4	**Total**	**89**	**439**

Table 1-2: Number of Counties per Locality, Baseline to CMS CBSA (Unsmoothed)

	Baseline	CMS CBSA
Mean	36	7
Median	12.5	2
Standard Deviation	44	17
Maximum	247	177
Minimum	1	1
Range	246	176

1.3 Summary of Impact on Counties (Unsmoothed)

We compare each of the alternative scenarios to the Baseline to understand its impact on individual counties. For each scenario, we determine the number of counties experiencing a decrease, increase or no change in the GAF, as well as the magnitude of these changes. These findings are depicted graphically in the map in Figure 1-1 and are also summarized below and in Table 1-3.

The map in Figure 1-1 shows the percentage change in GAFs between the Baseline and the CMS CBSA alternative. Counties that have a GAF under this alternative that is more than 1% lower than they have under the existing localities are shaded blue, with the deeper blue indicating a larger percentage decline. Counties with increases greater than 1% are shown in orange, with a deeper shade indicating a larger increase.

Number of GAF decreases:	2,582
Number of GAF increases:	633
Number with no change:	13
Number with less than 1% change:	321
Mean percentage change:	-2.0%
Largest percent increase:	20.0% (Jefferson County, West Virginia)
Largest percent decrease:	-15.6% (Monroe County, Florida)

Figure 1-1: GAF Percent Change: Baseline to CMS CBSA (Unsmoothed)

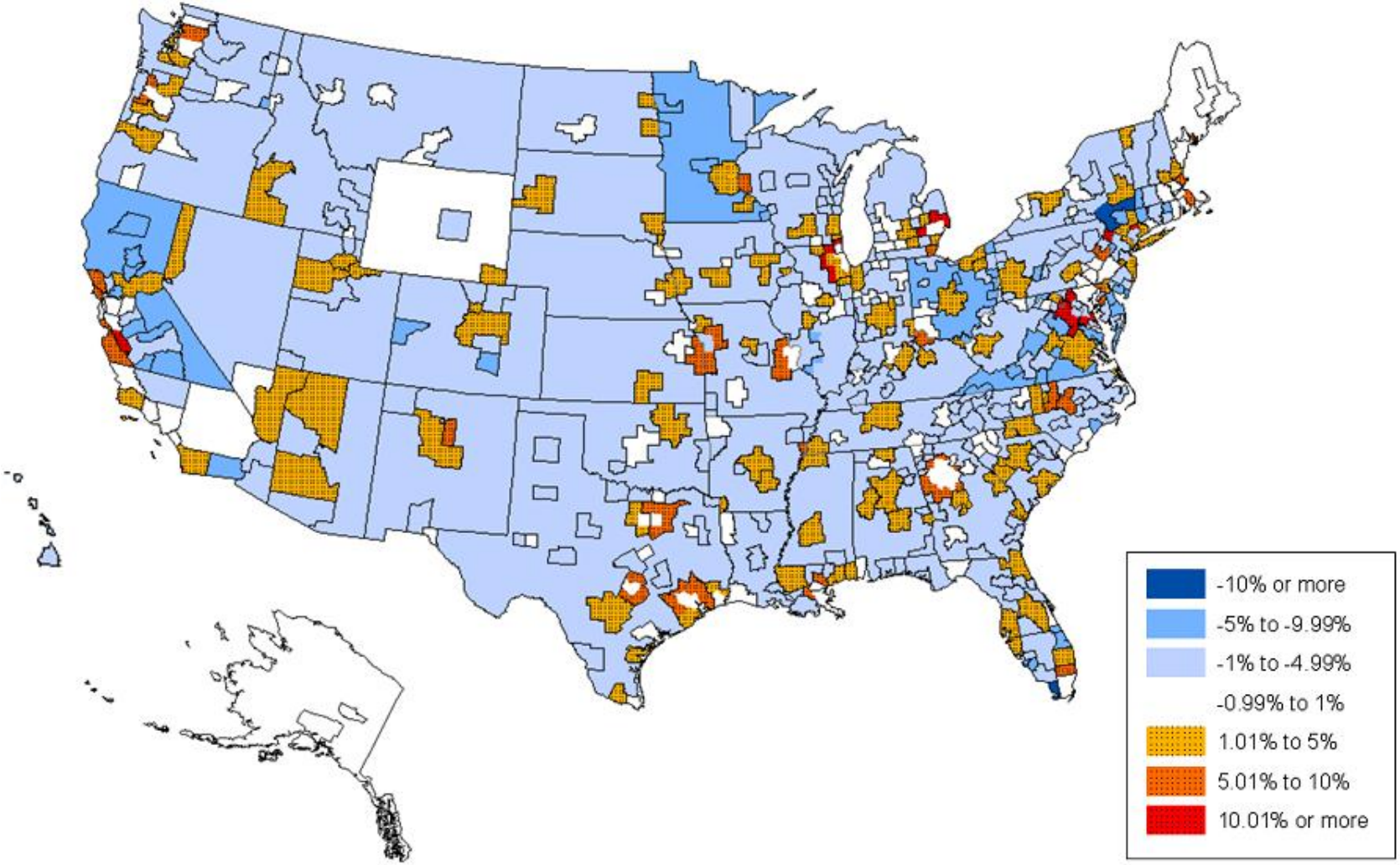

Table 1-3: Summary of GAF Differences, Baseline to CMS CBSA (Unsmoothed)

GAF Differences	Index Value Difference	Percent Difference
Mean	-0.019	-2.0%
RVU Weighted Mean	0.000	0.0%*
Median	-0.028	-3.1%
Minimum	-0.174	-15.6%
25th Percentile	-0.035	-3.7%
75th Percentile	-0.006	-0.7%
Maximum	0.185	20.0%
Range	0.359	35.5%
Std. Dev	0.031	3.3%

* Value represents a positive change less than 0.05%.

Compared to Baseline, the CMS CBSA option primarily benefits metropolitan areas in statewide localities, as well as some more urbanized areas within existing "Rest of State" localities. Most counties would have a decrease in their GAFs in shifting to the CMS CBSA alternative, with an (unweighted) average decline of about two percent. The median county would experience a decline of 3.1 percent; just less than one-fourth of counties experience an increase. Table 1-4 and Table 1-5 report the counties experiencing the largest changes.

Table 1-4: Top 20 Increases, Baseline to CMS CBSA (Unsmoothed)

County	State	Baseline Locality	CMS CBSA Locality	GAF			
				Baseline	CMS CBSA	Value Difference	Percent Difference
Jefferson	WV	West Virginia	Washington-Arlington-Alexandria, DC-VA	0.927	1.112	0.185	20.0%
Clarke	VA	Virginia	Washington-Arlington-Alexandria, DC-VA	0.955	1.112	0.157	16.4%
Fauquier	VA	Virginia	Washington-Arlington-Alexandria, DC-VA	0.955	1.112	0.157	16.4%
Loudoun	VA	Virginia	Washington-Arlington-Alexandria, DC-VA	0.955	1.112	0.157	16.4%
Prince William	VA	Virginia	Washington-Arlington-Alexandria, DC-VA	0.955	1.112	0.157	16.4%
Spotsylvania	VA	Virginia	Washington-Arlington-Alexandria, DC-VA	0.955	1.112	0.157	16.4%
Stafford	VA	Virginia	Washington-Arlington-Alexandria, DC-VA	0.955	1.112	0.157	16.4%
Warren	VA	Virginia	Washington-Arlington-Alexandria, DC-VA	0.955	1.112	0.157	16.4%
Fredericksburg city	VA	Virginia	Washington-Arlington-Alexandria, DC-VA	0.955	1.112	0.157	16.4%
Manassas city	VA	Virginia	Washington-Arlington-Alexandria, DC-VA	0.955	1.112	0.157	16.4%
Manassas Park city	VA	Virginia	Washington-Arlington-Alexandria, DC-VA	0.955	1.112	0.157	16.4%
Pike	PA	Rest of Pennsylvania	Newark-Union, NJ-PA	0.969	1.125	0.156	16.1%
DeKalb	IL	Rest of Illinois	Chicago-Naperville-Joliet, IL	0.945	1.079	0.134	14.2%
Grundy	IL	Rest of Illinois	Chicago-Naperville-Joliet, IL	0.945	1.079	0.134	14.2%
Kendall	IL	Rest of Illinois	Chicago-Naperville-Joliet, IL	0.945	1.079	0.134	14.2%
McHenry	IL	Rest of Illinois	Chicago-Naperville-Joliet, IL	0.945	1.079	0.134	14.2%
San Benito	CA	Rest of California	San Jose-Sunnyvale-Santa Clara, CA	1.015	1.149	0.134	13.2%
Kenosha	WI	Wisconsin	Lake County-Kenosha County, IL-WI	0.939	1.058	0.119	12.6%
Calvert	MD	Rest of Maryland	Washington-Arlington-Alexandria, DC-VA	0.987	1.112	0.125	12.6%
Charles	MD	Rest of Maryland	Washington-Arlington-Alexandria, DC-VA	0.987	1.112	0.125	12.6%

Table 1-5: Top 20 Decreases,
Baseline to CMS CBSA (Unsmoothed)

County	State	Baseline Locality	CMS CBSA Locality	GAF			
				Baseline	CMS CBSA	Value Difference	Percent Difference
Monroe	FL	Miami, FL	Florida (FL), non-MSA	1.117	0.943	-0.174	-15.6%
Sullivan	NY	Poughkpsie/ N NYC Suburbs, NY	New York (NY), non-MSA	1.037	0.925	-0.112	-10.8%
Greene	NY	Poughkpsie/ N NYC Suburbs, NY	New York (NY), non-MSA	1.037	0.925	-0.112	-10.8%
Delaware	NY	Poughkpsie/ N NYC Suburbs, NY	New York (NY), non-MSA	1.037	0.925	-0.112	-10.8%
Columbia	NY	Poughkpsie/ N NYC Suburbs, NY	New York (NY), non-MSA	1.037	0.925	-0.112	-10.8%
Warren	NJ	Northern NJ	Allentown-Bethlehem-Easton, PA-NJ	1.138	1.025	-0.114	-10.0%
Washington	IL	East St. Louis, IL	Illinois (IL), non-MSA	0.991	0.904	-0.087	-8.8%
Randolph	IL	East St. Louis, IL	Illinois (IL), non-MSA	0.991	0.904	-0.087	-8.8%
Montgomery	IL	East St. Louis, IL	Illinois (IL), non-MSA	0.991	0.904	-0.087	-8.8%
Allegany	MD	Rest of Maryland	Cumberland, MD-WV	0.987	0.906	-0.080	-8.2%
Yellow Medicine	MN	Minnesota	Minnesota (MN), non-MSA	0.962	0.887	-0.075	-7.8%
Winona	MN	Minnesota	Minnesota (MN), non-MSA	0.962	0.887	-0.075	-7.8%
Wilkin	MN	Minnesota	Minnesota (MN), non-MSA	0.962	0.887	-0.075	-7.8%
Watonwan	MN	Minnesota	Minnesota (MN), non-MSA	0.962	0.887	-0.075	-7.8%
Waseca	MN	Minnesota	Minnesota (MN), non-MSA	0.962	0.887	-0.075	-7.8%
Wadena	MN	Minnesota	Minnesota (MN), non-MSA	0.962	0.887	-0.075	-7.8%
Traverse	MN	Minnesota	Minnesota (MN), non-MSA	0.962	0.887	-0.075	-7.8%
Todd	MN	Minnesota	Minnesota (MN), non-MSA	0.962	0.887	-0.075	-7.8%
Swift	MN	Minnesota	Minnesota (MN), non-MSA	0.962	0.887	-0.075	-7.8%
Stevens	MN	Minnesota	Minnesota (MN), non-MSA	0.962	0.887	-0.075	-7.8%

1.4 Summary Statistics of Localities (Smoothed)

As with the unsmoothed CMS CBSA, we summarize the findings for the smoothed alternative by first examining the summary statistics for the localities. This approach yields a much larger number of localities compared to the Baseline:

Number of localities:	523*
Highest GAF:	1.201 (San Fran-San Mateo-Redwood City, CA)
Lowest GAF:	0.757 (Aguadilla-Isabela-San Sebastián, PR)
Range in GAF:	0.444

*Including 84 counties affected by smoothing that were not previously a single-county locality.

Table 1-6: Number of Localities per State, Baseline to CMS CBSA (Smoothed)

State	Baseline	CBSA Smoothed
Alabama	1	15
Alaska	1	9
Arizona	1	7
Arkansas	1	3
California	9	31
Colorado	1	8
Connecticut	1	5
Delaware	1	3
District of Columbia	1	1
Florida	3	27
Georgia	2	19
Hawaii	1	2
Idaho	1	9
Illinois	4	17
Indiana	1	18
Iowa	1	9
Kansas	1	6
Kentucky	1	7
Louisiana	2	12
Maine	2	4
Maryland	2	7
Massachusetts	2	8
Michigan	2	19
Minnesota	1	17
Mississippi	1	6
Missouri	3	5
Montana	1	4
Nebraska	1	2
Nevada	1	4
New Hampshire	1	3
New Jersey	2	9
New Mexico	1	9
New York	5	15
North Carolina	1	16
North Dakota	1	2
Ohio	1	15
Oklahoma	1	4
Oregon	2	9
Pennsylvania	2	18
Puerto Rico	1	9
Rhode Island	1	1
South Carolina	1	9
South Dakota	1	3
Tennessee	1	8
Texas	8	46
Utah	1	5
Vermont	1	2
Virgin Islands	1	1
Virginia	1	22
Washington	2	12
West Virginia	1	5
Wisconsin	1	13
Wyoming	1	3
Total	**89**	**523***

*Including 84 counties affected by smoothing that were not previously a single-county locality.

Table 1-7: Number of Counties per Locality, Baseline to CMS CBSA (Smoothed)

	Baseline	CMS CBSA Smoothed
Mean	36	6
Median	12.5	2
Standard Deviation	44	15
Maximum	247	1
Minimum	1	157
Range	246	156

1.5 Summary of Impact on Counties (Smoothed)

Our findings from comparing the CMS CBSA scenario to Baseline are depicted graphically in the map in Figure 1-2 and are also summarized below and in Table 1-8.

Number of GAF decreases:	2,558
Number of GAF increases:	646
Number with no change:*	24
Number with less than 1% change:	365
Mean percentage change:	-2.0%
Largest percent increase:	19.9% (Jefferson County, West Virginia)
Largest percent decrease:	-10.9% (Monroe County, Florida)

**Counties that experienced a change less than zero due only to the budget neutrality from smoothing were excluded from the GAF decreases and considered as "no change."*

Figure 1-2: GAF Percent Change: Baseline to CMS CBSA (Smoothed)

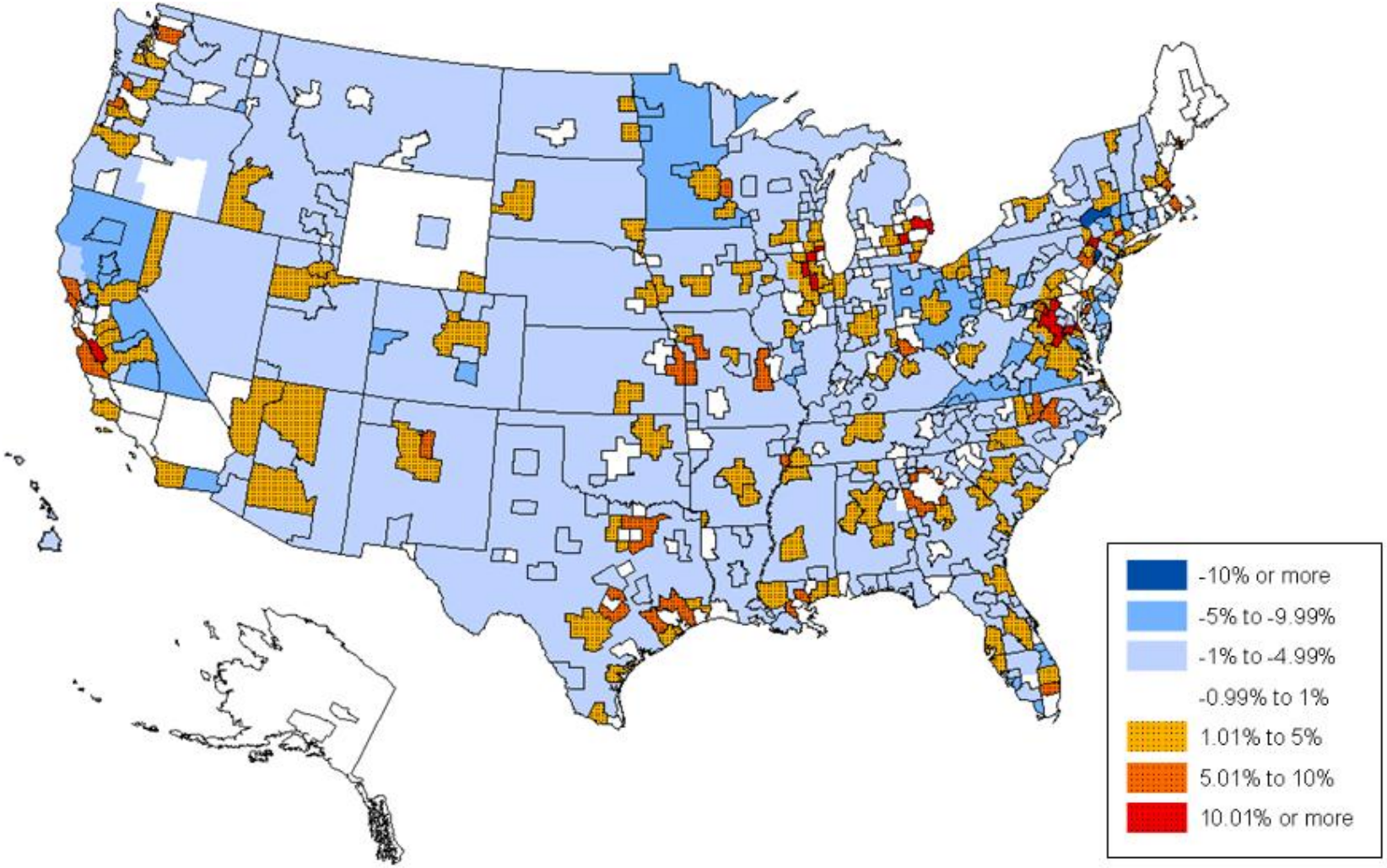

Table 1-8: Summary of GAF Differences, Baseline to CMS CBSA (Smoothed)

GAF Differences	Index Value Difference	Percent Difference
Mean	-0.018	-2.0%
RVU Weighted Mean	0.000	0.0%*
Median	-0.028	-3.1%
Minimum	-0.116	-10.9%
25th Percentile	-0.035	-0.6%
75th Percentile	-0.005	-3.8%
Maximum	0.184	19.9%
Range	0.301	30.7%
Std. Dev	0.031	3.3%

*Value represents a positive change less than 0.05%.

Compared to Baseline, the CMS CBSA option primarily benefits metropolitan areas in statewide localities, as well as some more urbanized areas within existing "Rest of State" localities. Most counties would have a decrease in their GAFs in shifting to the CMS CBSA alternative, with an (unweighted) average decline of about two percent. The median county would experience a decline of 3.1%; just less than one-fourth of counties experience an increase. Table 1-9 and Table 1-10 report the counties experiencing the largest changes.

Table 1-9: Top 20 Increases,
Baseline to CMS CBSA (Smoothed)

County	State	Baseline Locality	CMS CBSA Locality	GAF			
				Baseline	CMS CBSA	Value Difference	Percent Difference
Jefferson	WV	West Virginia	Washington-Arlington-Alexandria, DC-VA	0.927	1.111	0.184	19.9%
Clarke	VA	Virginia	Washington-Arlington-Alexandria, DC-VA	0.955	1.111	0.156	16.4%
Fauquier	VA	Virginia	Washington-Arlington-Alexandria, DC-VA	0.955	1.111	0.156	16.4%
Loudoun	VA	Virginia	Washington-Arlington-Alexandria, DC-VA	0.955	1.111	0.156	16.4%
Prince William	VA	Virginia	Washington-Arlington-Alexandria, DC-VA	0.955	1.111	0.156	16.4%
Spotsylvania	VA	Virginia	Washington-Arlington-Alexandria, DC-VA	0.955	1.111	0.156	16.4%
Stafford	VA	Virginia	Washington-Arlington-Alexandria, DC-VA	0.955	1.111	0.156	16.4%
Warren	VA	Virginia	Washington-Arlington-Alexandria, DC-VA	0.955	1.111	0.156	16.4%
Fredericksburg City	VA	Virginia	Washington-Arlington-Alexandria, DC-VA	0.955	1.111	0.156	16.4%
Manassas City	VA	Virginia	Washington-Arlington-Alexandria, DC-VA	0.955	1.111	0.156	16.4%
Manassas Park City	VA	Virginia	Washington-Arlington-Alexandria, DC-VA	0.955	1.111	0.156	16.4%
Pike	PA	Rest of Pennsylvania	Newark-Union, NJ-PA	0.969	1.124	0.156	16.1%
DeKalb	IL	Rest of Illinois	Chicago-Naperville-Joliet, IL	0.945	1.079	0.133	14.1%
Grundy	IL	Rest of Illinois	Chicago-Naperville-Joliet, IL	0.945	1.079	0.133	14.1%
Kendall	IL	Rest of Illinois	Chicago-Naperville-Joliet, IL	0.945	1.079	0.133	14.1%
McHenry	IL	Rest of Illinois	Chicago-Naperville-Joliet, IL	0.945	1.079	0.133	14.1%
San Benito	CA	Rest of California	San Jose-Sunnyvale-Santa Clara, CA	1.015	1.149	0.134	13.2%
Kenosha	WI	Wisconsin	Lake County-Kenosha County, IL-WI	0.939	1.057	0.118	12.6%
Calvert	MD	Rest of Maryland	Washington-Arlington-Alexandria, DC-VA	0.987	1.111	0.124	12.6%
Charles	MD	Rest of Maryland	Washington-Arlington-Alexandria, DC-VA	0.987	1.111	0.124	12.6%

Table 1-10: Top 20 Decreases, Baseline to CMS CBSA (Smoothed)

County	State	Baseline Locality	CMS CBSA Locality	GAF			
				Baseline	CMS CBSA	Value Difference	Percent Difference
Greene	NY	Poughkpsie NYC Suburbs	New York (NY), non-MSA	1.037	0.925	-0.113	-10.9%
Delaware	NY	Poughkpsie NYC Suburbs	New York (NY), non-MSA	1.037	0.925	-0.113	-10.9%
Warren	NJ	Northern NJ	Allentown-Bethlehem-Easton, PA-NJ	1.138	1.024	-0.114	-10.0%
Monroe	FL	Miami, FL	Florida (FL), non-MSA	1.117	1.006	-0.111	-9.9%
Washington	IL	East St. Louis, IL	Illinois (IL), non-MSA	0.991	0.904	-0.088	-8.8%
Randolph	IL	East St. Louis	Illinois (IL), non-MSA	0.991	0.904	-0.088	-8.8%
Montgomery	IL	East St. Louis	Illinois (IL), non-MSA	0.991	0.904	-0.088	-8.8%
Allegany	MD	Rest of Maryland	Cumberland, MD-WV	0.987	0.906	-0.081	-8.2%
Yellow Medicine	MN	Minnesota	Minnesota (MN), non-MSA	0.962	0.887	-0.075	-7.8%
Winona	MN	Minnesota	Minnesota (MN), non-MSA	0.962	0.887	-0.075	-7.8%
Wilkin	MN	Minnesota	Minnesota (MN), non-MSA	0.962	0.887	-0.075	-7.8%
Watonwan	MN	Minnesota	Minnesota (MN), non-MSA	0.962	0.887	-0.075	-7.8%
Waseca	MN	Minnesota	Minnesota (MN), non-MSA	0.962	0.887	-0.075	-7.8%
Wadena	MN	Minnesota	Minnesota (MN), non-MSA	0.962	0.887	-0.075	-7.8%
Traverse	MN	Minnesota	Minnesota (MN), non-MSA	0.962	0.887	-0.075	-7.8%
Todd	MN	Minnesota	Minnesota (MN), non-MSA	0.962	0.887	-0.075	-7.8%
Swift	MN	Minnesota	Minnesota (MN), non-MSA	0.962	0.887	-0.075	-7.8%
Stevens	MN	Minnesota	Minnesota (MN), non-MSA	0.962	0.887	-0.075	-7.8%
Steele	MN	Minnesota	Minnesota (MN), non-MSA	0.962	0.887	-0.075	-7.8%
Roseau	MN	Minnesota	Minnesota (MN), non-MSA	0.962	0.887	-0.075	-7.8%

1.6 Impact of Smoothing

Figure 1-3: Impact of Smoothing: CMS CBSA (Unsmoothed) to CMS CBSA (Smoothed)

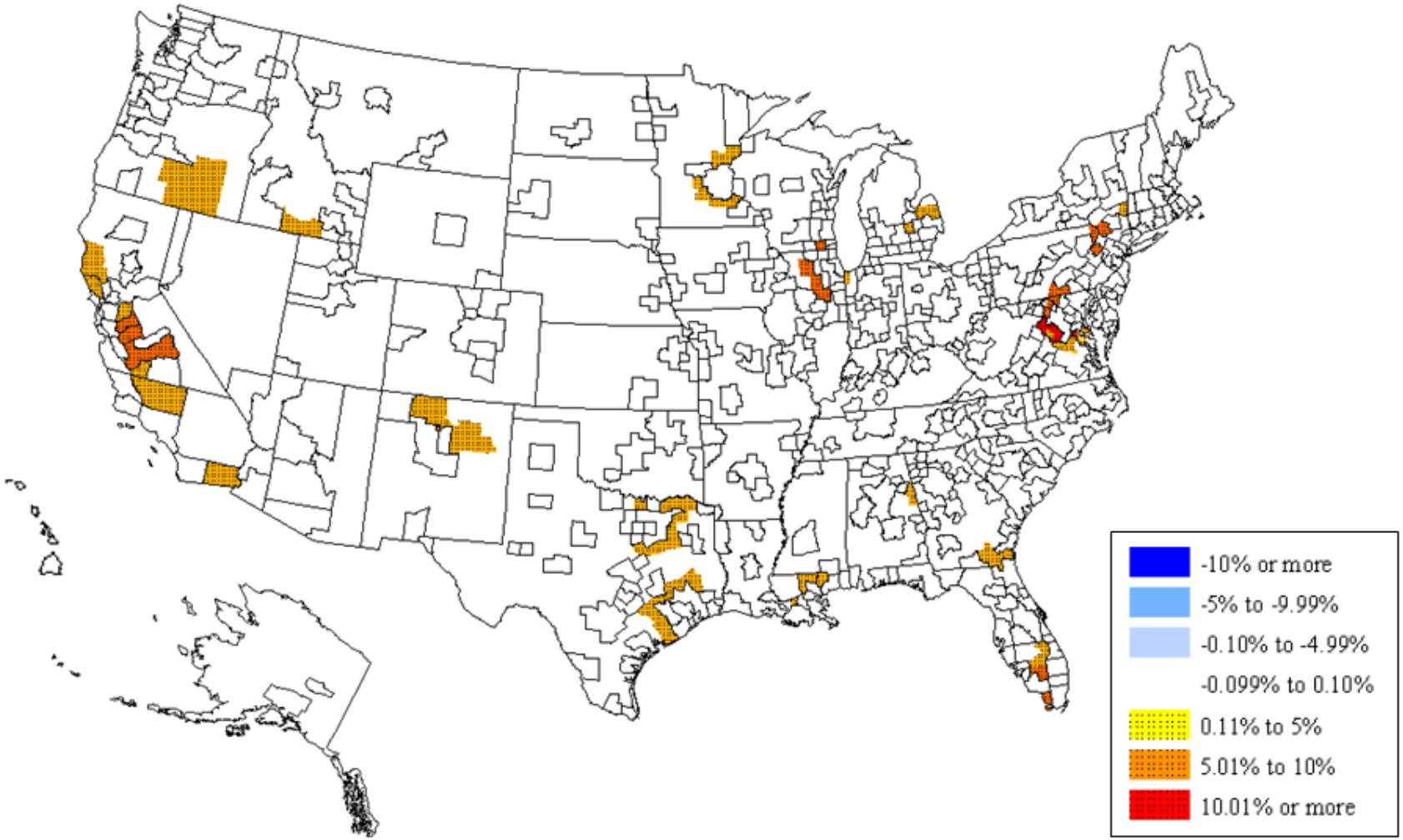

Table 1-11: Counties Impacted by Smoothing under the CMS CBSA Scenario

County	State	CMS CBSA GAF			
		Unsmoothed	Smoothed and Budget Neutralized	Value Difference	Percent Difference
Culpeper	VA	0.899	1.000	0.101	11.3%
King George	VA	0.899	1.000	0.101	11.3%
Orange	VA	0.899	1.000	0.101	11.3%
Page	VA	0.899	1.000	0.101	11.3%
Rappahannock	VA	0.899	1.000	0.101	11.3%
Shenandoah	VA	0.899	1.000	0.101	11.3%
Sullivan	NY	0.925	1.012	0.087	9.4%
Frederick	VA	0.920	1.000	0.080	8.7%
Merced	CA	0.953	1.034	0.081	8.5%
Monroe	PA	0.934	1.012	0.078	8.3%
Wayne	PA	0.934	1.012	0.078	8.3%
Walworth	WI	0.903	0.971	0.068	7.5%
La Salle	IL	0.904	0.971	0.066	7.3%
Lee	IL	0.904	0.971	0.066	7.3%
Livingston	IL	0.904	0.971	0.066	7.3%
Ogle	IL	0.904	0.971	0.066	7.3%
Fresno	CA	0.966	1.034	0.068	7.0%
Monroe	FL	0.943	1.006	0.063	6.7%
Adams	PA	0.934	0.995	0.060	6.5%
Franklin	PA	0.934	0.995	0.060	6.5%
Hendry	FL	0.943	0.997	0.054	5.7%
Stanislaus	CA	0.982	1.034	0.051	5.2%
Washington	MD	0.952	1.000	0.048	5.0%
Berkeley	WV	0.952	1.000	0.048	5.0%
Kern	CA	0.976	1.012	0.036	3.6%
Kings	CA	0.939	0.972	0.034	3.6%
Columbia	NY	0.925	0.958	0.033	3.5%
Glades	FL	0.943	0.975	0.032	3.4%
Okeechobee	FL	0.943	0.975	0.032	3.4%
St. Mary's	MD	0.971	1.000	0.029	3.0%
Sanilac	MI	0.936	0.962	0.026	2.8%
Shiawassee	MI	0.936	0.962	0.026	2.8%
Tuscola	MI	0.936	0.962	0.026	2.8%
Cleburne	AL	0.882	0.906	0.024	2.7%
Randolph	AL	0.882	0.906	0.024	2.7%
Pearl River	MS	0.890	0.911	0.020	2.3%
Caroline	VA	0.978	1.000	0.022	2.2%
Hanover	VA	0.978	1.000	0.022	2.2%
Louisa	VA	0.978	1.000	0.022	2.2%
St. James	LA	0.895	0.911	0.016	1.7%
Tangipahoa	LA	0.895	0.911	0.016	1.7%
Washington	LA	0.895	0.911	0.016	1.7%
Los Alamos	NM	0.909	0.925	0.015	1.7%

County	State	CMS CBSA GAF			
		Unsmoothed	Smoothed and Budget Neutralized	Value Difference	Percent Difference
Mora	NM	0.909	0.925	0.015	1.7%
Rio Arriba	NM	0.909	0.925	0.015	1.7%
San Miguel	NM	0.909	0.925	0.015	1.7%
Lake	CA	0.957	0.973	0.016	1.7%
Mendocino	CA	0.957	0.973	0.016	1.7%
Goodhue	MN	0.887	0.902	0.015	1.7%
Kanabec	MN	0.887	0.902	0.015	1.7%
Le Sueur	MN	0.887	0.902	0.015	1.7%
McLeod	MN	0.887	0.902	0.015	1.7%
Meeker	MN	0.887	0.902	0.015	1.7%
Mille Lacs	MN	0.887	0.902	0.015	1.7%
Pine	MN	0.887	0.902	0.015	1.7%
Rice	MN	0.887	0.902	0.015	1.7%
Sibley	MN	0.887	0.902	0.015	1.7%
San Joaquin	CA	1.010	1.021	0.011	1.1%
Colorado	TX	0.902	0.910	0.007	0.8%
Fayette	TX	0.902	0.910	0.007	0.8%
Grimes	TX	0.902	0.910	0.007	0.8%
Matagorda	TX	0.902	0.910	0.007	0.8%
Polk	TX	0.902	0.910	0.007	0.8%
Trinity	TX	0.902	0.910	0.007	0.8%
Walker	TX	0.902	0.910	0.007	0.8%
Washington	TX	0.902	0.910	0.007	0.8%
Wharton	TX	0.902	0.910	0.007	0.8%
Harney	OR	0.920	0.927	0.007	0.8%
Lake	OR	0.920	0.927	0.007	0.8%
Camden	GA	0.907	0.911	0.004	0.4%
Charlton	GA	0.907	0.911	0.004	0.4%
Clinch	GA	0.907	0.911	0.004	0.4%
Ware	GA	0.907	0.911	0.004	0.4%
Cooke	TX	0.902	0.906	0.003	0.4%
Fannin	TX	0.902	0.906	0.003	0.4%
Franklin	TX	0.902	0.906	0.003	0.4%
Henderson	TX	0.902	0.906	0.003	0.4%
Hill	TX	0.902	0.906	0.003	0.4%
Hopkins	TX	0.902	0.906	0.003	0.4%
Lamar	TX	0.902	0.906	0.003	0.4%
Navarro	TX	0.902	0.906	0.003	0.4%
Rains	TX	0.902	0.906	0.003	0.4%
Red River	TX	0.902	0.906	0.003	0.4%
Van Zandt	TX	0.902	0.906	0.003	0.4%
Lake	IN	0.967	0.971	0.003	0.3%
Cassia	ID	0.901	0.904	0.003	0.3%
Twin Falls	ID	0.901	0.904	0.003	0.3%

County	State	CMS CBSA GAF			
		Unsmoothed	Smoothed and Budget Neutralized	Value Difference	Percent Difference
Sonoma	CA	1.078	1.081	0.003	0.3%
Imperial	CA	0.948	0.950	0.002	0.3%
Essex	VA	0.899	0.900	0.001	0.2%
Madison	VA	0.899	0.900	0.001	0.2%
Westmoreland	VA	0.899	0.900	0.001	0.2%

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2 SCENARIO 2: SEPARATE HIGH COST COUNTIES FROM EXISTING LOCALITIES

Separate High Cost Counties From Existing Localities: The High Cost Counties scenario uses the existing CMS localities, as in the Baseline, but separates high GAF counties into independent localities.

2.1 Approach to Defining Localities and Calculating GPCIs

MedPAC, which initially devised the methodology for this scenario, describes the alternative as follows:

> In the first iteration, we compare the GAF for the highest-cost county in a locality to the average GAF among the lower cost counties in the locality. If the GAF of the highest-cost county exceeds the average of the other counties by more than a pre-set threshold (five percent), the highest-cost county becomes a separate locality. In the next iteration, we compare the GAF of the second-highest county to the average GAF of the remaining lower-cost counties. If the GAF of the second-highest county exceeds the average of the lower-cost counties by the pre-set threshold, it becomes a separate locality. The process stops when the GAF of the highest-cost remaining county does not exceed the average of the lower-cost counties by the pre-set threshold, and the remaining counties form a single locality. (*Letter to Herb B. Kuhn, Acting Deputy Administrator from Glenn M. Hackbarth, Chairman, Re: File code CMS-1385-P, August 30, 2007.)*

Essentially, starting with the most expensive county in an existing locality, any county that exceeds the average GAF for the remainder of the locality by five percent is removed from the existing locality. This is a county-by-county approach that has the primary effect of pulling high cost counties out of localities. Two adjacent high cost counties within the same existing locality with nearly identical GAFs would become two additional localities, not a combined separate locality.

Geographic Units:

CMS localities (states, metropolitan areas and individual counties) plus additional individual counties.

Calculations:

To determine the localities under the High Cost Counties Scenario, we first rank order all counties within each locality. We then create a series of RVU-weighted average GAFs for low-cost counties within the locality. If there are *C* counties in locality *L*, and county 1 is the highest cost county, we denote the GAF for county 1 as GAF_1. For the remaining counties, we calculate the GAF excluding county 1 as:

$$(2.1) \quad GAF_{L\text{-}1} = \frac{\sum_{c=2}^{C}(GAF_c * RVU_c)}{\sum_{c=2}^{C} RVU_c}.$$

We then compare GAF_1 to $GAF_{L\text{-}1}$ to determine whether county 1 should become a separate locality. If

$$(2.2) \quad GAF_1 / GAF_{L\text{-}1} > 1.05$$

then county 1 becomes a separate locality. If not, the existing locality is left unchanged.

If county 1 is pulled out as a separate locality, we then calculate the GAF excluding county 1 and county 2 as:

$$(2.3) \quad GAF_{L\text{-}2} = \frac{\sum_{c=3}^{C}(GAF_c * RVU_c)}{\sum_{c=3}^{C} RVU_c}.$$

If GAF_2 is more than five percent greater than $GAF_{L\text{-}2}$, then county 2 also becomes a separate locality. This continues until a high ranked county does not meet the five percent threshold to break it off from the rest of the locality.

These iterations are used to define the localities. Once the localities are defined, the GPCIs are recomputed using the new locality definitions, comparable to equation (0.1).

As mentioned in the overview of the approach, this scenario has the effect of pulling out only highest cost counties. Gaps of five percent or more that fall farther down the ranking of counties within the locality do not result in separate localities, because the iterations stop if a five

percent gap is not found between the two highest cost counties. Table 2-1 below demonstrates how this can work in an example case, imagining a locality with ten counties. As shown here, County A has a GAF that exceeds the average for the remaining counties by more than five percent. Therefore, County A would be pulled out as a separate locality. When the approach moves to the next iteration, County B is compared to the average GAF for Counties C through J. Because it does not exceed this average by five percent, the iterations would stop, and no additional counties would be pulled out of the set. However, in the county-level GAF data, there is a gap exceeding five percent between Counties F and G. In fact, if B and C had already been in a separate locality, Counties D, E and F all would have exceeded the average for the remainder of the locality by more than five percent and hence would have been separate localities. Because the iteration stops with the highest-GAF county that does not meet the threshold, a locality with Counties B through J stays intact, missing the largest gap, which falls between Counties F and G.[9]

Table 2-1: Example Case – Separate Counties Scenario Calculations Where a Gap Lower in the GAF Ranking Does Not Yield Separate Localities

County	County-Level GAF	Average GAF of Counties Below	% Difference from Average Below
A	1.18	1.108	6.5%
B	1.15	1.103	4.8%
C	1.145	1.097	4.9%
D	1.143	1.090	5.5%
E	1.14	1.079	6.1%
F	1.132	1.066	6.5%
G	1.075	1.063	1.4%
H	1.07	1.060	1.3%
I	1.07	1.050	1.9%
J	1.05	--	--

[9] We have not done an exhaustive search to determine all cases where such gaps occur in the data. However, we did confirm that it occurs at least once in the data (in the "rest of Virginia" locality) to check that it is not theoretical case.

2.2 Summary Statistics of Localities (Unsmoothed)

The Separate Counties scenario results in a larger number of localities than the Baseline, with the same maximum locality GAF, but has a somewhat lower minimum, resulting in a larger range in GAF than in the Baseline. All of the additional localities are single-county localities; as shown in Table 2-2, this means that more than half of all localities are single counties.

Number of localities: 214

Highest GAF: 1.208 (San Mateo, CA 01)

Lowest GAF: 0.776 (Puerto Rico 05)

Range in GAF: 0.432

Table 2-2: Number of Localities per State, Baseline to Separate Counties (Unsmoothed)

State	Baseline	Separate Counties	State	Baseline	Separate Counties
Alabama	1	1	Nebraska	1	6
Alaska	1	1	Nevada	1	1
Arizona	1	1	New Hampshire	1	3
Arkansas	1	7	New Jersey	2	3
California	9	17	New Mexico	1	6
Colorado	1	3	New York	5	8
Connecticut	1	2	North Carolina	1	7
Delaware	1	2	North Dakota	1	1
District of Columbia	1	1	Ohio	1	2
Florida	3	6	Oklahoma	1	1
Georgia	2	8	Oregon	2	2
Hawaii	1	1	Pennsylvania	2	5
Idaho	1	1	Puerto Rico	1	5
Illinois	4	6	Rhode Island	1	1
Indiana	1	1	South Carolina	1	1
Iowa	1	5	South Dakota	1	1
Kansas	1	5	Tennessee	1	1
Kentucky	1	1	Texas	8	18
Louisiana	2	5	Utah	1	1
Maine	2	3	Vermont	1	1
Maryland	2	7	Virgin Islands	1	1
Massachusetts	2	5	Virginia	1	10
Michigan	2	3	Washington	2	3
Minnesota	1	13	West Virginia	1	1
Mississippi	1	5	Wisconsin	1	3
Missouri	3	10	Wyoming	1	2
Montana	1	1	Total	**89**	**214**

Table 2-3: Number of Counties per Locality, Baseline to Separate Counties (Unsmoothed)

	Baseline	Separate Counties
Mean	36	15
Median	12.5	1
Standard Deviation	44	32
Maximum	247	237
Minimum	1	1
Range	246	236

2.3 Summary of Impact on Counties (Unsmoothed)

We compare each of the alternative scenarios to the Baseline to understand its impact on individual counties. For each scenario, we determine the number of counties experiencing a decrease, increase or no change in the GAF, as well as the magnitude of these changes. These findings are depicted graphically in the map and are also summarized below and in Table 2-4.

Figure 2-1: GAF Percent Change: Baseline to Separate Counties (Unsmoothed)

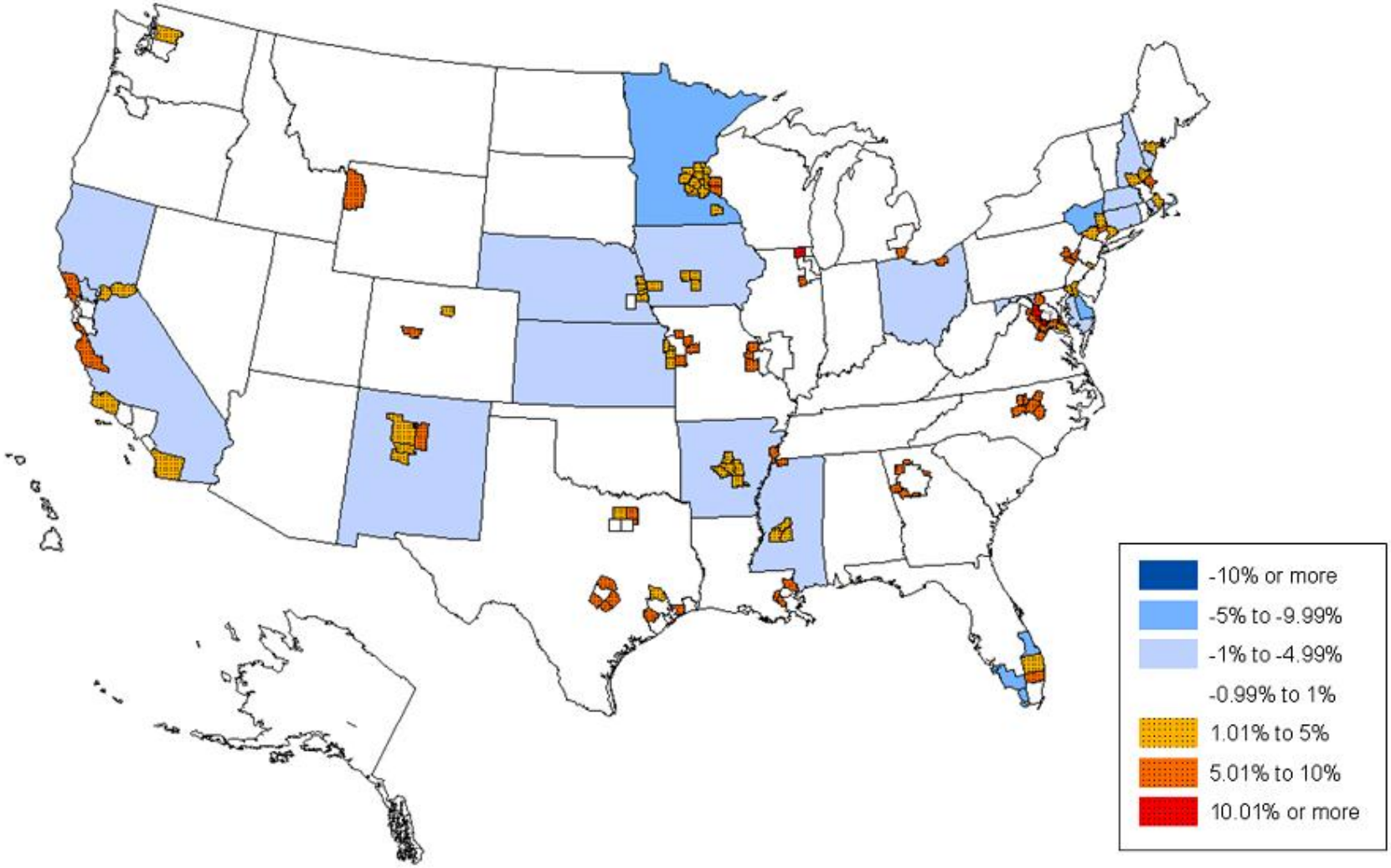


Table 2-4: Summary of GAF Differences, Baseline to Separate Counties (Unsmoothed)

GAF Differences	Index Value Difference	Percent Difference
Mean	-0.006	-0.6%
RVU Weighted Mean	0.000	0.0%*
Median	-0.004	-0.5%
Minimum	-0.108	-8.1
25th Percentile	-0.009	0.0%
75th Percentile	0.000	0.0%*
Maximum	0.124	12.9%
Range	0.232	23.6%
Std. Dev	0.018	1.9%

* Value represents a positive change less than 0.05%.

As these findings demonstrate, most counties experience no or only minor changes under this scenario. The 125 counties with GAF increases are all the new single-county localities, including those that have relatively high GAFs, but are not metropolitan areas, such as Teton County, Wyoming (Jackson micropolitan area).

Number of GAF decreases:	1,956
Number of GAF increases:	125
Number with no change:	1,147
Number with less than 1% change:	2320
Mean percentage change:	-0.6%
Largest percent increase:	12.9% (Prince William, Virginia)
Largest percent decrease:	-8.1% (Monroe, Florida)

Table 2-5: Top 20 Increases,
Baseline to Separate Counties (Unsmoothed)

County	State	Baseline Locality	Separate Counties Locality	GAF			
				Baseline	Separate Counties	Value Difference	Percent Difference
Prince William	VA	Virginia	Virginia 01	0.955	1.078	0.124	12.9%
Manassas city	VA	Virginia	Virginia 02	0.955	1.076	0.121	12.7%
Loudoun	VA	Virginia	Virginia 03	0.955	1.071	0.116	12.2%
McHenry	IL	Rest of Illinois	Rest of Illinois 01	0.945	1.044	0.098	10.4%
Calvert	MD	Rest of Maryland	Rest of Maryland 01	0.987	1.082	0.095	9.6%
Fauquier	VA	Virginia	Virginia 04	0.955	1.044	0.089	9.3%
Los Alamos	NM	New Mexico	New Mexico 01	0.944	1.031	0.087	9.3%
St. Charles	LA	Rest of Louisiana	Rest of Louisiana 02	0.930	1.013	0.083	9.0%
St. John the Baptist	LA	Rest of Louisiana	Rest of Louisiana 01	0.930	1.013	0.083	9.0%
Santa Fe	NM	New Mexico	New Mexico 02	0.944	1.028	0.084	9.0%
St. Tammany	LA	Rest of Louisiana	Rest of Louisiana 03	0.930	1.011	0.081	8.7%
Fredericksburg city	VA	Virginia	Virginia 05	0.955	1.038	0.083	8.7%
Santa Cruz	CA	Rest of California	Rest of California 01	1.015	1.102	0.087	8.5%
Cass	MO	Rest of Missouri	Rest of Missouri 01	0.898	0.974	0.076	8.5%
Ceiba Municipio	PR	Puerto Rico	Puerto Rico 01	0.790	0.856	0.066	8.4%
Clinton	MO	Rest of Missouri	Rest of Missouri 04	0.898	0.972	0.075	8.3%
Lafayette	MO	Rest of Missouri	Rest of Missouri 02	0.898	0.972	0.075	8.3%
Ray	MO	Rest of Missouri	Rest of Missouri 03	0.898	0.972	0.075	8.3%
Collin	TX	Rest of Texas	Rest of Texas 01	0.936	1.010	0.074	8.0%
Clarke	VA	Virginia	Virginia 06	0.955	1.030	0.075	7.9%

Table 2-6: Top 20 Decreases,
Baseline to Separate Counties (Unsmoothed)

County	State	Baseline Locality	Separate Counties Locality	GAF			
				Baseline	Separate Counties	Value Difference	Percent Difference
Monroe	FL	Miami, FL	Miami, FL 02	1.117	1.026	-0.091	-8.1%
Ulster	NY	Poughkpsie/ N NYC Suburbs	Poughkpsie/ N NYC Suburbs, NY 04	1.037	0.956	-0.081	-7.8%
Sullivan	NY	Poughkpsie/ N NYC Suburbs	Poughkpsie/ N NYC Suburbs, NY 04	1.037	0.956	-0.081	-7.8%
Greene	NY	Poughkpsie/ N NYC Suburbs	Poughkpsie/ N NYC Suburbs, NY 04	1.037	0.956	-0.081	-7.8%
Delaware	NY	Poughkpsie/ N NYC Suburbs	Poughkpsie/ N NYC Suburbs, NY 04	1.037	0.956	-0.081	-7.8%
Columbia	NY	Poughkpsie/ N NYC Suburbs	Poughkpsie/ N NYC Suburbs, NY 04	1.037	0.956	-0.081	-7.8%
Yellow Medicine	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.8%
Winona	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.8%
Wilkin	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.8%
Watonwan	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.8%
Waseca	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.8%
Wadena	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.8%
Wabasha	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.8%
Traverse	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.8%
Todd	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.8%
Swift	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.8%
Stevens	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.8%
Steele	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.8%
Stearns	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.8%
Sibley	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.8%

2.4 Summary Statistics of Localities (Smoothed)

Like its unsmoothed version, the Separate Counties (Smoothed) scenario also results in a larger number of localities than the Baseline, with a similar maximum locality GAF, but a somewhat lower minimum, resulting in a larger range in GAF than in the Baseline. All of the additional localities are single-county localities; as shown in Table 2-7, this means that more than half of all localities are single counties.

Number of localities:	267*
Highest GAF:	1.207 (San Mateo, CA 01)
Lowest GAF:	0.776 (Puerto Rico 05)
Range in GAF:	0.431

*Including 53 counties affected by smoothing that were not previously a single-county locality.

Table 2-7: Number of Localities per State, Baseline to Separate Counties (Smoothed)

State	Baseline	Separate Counties
Alabama	1	1
Alaska	1	7
Arizona	1	1
Arkansas	1	1
California	9	24
Colorado	1	3
Connecticut	1	2
Delaware	1	2
District of Columbia	1	1
Florida	3	8
Georgia	2	8
Hawaii	1	1
Idaho	1	4
Illinois	4	9
Indiana	1	2
Iowa	1	5
Kansas	1	5
Kentucky	1	1
Louisiana	2	5
Maine	2	3
Maryland	2	8
Massachusetts	2	7
Michigan	2	3
Minnesota	1	24
Mississippi	1	7
Missouri	3	10
Montana	1	1
Nebraska	1	12
Nevada	1	1
New Hampshire	1	3
New Jersey	2	3
New Mexico	1	10
New York	5	10
North Carolina	1	7
North Dakota	1	1
Ohio	1	2
Oklahoma	1	1
Oregon	2	2
Pennsylvania	2	9
Puerto Rico	1	5
Rhode Island	1	1
South Carolina	1	1
South Dakota	1	1
Tennessee	1	1
Texas	8	18
Utah	1	1
Vermont	1	1
Virgin Islands	1	1
Virginia	1	10
Washington	2	3
West Virginia	1	3
Wisconsin	1	5
Wyoming	1	2
Total	**89**	**267***

*Including 53 counties affected by smoothing that were not previously a single-county locality.

Table 2-8: Number of Counties per Locality, Baseline to Separate Counties (Smoothed)

	Baseline	Separate Counties Smoothed
Mean	36	12
Median	12.5	1
Standard Deviation	44	29
Maximum	247	237
Minimum	1	1
Range	246	236

Summary of Impact on Counties (Smoothed)

As these findings demonstrate, most counties experience no or only minor changes under this scenario. 125 of the 143 counties with GAF increases are all the new single-county localities, including those that have relatively high GAFs, but are not metropolitan areas, such as Teton County, Wyoming (Jackson micropolitan area). The other 18 increases occurred due to smoothing. These findings are depicted graphically in the map in Figure 2-2 and are also summarized below and in the Table 2-9.

Number of GAF decreases:	1940
Number of GAF increases:	143
Number with no change:*	1145
Number with less than 1% change:	2223
Mean percentage change:	-0.7%
Largest percent increase:	12.9% (Prince William, Virginia)
Largest percent decrease:	-8.2% (Monroe, Florida)

**Counties that experienced a change less than zero due only to the budget neutrality from smoothing were excluded from the GAF decreases and considered as "no change."*

Table 2-9: Summary of GAF Differences, Baseline to Separate Counties (Smoothed)

GAF Differences	Index Value Difference	Percent Difference
Mean	-0.006	-0.7%
RVU Weighted Mean	0.000	0.0%*
Median	-0.005	-0.5%
Minimum	-0.109	-8.2%
25th Percentile	-0.010	-1.0%
75th Percentile	-0.001	-0.1%
Maximum	0.123	12.9%
Range	0.232	21.04%
Std. Dev	0.018	1.9%

* Value represents a positive change less than 0.05%.

Figure 2-2: GAF Percent Change: Baseline to Separate (Smoothed)

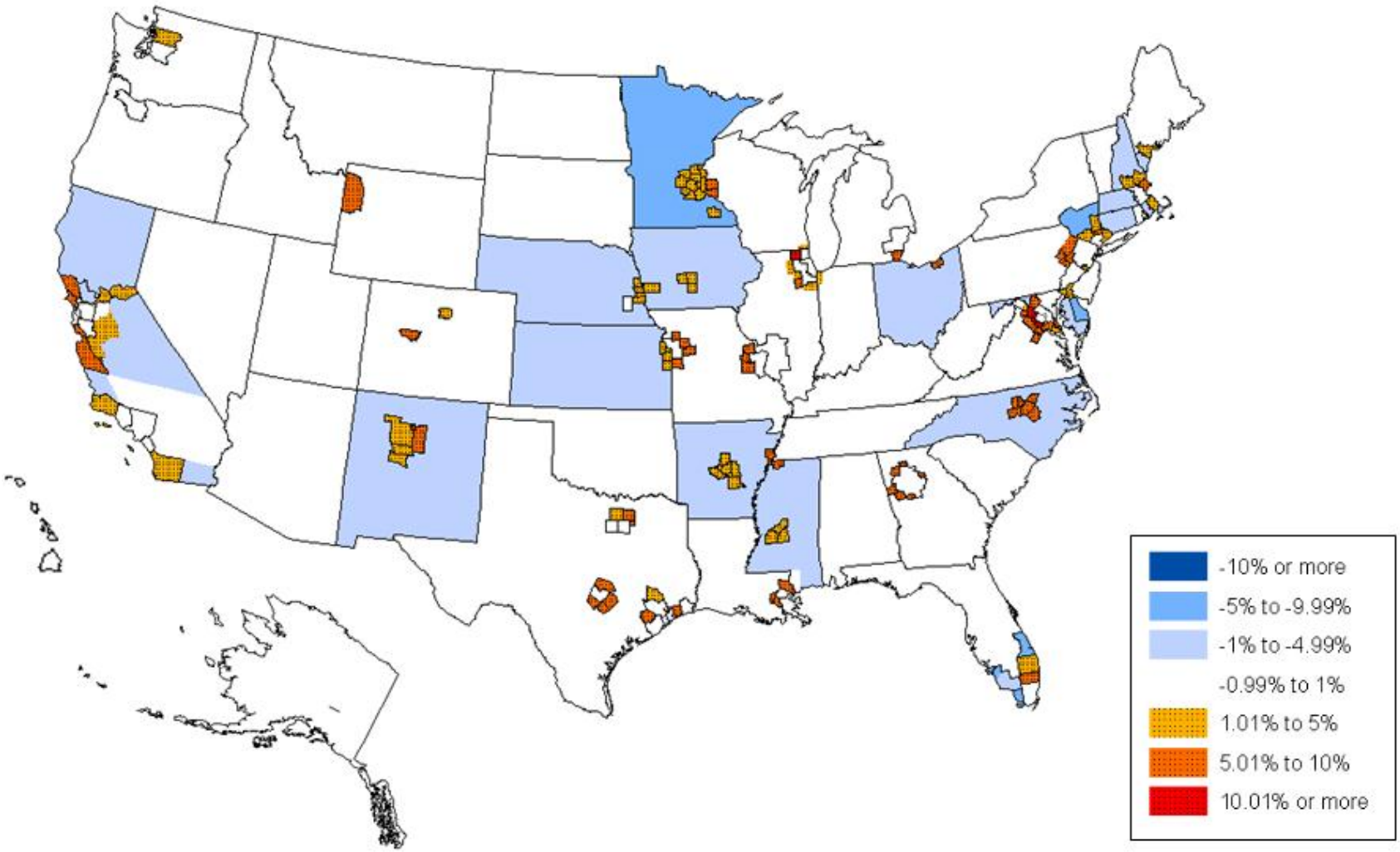


Table 2-10: Top 20 Increases,
Baseline to Separate Counties (Smoothed)

County	State	Baseline Locality	Separate Counties Locality	GAF			
				Baseline	Separate Counties	Value Difference	Percent Difference
Prince William	VA	Virginia	Virginia 01	0.955	1.078	0.123	12.9%
Manassas city	VA	Virginia	Virginia 02	0.955	1.075	0.121	12.6%
Loudoun	VA	Virginia	Virginia 03	0.955	1.070	0.115	12.1%
McHenry	IL	Rest of Illinois	Rest Of Illinois 01	0.945	1.043	0.098	10.3%
Calvert	MD	Rest of Maryland	Rest Of Maryland 01	0.987	1.081	0.094	9.5%
Fauquier	VA	Virginia	Virginia 04	0.955	1.043	0.089	9.3%
Los Alamos	NM	New Mexico	New Mexico 01	0.944	1.031	0.087	9.2%
St. Charles	LA	Rest of Louisiana	Rest of Louisiana 02	0.930	1.013	0.083	8.9%
St. John the Baptist	LA	Rest of Louisiana	Rest of Louisiana 01	0.930	1.013	0.083	8.9%
Santa Fe	NM	New Mexico	New Mexico 02	0.944	1.028	0.084	8.9%
St. Tammany	LA	Rest of Louisiana	Rest of Louisiana 03	0.930	1.010	0.080	8.6%
Fredericksburg city	VA	Virginia	Virginia 05	0.955	1.037	0.082	8.6%
Santa Cruz	CA	Rest of California	Rest of California 01	1.015	1.101	0.086	8.5%
Cass	MO	Rest of Missouri	Rest of Missouri 01	0.898	0.973	0.076	8.4%
Ceiba Municipio	PR	Puerto Rico	Puerto Rico 01	0.790	0.855	0.065	8.3%
Clinton	MO	Rest of Missouri	Rest of Missouri 04	0.898	0.972	0.074	8.3%
Lafayette	MO	Rest of Missouri	Rest of Missouri 02	0.898	0.972	0.074	8.3%
Ray	MO	Rest of Missouri	Rest of Missouri 03	0.898	0.972	0.074	8.3%
Collin	TX	Rest of Texas	Rest of Texas 01	0.936	1.010	0.074	7.9%
Clarke	VA	Virginia	Virginia 06	0.955	1.029	0.075	7.8%

Table 2-11: Top 20 Decreases,
Baseline to Separate High Cost Counties (Smoothed)

County	State	Baseline Locality	Separate Counties Locality	GAF			
				Baseline	Separate Counties	Value Difference	Percent Difference
Monroe	FL	Miami, FL	Miami, FL 02	1.117	1.025	-0.091	-8.2%
Greene	NY	Poughkpsie/ N NYC Suburbs, NY	Poughkpsie/ N NYC Suburbs, NY 04	1.037	0.956	-0.082	-7.9%
Delaware	NY	Poughkpsie/ N NYC Suburbs, NY	Poughkpsie/ N NYC Suburbs, NY 04	1.037	0.956	-0.082	-7.9%
Columbia	NY	Poughkpsie/ N NYC Suburbs, NY	Poughkpsie/ N NYC Suburbs, NY 04	1.037	0.956	-0.082	-7.9%
Ulster	NY	Poughkpsie/ N NYC Suburbs, NY	Poughkpsie/ N NYC Suburbs, NY 04	1.037	0.961	-0.076	-7.3%
Sullivan	NY	Poughkpsie/ N NYC Suburbs, NY	Poughkpsie/ N NYC Suburbs, NY 04	1.037	0.961	-0.076	-7.3%
Yellow Medicine	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.9%
Winona	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.9%
Wilkin	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.9%
Watonwan	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.9%
Waseca	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.9%
Wadena	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.9%
Wabasha	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.9%
Traverse	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.9%
Todd	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.9%
Swift	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.9%
Stevens	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.9%
Steele	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.9%
St. Louis	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.9%
Roseau	MN	Minnesota	Minnesota 13	0.962	0.896	-0.066	-6.9%

2.5 Impact of Smoothing

Figure 2-3: Impact of Smoothing: Separate Counties (Unsmoothed) to Separate Counties (Smoothed)

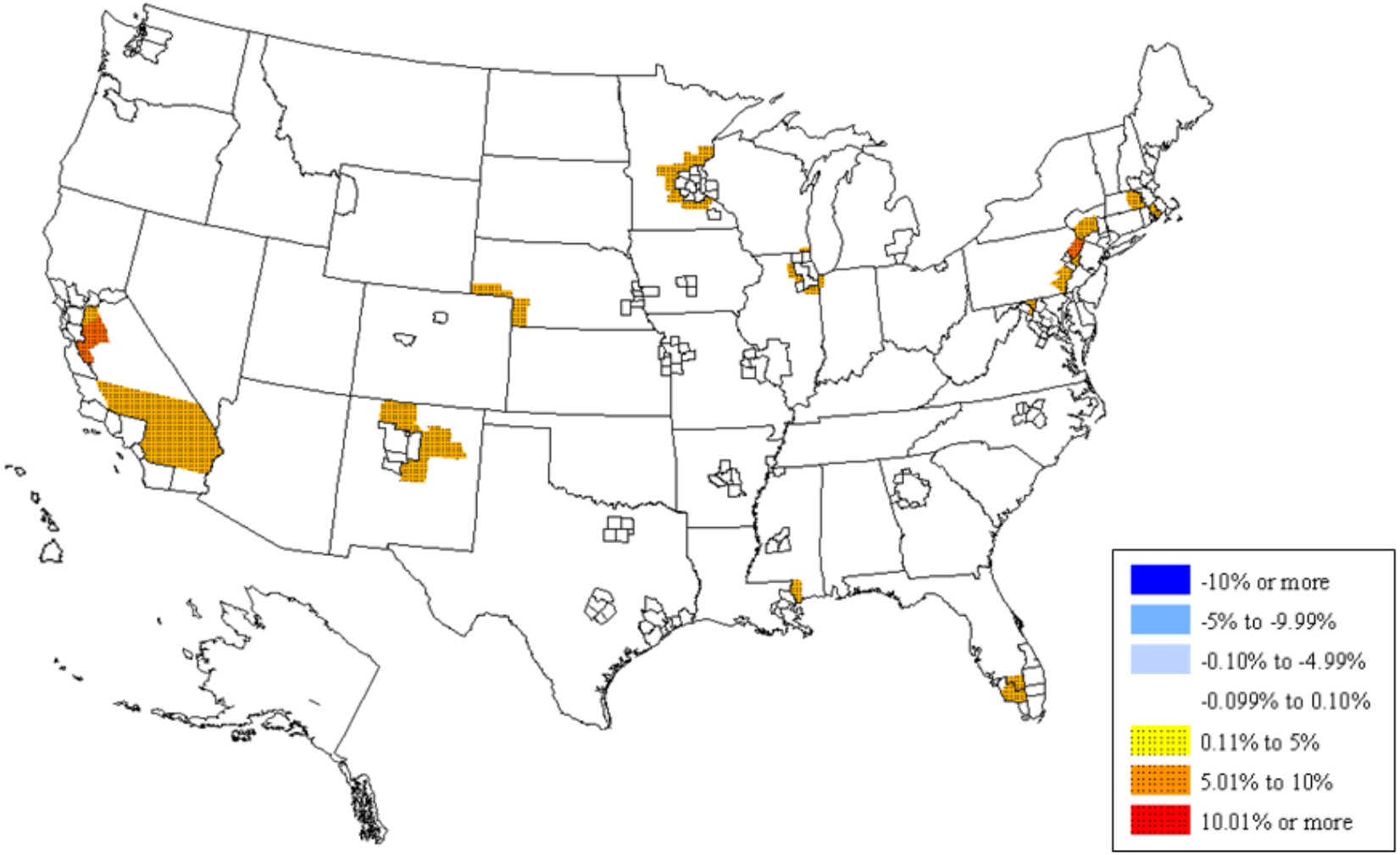


Table 2-12: Counties Impacted by Smoothing under the Separate Counties Scenario

County	State	Separate Counties GAF			
		Unsmoothed	Smoothed and Budget Neutralized	Value Difference	Percent Difference
Monroe	PA	0.963	1.024	0.061	6.3%
Pike	PA	0.963	1.024	0.061	6.3%
Merced	CA	0.987	1.036	0.050	5.0%
San Benito	CA	0.987	1.036	0.050	5.0%
Stanislaus	CA	0.987	1.036	0.050	5.0%
Jefferson	WV	0.927	0.963	0.036	3.9%
Lake	IN	0.944	0.978	0.034	3.6%
San Joaquin	CA	0.987	1.021	0.034	3.5%
Riverside	CA	0.987	1.018	0.032	3.2%
San Bernardino	CA	0.987	1.018	0.032	3.2%
Kern	CA	0.987	1.012	0.025	2.6%
Manassas Park City	VA	0.946	0.970	0.024	2.5%
Kenosha	WI	0.939	0.959	0.020	2.2%
Rio Arriba	NM	0.909	0.927	0.019	2.0%
DeKalb	IL	0.940	0.959	0.018	2.0%
Kankakee	IL	0.940	0.959	0.018	2.0%
Kendall	IL	0.940	0.959	0.018	2.0%
Mora	NM	0.909	0.925	0.016	1.7%
San Miguel	NM	0.909	0.925	0.016	1.7%
Torrance	NM	0.909	0.925	0.016	1.7%
Chase	NE	0.862	0.876	0.015	1.7%
Cheyenne	NE	0.862	0.876	0.015	1.7%
Deuel	NE	0.862	0.876	0.015	1.7%
Dundy	NE	0.862	0.876	0.015	1.7%
Kimball	NE	0.862	0.876	0.015	1.7%
Perkins	NE	0.862	0.876	0.015	1.7%
Washington	MD	0.950	0.963	0.013	1.4%
Hancock	MS	0.897	0.909	0.012	1.4%
Pearl River	MS	0.897	0.909	0.012	1.4%
Collier	FL	0.992	1.006	0.014	1.4%
Goodhue	MN	0.896	0.907	0.011	1.2%
Hendry	FL	0.990	0.997	0.007	0.7%
Berks	PA	0.963	0.969	0.007	0.7%
Lancaster	PA	0.963	0.969	0.007	0.7%
Benton	MN	0.896	0.902	0.005	0.6%
Kanabec	MN	0.896	0.902	0.005	0.6%
Le Sueur	MN	0.896	0.902	0.005	0.6%
McLeod	MN	0.896	0.902	0.005	0.6%
Meeker	MN	0.896	0.902	0.005	0.6%
Mille Lacs	MN	0.896	0.902	0.005	0.6%
Pine	MN	0.896	0.902	0.005	0.6%
Rice	MN	0.896	0.902	0.005	0.6%

County	State	Separate Counties GAF			
		Unsmoothed	Smoothed and Budget Neutralized	Value Difference	Percent Difference
Sibley	MN	0.896	0.902	0.005	0.6%
Stearns	MN	0.896	0.902	0.005	0.6%
Sullivan	NY	0.956	0.961	0.005	0.6%
Ulster	NY	0.956	0.961	0.005	0.6%
Northampton	PA	1.018	1.024	0.005	0.5%
Bristol	MA	1.018	1.023	0.004	0.4%
Worcester	MA	1.018	1.023	0.004	0.4%
Walworth	WI	0.939	0.939	0.000	0.0%*
Cassia	ID	0.917	0.917	0.000	-0.0%**
Owyhee	ID	0.917	0.917	0.000	-0.0%**
Twin Falls	ID	0.917	0.917	0.000	-0.0%**
Berkeley	WV	0.927	0.926	0.000	-0.0%**

*Value represents a positive change less than 0.05%.
**Value represents a negative change less than 0.05%.

3 SCENARIO 3: SEPARATE HIGH COST METROPOLITAN STATISTICAL AREAS FROM STATEWIDE LOCALITIES

Separate High Cost MSAs from Statewide Localities: The Separate MSAs approach starts with statewide localities and iteratively removes high cost MSAs into independent localities.

3.1 Approach to Defining Localities and Calculating GPCIs

The Separate MSAs from Statewide Localities option is conceptually similar to the Separate Counties option, except that the Separate MSAs option starts with states and removes MSAs, whereas the Separate Counties option started with localities and removed counties. As a result, the Separate MSAs option yields localities that are MSAs or larger. MedPAC, which initially devised the methodology for this scenario, describes the option as follows:

> The other method we developed, which we refer to as the metropolitan statistical area (MSA) option, starts at the state level. We collect the urban counties in each state into MSAs and the nonurban counties into a nonurban area. An iterative process follows. In the first iteration, we compare the GAF of the highest-cost MSA in a state to the average GAF of the other areas in the state. If the GAF of the highest-cost MSA exceeds the average of the lower-cost areas by a pre-set threshold (five percent) the highest-cost MSA becomes a separate locality. In the next iteration, we compare the MSA with the second-highest GAF to the average GAF of the remaining lower-cost areas. If the second-highest GAF exceeds the average of the lower-cost areas by more than the pre-set threshold, the second-highest MSA becomes a separate locality. The process stops when the GAF of the highest-cost remaining MSA does not exceed the average of the lower-cost areas by the pre-set threshold, and the remaining areas form a single locality. (*Letter to Herb B. Kuhn, Acting Deputy Administrator from Glenn M. Hackbarth, Chairman, Re: File code CMS-1385-P, August 30, 2007.)*

In developing the localities under this scenario, we interpreted "MSA" literally, meaning that we compared MSAs and not MSA MDs. In this way, the concept of MSA in the Separate MSAs alternative differs from the CBSA concept used in the first scenario.

Geographic Units:

States, MSAs or rest of state areas.

Calculations:

To determine the localities under the Separate MSAs scenario, we first create MSA-level GAFs. The MSA-level GAFs are RVU-weighted averages of the counties in each MSA within a state. So, for a state, we calculate the GAF for each MSA, denoted as GAF_m. For the first MSA in a state,

$$\text{(3.1)} \qquad GAF_1 = \frac{\sum_{c=1}^{C1}(GAF_c * RVU_c)}{\sum_{c=1}^{C1} RVU_c}, \text{ where the MSA has } C1 \text{ counties.}$$

Equivalent GAFs are created for each MSA in the state. We then rank the MSAs in order by their GAFs.

To determine whether or not to make an MSA a separate locality, we start with the highest cost MSA and calculate the GAF for the balance of the state excluding this MSA. This balance of the state GAF is calculated as:

$$\text{(3.2)} \qquad GAF_{S\text{-}1} = \frac{\sum_{c=C1+1}^{C}(GAF_c * RVU_c)}{\sum_{c=C1+1}^{C} RVU_c}, \text{ for a state with C counties.}$$

In other words, we calculate the GAF for the first MSA and then calculate the average GAF for all counties in the state not included in the MSA. If

$$\text{(3.3)} \qquad GAF_1 / GAF_{S\text{-}1} > 1.05$$

then MSA 1 becomes a separate locality. If not, the state is kept as a statewide locality.

If MSA 1 does become its own locality, we iterate these steps. We then calculate $GAF_{S\text{-}1\text{-}2}$ as the balance of state GAF, excluding the first and second MSA. If

$$\text{(3.4)} \qquad GAF_2 / GAF_{S\text{-}1\text{-}2} > 1.05, \text{ then the second MSA also becomes a new area.}$$

The iterations continue until one of the MSAs does not meet the five percent threshold or there are no remaining MSAs in the state.

The localities in the state are then defined by these separated MSAs and the rest of the state. The GPCIs are then recomputed for these localities following the formula for (0.1) above.

3.2 Summary Statistics of Localities (Unsmoothed)

Because this scenario starts from states and pulls out MSAs, the configuration of localities can be quite different from the Baseline localities. In California, for example, some counties that were single-county localities become multi-county localities because they are grouped with the rest of their MSAs, while some statewide localities have MSAs broken out. Therefore, although overall there is about a 50 percent increase in the number of localities when compared to the Baseline, some states end up with fewer localities (such as New Jersey, New York and Texas), while even states with multiple localities under the baseline often double or triple the number of localities (California, Maryland, Massachusetts, Michigan and Pennsylvania).

Number of localities:	130
Highest GAF:	1.201 (San Fran-San Mateo-Redwood City, CA)
Lowest GAF:	0.790 (Puerto Rico, PR)
Range in GAF:	0.412

Table 3-1: Number of Localities per State, Baseline to Separate MSAs (Unsmoothed)

State	Baseline	Separate MSAs	State	Baseline	Separate MSAs
Alabama	1	1	Nebraska	1	3
Alaska	1	1	Nevada	1	1
Arizona	1	1	New Hampshire	1	2
Arkansas	1	3	New Jersey	2	1
California	9	18	New Mexico	1	3
Colorado	1	3	New York	5	4
Connecticut	1	2	North Carolina	1	3
Delaware	1	2	North Dakota	1	1
District of Columbia	1	1	Ohio	1	2
Florida	3	4	Oklahoma	1	1
Georgia	2	2	Oregon	2	2
Hawaii	1	1	Pennsylvania	2	4
Idaho	1	1	Puerto Rico	1	1
Illinois	4	5	Rhode Island	1	1
Indiana	1	1	South Carolina	1	1
Iowa	1	2	South Dakota	1	3
Kansas	1	3	Tennessee	1	1
Kentucky	1	1	Texas	8	5
Louisiana	2	2	Utah	1	1
Maine	2	2	Vermont	1	2
Maryland	2	5	Virgin Islands	1	1
Massachusetts	2	4	Virginia	1	2
Michigan	2	6	Washington	2	2
Minnesota	1	3	West Virginia	1	1
Mississippi	1	1	Wisconsin	1	2
Missouri	3	3	Wyoming	1	1
Montana	1	1	**Total**	**89**	**130**

Table 3-2: Number of Counties per Locality, Baseline to Separate MSAs from Statewide Localities (Unsmoothed)

	Baseline	Separate MSAs
Mean	36	25
Median	12.5	5
Standard Deviation	44	37
Maximum	247	227
Minimum	1	1
Range	246	226

3.3 Summary of Impact on Counties (Unsmoothed)

We compare each of the alternative scenarios to the Baseline to understand its impact on individual counties. For each scenario, we determine the number of counties experiencing a decrease, increase or no change in the GAF, as well as the magnitude of these changes. These findings are depicted graphically in the map in Figure 3-1 and are also summarized below and in Table 3-3.

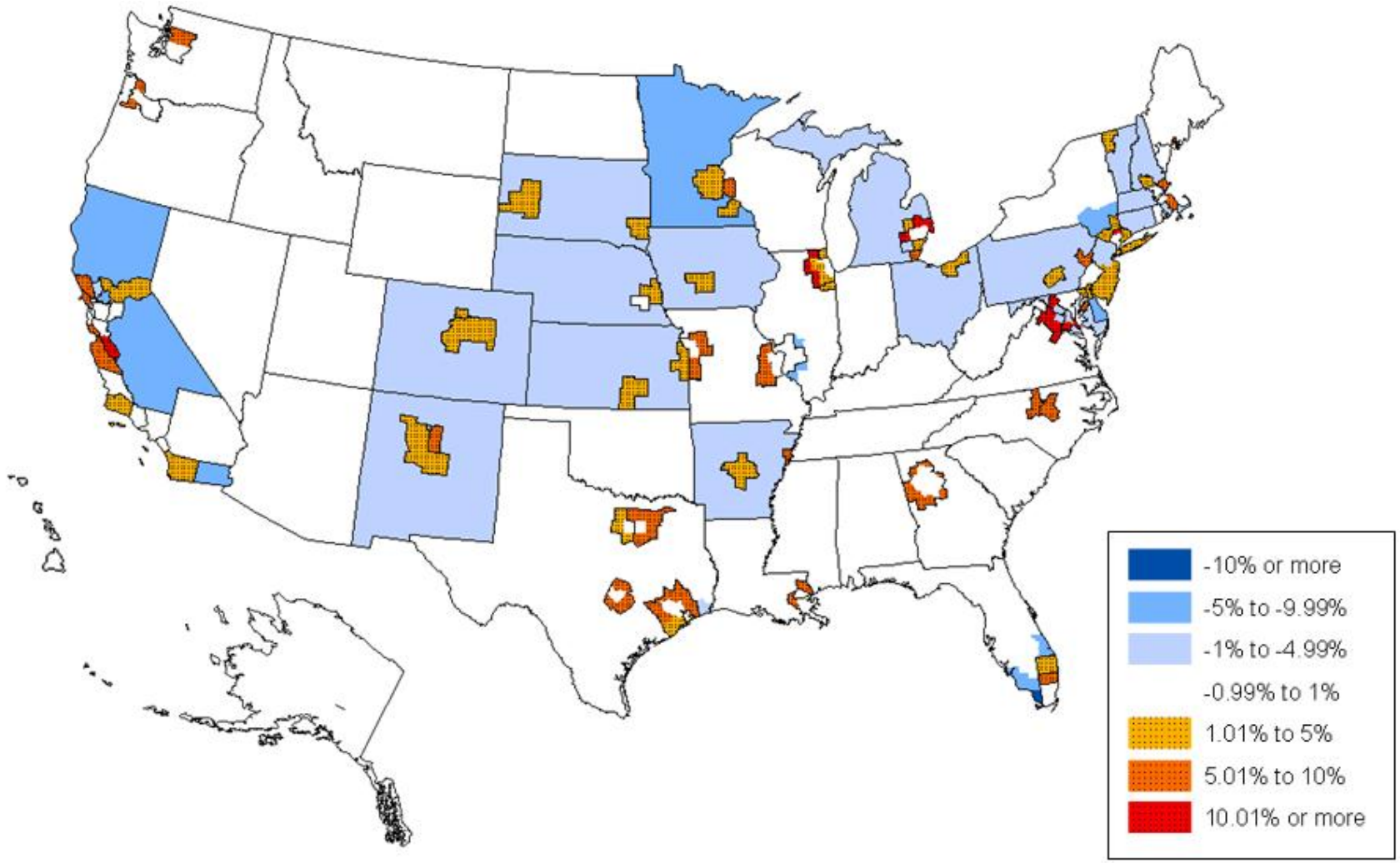
Number of GAF decreases:	1903
Number of GAF increases:	502
Number with no change:	1003
Number with less than 1% change:	2134
Mean percentage change:	-0.6%
Largest percent increase:	14.6% (Clarke, Virginia)
Largest percent decrease:	-11.3% (Monroe, Florida)

Table 3-3: Summary of GAF Differences, Baseline to Separate MSAs (Unsmoothed)

GAF Differences	Index Value Difference	Percent Difference
Mean	-0.006	-0.6%
RVU Weighted Mean	0.000	0.0%*
Median	-0.004	-0.5%
Minimum	-0.126	-11.3%
25th Percentile	-0.010	-1.1%
75th Percentile	0.000	0.0%*
Maximum	0.140	14.6%
Range	0.266	25.9%
Std. Dev	0.023	2.4%

*Value represents a positive change less than 0.05%.

Figure 3-1: GAF Percent Change: Baseline to Separate MSAs (Unsmoothed)



Tables 3-4 and 3-5 report the specific counties experiencing the greatest increases and decreases in the GAF. Those with the greatest increases include suburban counties within certain metropolitan areas, where the suburban counties are not included in the Baseline locality, such as the Virginia and Maryland counties surrounding Washington D.C. Counties in high cost MSAs within statewide localities also benefit. Those which experience losses are typically "Rest of State" areas, primarily rural counties. In a handful of cases, counties that were grouped with higher GAF counties in the Baseline are not kept with these counties under this scenario. This occurs, for example, for counties in the existing Poughkeepsie/N NYC Suburbs locality.

For this scenario only, we have expanded the analysis to explore the dollar impacts of Scenario 3. Tables 3-6 and 3-7 show the dollar differences between the Baseline and Scenario 3. To calculate these figures, we use 2008 county RVU totals along with the 2008 conversion factor of $38.08.[10] Thus, the tables show the estimated total payments in 2008 for the two options along with the dollar impact. Not surprisingly, the counties that show the largest change in total dollars tend to be urban areas, although small and suburban counties had larger GAF changes (as well as dollar changes in percentage terms). Among the counties showing the greatest total dollar increases, the differences range from nearly $29 million in Palm Beach County, Florida to $7.7 million in Frederick County, Maryland. In this group, Frederick Maryland shows the largest percent change in total dollars, at 12.3 percent, while percent change ranges between 8.4 and 1.1 percent for the remaining 19 counties listed. For those showing large decreases, total payments are estimated to drop anywhere between $26.9 million to $5.3 million. Among this group, total payments drop between 6.4 percent for Fort Lauderdale County, Florida, and 0.7 percent for Cook County, Illinois and Harris County, Texas. In fact, as these tables show, the Fort Lauderdale locality accounts for the top two counties in terms of expected gains and also for the top two counties for expected losses under this scenario.

[10] The Scenario 3 dollar values are adjusted to be budget neutral for 2008 relative to the Baseline.

Table 3-4: Top 20 Increases,
Baseline to Separate MSAs (Unsmoothed)

County	State	Baseline Locality	Separate MSAs Locality	GAF			
				Baseline	Separate MSAs	Value Difference	Percent Difference
Clarke	VA	Virginia	Washington-Arlington-Alexandria, VA	0.955	1.094	0.140	14.6%
Fauquier	VA	Virginia	Washington-Arlington-Alexandria, VA	0.955	1.094	0.140	14.6%
Loudoun	VA	Virginia	Washington-Arlington-Alexandria, VA	0.955	1.094	0.140	14.6%
Prince William	VA	Virginia	Washington-Arlington-Alexandria, VA	0.955	1.094	0.140	14.6%
Spotsylvania	VA	Virginia	Washington-Arlington-Alexandria, VA	0.955	1.094	0.140	14.6%
Stafford	VA	Virginia	Washington-Arlington-Alexandria, VA	0.955	1.094	0.140	14.6%
Warren	VA	Virginia	Washington-Arlington-Alexandria, VA	0.955	1.094	0.140	14.6%
Fredericksburg City	VA	Virginia	Washington-Arlington-Alexandria, VA	0.955	1.094	0.140	14.6%
Manassas City	VA	Virginia	Washington-Arlington-Alexandria, VA	0.955	1.094	0.140	14.6%
Manassas Park City	VA	Virginia	Washington-Arlington-Alexandria, VA	0.955	1.094	0.140	14.6%
DeKalb	IL	Rest of Illinois	Chicago-Naperville-Joliet, IL	0.945	1.079	0.134	14.2%
Grundy	IL	Rest of Illinois	Chicago-Naperville-Joliet, IL	0.945	1.079	0.134	14.2%
Kendall	IL	Rest of Illinois	Chicago-Naperville-Joliet, IL	0.945	1.079	0.134	14.2%
McHenry	IL	Rest of Illinois	Chicago-Naperville-Joliet, IL	0.945	1.079	0.134	14.2%
San Benito	CA	Rest of California	San Jose-Sunnyvale-Santa Clara, CA	1.015	1.149	0.134	13.2%
Frederick	MD	Rest of Maryland	Bethesda-Frederick-Gaithersburg, MD	0.987	1.106	0.119	12.1%
Putnam	NY	Poughkpsie/N NYC Suburbs	New York-White Plains-Wayne, NY	1.037	1.155	0.117	11.3%
Calvert	MD	Rest of Maryland	Washington-Arlington-Alexandria, MD	0.987	1.096	0.109	11.1%
Charles	MD	Rest of Maryland	Washington-Arlington-Alexandria, MD	0.987	1.096	0.109	11.1%
Lapeer	MI	Rest of Michigan	Warren-Troy-Farmington-Hills, MI	0.971	1.069	0.098	10.1%

Table 3-5: Top 20 Decreases,
Baseline to Separate MSAs (Unsmoothed)

County	State	Baseline Locality	Separate MSAs Locality	GAF			
				Baseline	Separate MSAs	Value Difference	Percent Difference
Monroe	FL	Miami, FL	Rest of Florida (FL)	1.117	0.990	-0.126	-11.3%
Ulster	NY	Poughkpsie/ N NYC Suburbs	Rest of New York (NY)	1.037	0.945	-0.092	-8.9%
Sullivan	NY	Poughkpsie/ N NYC Suburbs	Rest of New York (NY)	1.037	0.945	-0.092	-8.9%
Greene	NY	Poughkpsie/ N NYC Suburbs	Rest of New York (NY)	1.037	0.945	-0.092	-8.9%
Delaware	NY	Poughkpsie/ N NYC Suburbs	Rest of New York (NY)	1.037	0.945	-0.092	-8.9%
Columbia	NY	Poughkpsie/ N NYC Suburbs	Rest of New York (NY)	1.037	0.945	-0.092	-8.9%
Yellow Medicine	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.897	-0.065	-6.8%
Winona	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.897	-0.065	-6.8%
Wilkin	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.897	-0.065	-6.8%
Watonwan	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.897	-0.065	-6.8%
Waseca	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.897	-0.065	-6.8%
Wadena	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.897	-0.065	-6.8%
Traverse	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.897	-0.065	-6.8%
Todd	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.897	-0.065	-6.8%
Swift	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.897	-0.065	-6.8%
Stevens	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.897	-0.065	-6.8%
Steele	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.897	-0.065	-6.8%
Stearns	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.897	-0.065	-6.8%
Sibley	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.897	-0.065	-6.8%
St. Louis	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.897	-0.065	-6.8%

Table 3-6: Top 20 Dollar Increases, Baseline to Separate MSAs (Unsmoothed)

County	State	Baseline Locality	Separate MSAs Locality	Baseline Estimated Dollars	Separate MSAs Estimated Dollars	Estimated Dollar Difference	Percent Dollar Difference
Palm Beach	FL	Fort Lauderdale, FL	West Palm Beach-Boca Raton-Boynton, FL	$893,635,183	$922,117,270	$28,482,088	3.2%
Broward	FL	Fort Lauderdale, FL	Ft Lauderdale-Pompano Beach-Deerfield, FL	$549,893,885	$576,138,996	$26,245,111	4.8%
San Diego	CA	Rest of California*	San Diego-Carlsbad-San Marcos, CA	$599,547,317	$624,281,159	$24,733,842	4.1%
Cuyahoga	OH	Ohio	Cleveland-Elyria-Mentor, OH	$535,429,429	$558,147,203	$22,717,774	4.2%
Fairfield	CT	Connecticut	Bridgeport-Stamford-Norwalk, CT	$356,844,496	$372,233,506	$15,389,010	4.3%
Wake	NC	North Carolina	Raleigh-Cary, NC	$184,288,426	$195,956,296	$11,667,870	6.3%
Nassau	NY	NYC Suburbs/Long I., NY	Nassau-Suffolk, NY	$1,063,309,446	$1,074,649,187	$11,339,741	1.1%
Hennepin	MN	Minnesota	Minneapolis-St. Paul-Bloomington, MN-WI	$266,485,240	$277,373,596	$10,888,356	4.1%
Essex	MA	Rest of Massachusetts	Peabody, MA	$202,928,031	$213,733,774	$10,805,743	5.3%
Ocean	NJ	Rest of New Jersey	Edison-New Brunswick, NJ	$339,759,539	$350,030,346	$10,270,807	3.0%
Pulaski	AR	Arkansas	Little Rock-N. Little Rock-Conway, AR	$265,156,090	$275,138,853	$9,982,764	3.8%
Queens	NY	Queens, NY	New York-White Plains-Wayne, NY-NJ	$460,476,430	$469,700,703	$9,224,273	2.0%
Monmouth	NJ	Rest of New Jersey	Edison-New Brunswick, NJ	$321,554,629	$330,644,342	$9,089,712	2.8%
Camden	NJ	Rest of New Jersey	Camden, NJ	$294,349,631	$302,791,659	$8,442,028	2.9%
Collin	TX	Rest of Texas	Dallas-Plano-Irving, TX	$110,163,241	$118,527,010	$8,363,769	7.6%
Genesee	MI	Rest of Michigan	Flint, MI	$200,017,516	$208,166,123	$8,148,608	4.1%
Montgomery	TX	Rest of Texas	Houston-Sugar Land-Baytown, TX	$95,930,977	$103,909,802	$7,978,825	8.3%
Plymouth	MA	Rest of Massachusetts	Boston-Quincy, MA	$97,327,247	$105,114,845	$7,787,598	8.0%
Lehigh	PA	Rest of Pennsylvania	Allentown-Bethlehem-Easton, PA-NJ	$157,734,000	$165,481,753	$7,747,753	4.9%
Frederick	MD	Rest of Maryland	Bethesda-Frederick-Gaithersburg, MD	$62,841,832	$70,545,222	$7,703,391	12.3%

Table 3-7: Top 20 Dollar Decreases, Baseline to Separate MSAs (Unsmoothed)

County	State	Baseline Locality	Separate MSAs Locality	Baseline Estimated Dollars	Separate MSAs Estimated Dollars	Estimated Dollar Difference	Percent Dollar Difference
Lee	FL	Fort Lauderdale, FL	Rest of Florida (FL)	$418,967,669	$392,000,297	-$26,967,372	-6.4%
Collier	FL	Fort Lauderdale, FL	Rest of Florida (FL)	$235,560,410	$221,261,834	-$14,298,576	-6.1%
New York	NY	Manhattan, NY	New York-White Plains-Wayne, NY	$1,025,400,419	$1,012,394,533	-$13,005,887	-1.3%
Cook	IL	Chicago, IL	Chicago-Naperville-Joliet, IL	$1,739,285,944	$1,726,473,928	-$12,812,016	-0.7%
Bergen	NJ	Northern NJ	New Jersey (NJ)	$561,380,867	$550,038,420	-$11,342,447	-2.0%
Fresno	CA	Rest of California*	Rest of California (CA)	$190,753,441	$179,853,537	-$10,899,903	-5.7%
Kern	CA	Rest of California*	Rest of California (CA)	$142,705,997	$134,407,317	-$8,298,680	-5.8%
Indian River	FL	Fort Lauderdale, FL	Rest of Florida (FL)	$130,946,347	$122,919,419	-$8,026,928	-6.1%
St. Lucie	FL	Fort Lauderdale, FL	Rest of Florida (FL)	$124,523,062	$116,809,361	-$7,713,701	-6.2%
Essex	NJ	Northern NJ	New Jersey (NJ)	$382,803,969	$375,274,068	-$7,529,901	-2.0%
Kings	NY	NYC Suburbs/Long I., NY	New York-White Plains-Wayne, NY	$770,686,266	$763,341,520	-$7,344,747	-1.0%
Harris	TX	Houston, TX	Houston-Sugar Land-Baytown, TX	$1,028,043,621	$1,020,725,821	-$7,317,800	-0.7%
Martin	FL	Fort Lauderdale, FL	Rest of Florida (FL)	$108,463,814	$101,807,856	-$6,655,958	-6.1%
Stanislaus	CA	Rest of California*	Rest of California (CA)	$106,705,868	$100,529,881	-$6,175,987	-5.8%
Hartford	CT	Connecticut	Rest of Connecticut (CT)	$352,590,635	$346,456,274	-$6,134,361	-1.7%
Fairfax	VA	DC + MA/VA Suburbs	Washington-Arlington-Alexandria, VA	$230,050,036	$223,926,477	-$6,123,559	-2.7%
Middlesex	NJ	Northern NJ	New Jersey (NJ)	$314,767,195	$308,695,632	-$6,071,563	-1.9%
Washtenaw	MI	Detroit, MI	Ann Arbor, MI	$157,004,458	$151,136,301	-$5,868,157	-3.7%
Montgomery	MD	DC + MD/VA Suburbs	Bethesda-Frederick-Gaithersburg, MD	$339,601,641	$333,837,007	-$5,764,634	-1.7%
New Haven	CT	Connecticut	Rest of Connecticut (CT)	$326,623,433	$321,012,330	-$5,611,104	-1.7%

3.4 Summary Statistics of Localities (Smoothed)

As with its unsmoothed alternative, because the Separate MSAs scenario starts from states and pulls out MSAs, the configuration of localities can be quite different from the Baseline localities. In California, for example, some counties that were single-county localities become multi-county localities because they are grouped with the rest of their MSAs, while some statewide localities have MSAs broken out. Therefore, although overall this alternative contains more than double the number of localities seen in the Baseline, some states end up with fewer localities (such as New Jersey and Texas), while even states with multiple localities under the baseline often double or triple the number of localities (such as California, Maryland, Massachusetts, Michigan and Pennsylvania). These findings are depicted graphically in the map in Figure 3-2 and are also summarized below and in Table 3-10.

Number of localities:	203*
Highest GAF:	1.201 (San Fran-San Mateo-Redwood City, CA)
Lowest GAF:	0.789 (Puerto Rico, PR)
Range in GAF:	0.411

*Including 73 counties affected by smoothing that were not previously a single-county locality.

Table 3-8: Number of Localities per State, Baseline to Separate MSAs (Smoothed)

State	Baseline	Separate MSAs
Alabama	1	1
Alaska	1	3
Arizona	1	1
Arkansas	1	1
California	9	25
Colorado	1	3
Connecticut	1	2
Delaware	1	2
District of Columbia	1	1
Florida	3	7
Georgia	2	2
Hawaii	1	1
Idaho	1	4
Illinois	4	11
Indiana	1	2
Iowa	1	2
Kansas	1	3
Kentucky	1	1
Louisiana	2	2
Maine	2	2
Maryland	2	7
Massachusetts	2	7
Michigan	2	11
Minnesota	1	14
Mississippi	1	3
Missouri	3	5
Montana	1	1
Nebraska	1	3
Nevada	1	1
New Hampshire	1	3
New Jersey	2	1
New Mexico	1	7
New York	5	7
North Carolina	1	3
North Dakota	1	1
Ohio	1	2
Oklahoma	1	1
Oregon	2	2
Pennsylvania	2	10
Puerto Rico	1	1
Rhode Island	1	1
South Carolina	1	1
South Dakota	1	3
Tennessee	1	1
Texas	8	5
Utah	1	1
Vermont	1	2
Virgin Islands	1	1
Virginia	1	12
Washington	2	2
West Virginia	1	3
Wisconsin	1	4
Wyoming	1	1
Total	**89**	**203***

*Including 73 counties affected by smoothing that were not previously a single-county locality.

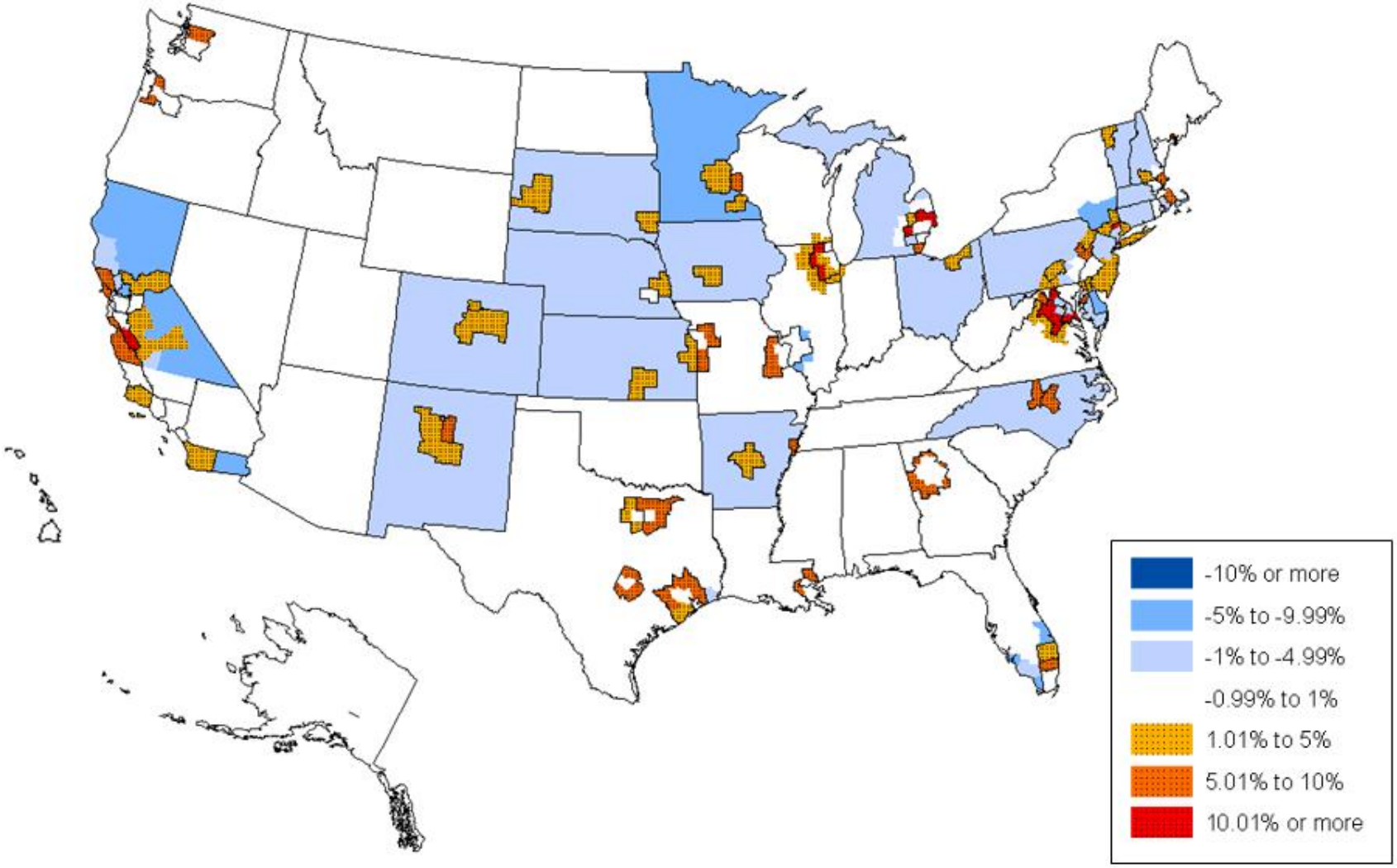
Table 3-9: Number of Counties per Locality, Baseline to Separate MSAs (Smoothed)

	Baseline	Separate MSAs
Mean	36	16
Median	12.5	1
Standard Deviation	44	31
Maximum	247	227
Minimum	1	1
Range	246	226

3.5 Summary of Impact on Counties (Smoothed)

The changes under the Separate MSAs scenario are described in the map (Figure 3-2) and in Table 3-10.

Figure 3-2: GAF Percent Change: Baseline to Separate MSAs (Smoothed)



Number of GAF decreases:	1873
Number of GAF increases:	255
Number with no change:*	1100
Number with less than 1% change:	2028
Mean percentage change:	-0.7%
Largest percent increase:	14.5% (Clarke, Virginia)
Largest percent decrease:	-9.9% (Monroe, Florida)

** Counties that experienced a change less than zero due only to the budget neutrality from smoothing were excluded from the GAF decreases and considered as "no change."*

Table 3-10: Summary of GAF Differences, Baseline to Separate MSAs (Smoothed)

GAF Differences	Index Value Difference	Percent Difference
Mean	-0.006	-0.7%
RVU Weighted Mean	0.000	0.0%*
Median	-0.005	-0.5%
Minimum	-0.111	-9.9%
25th Percentile	-0.011	-1.2%
75th Percentile	-0.001	-0.1%
Maximum	0.139	14.5%
Range	0.250	24.5%
Std. Dev	0.023	2.4%

*Value represents a positive change less than 0.05%.

The tables below report the specific counties experiencing the greatest increases and decreases in the GAF. Those with the greatest increases include suburban counties within certain metropolitan areas, where the suburban counties are not included in the Baseline locality, such as the Virginia and Maryland counties surrounding Washington D.C. Counties in high cost MSAs within statewide localities also benefit. Those which experience losses are typically "Rest of State" areas, primarily rural counties. In a handful of cases, counties that were grouped with higher GAF counties in the Baseline are not kept with these counties under this scenario. This occurs, for example, for counties in the Poughkpsie/NYC Suburbs existing locality.

Table 3-11: Top 20 Increases,
Baseline to Separate MSAs (Smoothed)

County	State	Baseline Locality	Separate MSAs Locality	GAF			
				Baseline	Separate MSAs	Value Difference	Percent Difference
Clarke	VA	Virginia	Washington-Arlington-Alexandria, VA	0.954767	1.093	0.139	14.5%
Fauquier	VA	Virginia	Washington-Arlington-Alexandria, VA	0.954767	1.093	0.139	14.5%
Loudoun	VA	Virginia	Washington-Arlington-Alexandria, VA	0.954767	1.093	0.139	14.5%
Prince William	VA	Virginia	Washington-Arlington-Alexandria, VA	0.954767	1.093	0.139	14.5%
Spotsylvania	VA	Virginia	Washington-Arlington-Alexandria, VA	0.954767	1.093	0.139	14.5%
Stafford	VA	Virginia	Washington-Arlington-Alexandria, VA	0.954767	1.093	0.139	14.5%
Warren	VA	Virginia	Washington-Arlington-Alexandria, VA	0.954767	1.093	0.139	14.5%
Fredericksburg city	VA	Virginia	Washington-Arlington-Alexandria, VA	0.954767	1.093	0.139	14.5%
Manassas city	VA	Virginia	Washington-Arlington-Alexandria, VA	0.954767	1.093	0.139	14.5%
Manassas Park city	VA	Virginia	Washington-Arlington-Alexandria, VA	0.954767	1.093	0.139	14.5%
DeKalb	IL	Rest of Illinois	Chicago-Naperville-Joliet, IL	0.945356	1.078	0.133	14.1%
Grundy	IL	Rest of Illinois	Chicago-Naperville-Joliet, IL	0.945356	1.078	0.133	14.1%
Kendall	IL	Rest of Illinois	Chicago-Naperville-Joliet, IL	0.945356	1.078	0.133	14.1%
McHenry	IL	Rest of Illinois	Chicago-Naperville-Joliet, IL	0.945356	1.078	0.133	14.1%
San Benito	CA	Rest of California	San Jose-Sunnyvale-Santa Clara, CA	1.015011	1.148	0.133	13.1%
Frederick	MD	Rest of Maryland	Bethesda-Frederick-Gaithersburg, MD	0.986937	1.105	0.118	11.0%
Putnam	NY	Poughkpsie/N NYC Suburbs, NY	New York-White Plains-Wayne, NY	1.037289	1.154	0.116	11.2%
Calvert	MD	Rest of Maryland	Washington-Arlington-Alexandria, MD	0.986937	1.095	0.108	11.0%
Charles	MD	Rest of Maryland	Washington-Arlington-Alexandria, MD	0.986937	1.095	0.108	11.0%
Lapeer	MI	Rest of Michigan	Warren-Troy-Farmington-Hills, MI	0.970869	1.069	0.098	10.1%

Table 3-12: Top 20 Decreases, Baseline to Separate MSAs (Smoothed)

County	State	Baseline Locality	Separate MSAs Locality	GAF			
				Baseline	Separate MSAs	Value Difference	Percent Difference
Monroe	FL	Miami, FL	Rest of Florida (FL)	1.117	1.006	-0.111	-9.9%
Greene	NY	Poughkpsie/N NYC Suburbs	Rest of New York (NY)	1.037	0.944	-0.093	-9.0%
Delaware	NY	Poughkpsie/N NYC Suburbs	Rest of New York (NY)	1.037	0.944	-0.093	-9.0%
Ulster	NY	Poughkpsie/N NYC Suburbs	Rest of New York (NY)	1.037	0.958	-0.080	-7.7%
Sullivan	NY	Poughkpsie/N NYC Suburbs	Rest of New York (NY)	1.037	0.958	-0.080	-7.7%
Columbia	NY	Poughkpsie/N NYC Suburbs	Rest of New York (NY)	1.037	0.958	-0.080	-7.7%
Yellow Medicine	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.896	-0.066	-6.9%
Winona	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.896	-0.066	-6.9%
Wilkin	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.896	-0.066	-6.9%
Watonwan	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.896	-0.066	-6.9%
Waseca	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.896	-0.066	-6.9%
Wadena	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.896	-0.066	-6.9%
Traverse	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.896	-0.066	-6.9%
Todd	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.896	-0.066	-6.9%
Swift	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.896	-0.066	-6.9%
Stevens	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.896	-0.066	-6.9%
Steele	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.896	-0.066	-6.9%
St. Louis	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.896	-0.066	-6.9%
Roseau	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.896	-0.066	-6.9%
Rock	MN	Minnesota	Rest of Minnesota (MN)	0.962	0.896	-0.066	-6.9%

3.6 Impact of Smoothing

Figure 3-3: Impact of Smoothing: Separate MSAs (Unsmoothed) to Separate MSAs (Smoothed)

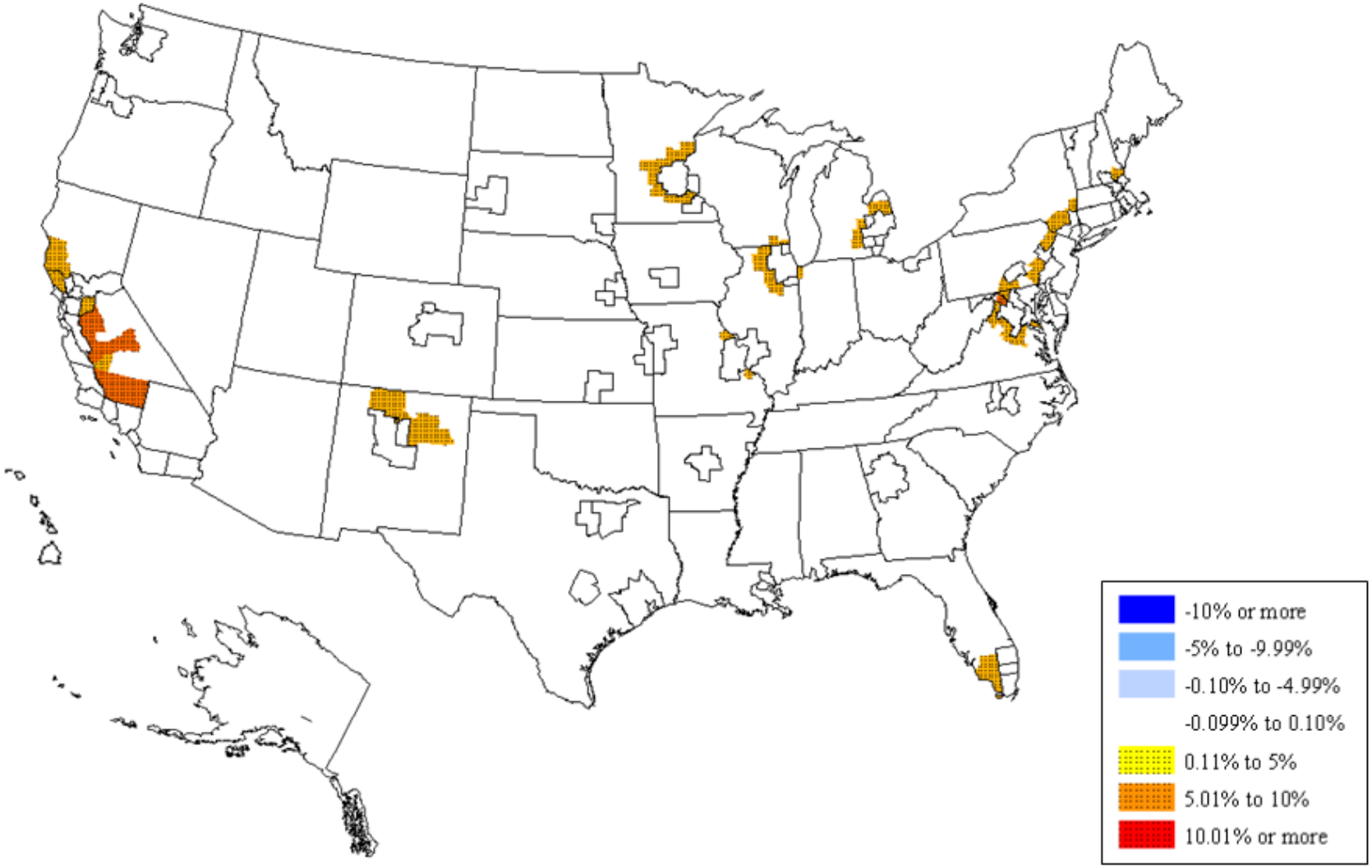


Table 3-13: Counties Impacted by Smoothing under the Separate MSAs Scenario

County	State	Separate MSAs GAF			
		Unsmoothed	Smoothed and Budget Neutralized	Value Difference	Percent Difference
Fresno	CA	0.96	1.034	0.074	7.70%
Merced	CA	0.96	1.034	0.074	7.70%
Stanislaus	CA	0.96	1.034	0.074	7.7%
Berkeley	WV	0.927	0.984	0.057	6.2%
Jefferson	WV	0.927	0.984	0.057	6.2%
Kern	CA	0.96	1.012	0.052	5.4%
Monroe	PA	0.958	1.004	0.046	4.8%
Pike	PA	0.958	1.004	0.046	4.8%
Washington	MD	0.954	0.995	0.041	4.3%
Caroline	VA	0.946	0.984	0.038	4.0%
Culpeper	VA	0.946	0.984	0.038	4.0%
Frederick	VA	0.946	0.984	0.038	4.0%
Hanover	VA	0.946	0.984	0.038	4.0%
King George	VA	0.946	0.984	0.038	4.0%
Louisa	VA	0.946	0.984	0.038	4.0%
Orange	VA	0.946	0.984	0.038	4.0%
Page	VA	0.946	0.984	0.038	4.0%
Rappahannock	VA	0.946	0.984	0.038	4.0%
Shenandoah	VA	0.946	0.984	0.038	4.0%
Adams	PA	0.958	0.995	0.037	3.8%
Franklin	PA	0.958	0.995	0.037	3.8%
Boone	IL	0.937	0.971	0.034	3.6%
La Salle	IL	0.937	0.971	0.034	3.6%
Lee	IL	0.937	0.971	0.034	3.6%
Livingston	IL	0.937	0.971	0.034	3.6%
Ogle	IL	0.937	0.971	0.034	3.6%
Winnebago	IL	0.937	0.971	0.034	3.6%
Kenosha	WI	0.939	0.971	0.032	3.4%
Walworth	WI	0.939	0.971	0.032	3.4%
St. Mary's	MD	0.954	0.986	0.032	3.4%
Lake	IN	0.944	0.971	0.026	2.8%
Rockingham	NH	0.973	0.993	0.019	2.0%
Collier	FL	0.99	1.006	0.015	1.6%
Monroe	FL	0.99	1.006	0.015	1.6%
Los Alamos	NM	0.912	0.925	0.013	1.4%
Mora	NM	0.912	0.925	0.013	1.4%
Rio Arriba	NM	0.912	0.925	0.013	1.4%
San Miguel	NM	0.912	0.925	0.013	1.4%
Columbia	NY	0.945	0.958	0.012	1.3%
Sullivan	NY	0.945	0.958	0.012	1.3%
Ulster	NY	0.945	0.958	0.012	1.3%
Lake	CA	0.96	0.972	0.012	1.3%
Mendocino	CA	0.96	0.972	0.012	1.3%

County	State	Separate MSAs GAF			
		Unsmoothed	Smoothed and Budget Neutralized	Value Difference	Percent Difference
Kings	CA	0.96	0.972	0.012	1.3%
Goodhue	MN	0.897	0.907	0.011	1.2%
Berks	PA	0.958	0.969	0.011	1.2%
Lancaster	PA	0.958	0.969	0.011	1.2%
San Joaquin	CA	1.01	1.021	0.011	1.1%
Hendry	FL	0.99	0.996	0.006	0.6%
Benton	MN	0.897	0.902	0.005	0.6%
Kanabec	MN	0.897	0.902	0.005	0.6%
Le Sueur	MN	0.897	0.902	0.005	0.6%
McLeod	MN	0.897	0.902	0.005	0.6%
Meeker	MN	0.897	0.902	0.005	0.6%
Mille Lacs	MN	0.897	0.902	0.005	0.6%
Pine	MN	0.897	0.902	0.005	0.6%
Rice	MN	0.897	0.902	0.005	0.6%
Sibley	MN	0.897	0.902	0.005	0.6%
Stearns	MN	0.897	0.902	0.005	0.6%
Sonoma	CA	1.078	1.08	0.003	0.3%
Pike	MO	0.894	0.896	0.002	0.3%
Ste. Genevieve	MO	0.894	0.896	0.002	0.3%
Ingham	MI	0.96	0.962	0.001	0.0%*
Jackson	MI	0.96	0.962	0.001	0.0%*
Sanilac	MI	0.96	0.962	0.001	0.0%*
Shiawassee	MI	0.96	0.962	0.001	0.0%*
Tuscola	MI	0.96	0.962	0.001	0.0%*
Hancock	MS	0.91	0.911	0.00	0.0%*
Pearl River	MS	0.91	0.911	0.00	0.0%*
Barnstable	MA	1.019	1.019	0.00	0.0%*
Bristol	MA	1.019	1.019	0.00	0.0%*
Worcester	MA	1.019	1.019	0.00	0.0%*
Cassia	ID	0.917	0.916	0.00	-0.0%**
Owyhee	ID	0.917	0.916	0.00	-0.0%**
Twin Falls	ID	0.917	0.916	0.00	-0.0%**

*Value represents a positive change less than 0.05%.
**Value represents a negative change less than 0.05%.

4 SCENARIO 4: STATEWIDE TIERS

Statewide Tiers: Rather than delineating localities by defined areas, the Statewide Tiers option combines counties within a state into tiers based on GAFs. The counties grouped into tiers need not be contiguous.

4.1 Approach to Defining Localities and Calculating GPCIs

The Statewide Tiers option was presented in the July 2007 proposed rule as "Option 3." The proposed methodology described five main steps:

1. Rank order counties by descending GAFs.
2. Assign the county with the highest GAF to the first locality or "cost tier." This highest GAF becomes the standard for that cost tier.
3. Compare the GAF for the county with next highest GAF to the standard for the tier. If the difference is less than five percent, keep the county in the same tier.
4. If the difference is greater than five percent, the comparison county is placed in a new cost tier, and its GAF becomes the standard for that tier.
5. Iterate through all counties in the state.

Geographic Units:

Sets of counties within states.

Calculations:

As noted in step 2 above, the tier definitions are based on a standard GAF for a cost tier. The standard for the first tier in a state is the GAF for the highest cost county. The first calculation compares the GAF for the first county, GAF_1, to the GAF for the second county, GAF_2. If

(4.1) $$GAF_1 / GAF_2 < 1.05,$$

then county 2 stays in the same tier as county 1. County 1 is then compared to county 3.

(4.2) $$GAF_1 / GAF_3 < 1.05$$, then county 3 also stays in the first tier.

This continues until the GAF for county 1 is more than 1.05 times the GAF for a lower cost county. The first county not to meet the threshold for tier 1 becomes the standard for tier 2, and the next rank counties are compared to this new standard, checking if

(4.3) $$GAF_{standard} / GAF_{comparison} < 1.05 .$$

This continues until all counties in the state are compared against the standards for the preceding tier. The number of tiers in a state will depend on the range of GAFs in the state.

The localities in the state are then defined by these tiers. The GPCIs are then recomputed for each tier following the formula for (0.1) above.

4.2 Summary Statistics of Localities

Unlike the Baseline, the Statewide Tiers scenario does not use existing geographic area definitions to group counties into localities. Instead, it groups counties with similar costs, yielding between 1 and 5 localities per state. For the two states with more than 6 localities in the Baseline – California and Texas – this alternative reduces the number of localities. In general, however, it increases the number of localities per state. Only D.C, Nevada, Rhode Island and the Virgin Islands end up as "statewide" localities. Also, because the Statewide Tiers scenario uses a cost-based method for defining localities rather than a geography-based method like those used by the other scenarios, this scenario does not include a section incorporating smoothing.

Number of localities:	140
Highest GAF:	1.180 (California 01)
Lowest GAF:	0.753 (Puerto Rico 03)
Range in GAF:	0.426

Table 4-1: Number of Localities per State, Baseline to Statewide Tiers

State	Baseline	Statewide Tiers
Alabama	1	2
Alaska	1	2
Arizona	1	2
Arkansas	1	2
California	9	5
Colorado	1	3
Connecticut	1	3
Delaware	1	2
District of Columbia	1	1
Florida	3	3
Georgia	2	3
Hawaii	1	2
Idaho	1	2
Illinois	4	4
Indiana	1	3
Iowa	1	2
Kansas	1	2
Kentucky	1	3
Louisiana	2	3
Maine	2	2
Maryland	2	5
Massachusetts	2	4
Michigan	2	4
Minnesota	1	2
Mississippi	1	2
Missouri	3	3
Montana	1	2
Nebraska	1	2
Nevada	1	1
New Hampshire	1	3
New Jersey	2	3
New Mexico	1	3
New York	5	5
North Carolina	1	3
North Dakota	1	2
Ohio	1	3
Oklahoma	1	2
Oregon	2	2
Pennsylvania	2	4
Puerto Rico	1	3
Rhode Island	1	1
South Carolina	1	2
South Dakota	1	2
Tennessee	1	2
Texas	8	3
Utah	1	2
Vermont	1	2
Virgin Islands	1	1
Virginia	1	6
Washington	2	3
West Virginia	1	2
Wisconsin	1	3
Wyoming	1	2
Total	**89**	**140**

Table 4-2: Number of Counties per Locality, Baseline to Statewide Tiers

	Baseline	Statewide Tiers
Mean	36	23
Median	12.5	12.5
Standard Deviation	44	27.6
Maximum	247	200
Minimum	1	1
Range	246	199

4.3 Summary of Impact on Counties

Compared to Baseline, this alternative has significant impact on a large number of counties. About one in five counties experiences an increase, with four in five experiencing a decrease, with shifts typically in excess of one percent. Although rural areas are more likely to experience a decrease, this strategy is likely to group counties beyond metropolitan areas, so the increases are not necessarily concentrated around MSAs. In a few instances, individual lower-GAF counties were grouped under the Baseline with relatively high cost counties (as in specific counties in New York and Florida). These counties experience relatively large decreases under the tiers. These findings are depicted graphically in the map in Figure 4-1 and are also summarized below and in Table 4-3.

Number of GAF decreases:	2,494
Number of GAF increases:	644
Number with no change:	90
Number with less than 1% change:	428
Mean percentage change:	-2.2%
Largest percent increase:	16.4% (Prince William, Virginia)
Largest percent decrease:	-16.1% (Ohio, Indiana)

Table 4-3: Summary of GAF Differences, Baseline to Statewide Tiers

GAF Differences	Index Value Difference	Percent Difference
Mean	-0.02	-2.20%
RVU Weighted Mean	0	0.0%*
Median	-0.026	-2.80%
Minimum	-0.152	-16.10%
25th Percentile	-0.036	-3.90%
75th Percentile	-0.003	-0.40%
Maximum	0.156	16.40%
Range	0.308	32.50%
Std. Dev	0.024	2.50%

* Value represents a positive change less than 0.05%.

Figure 4-1: GAF Percent Change: Baseline to Statewide Tiers

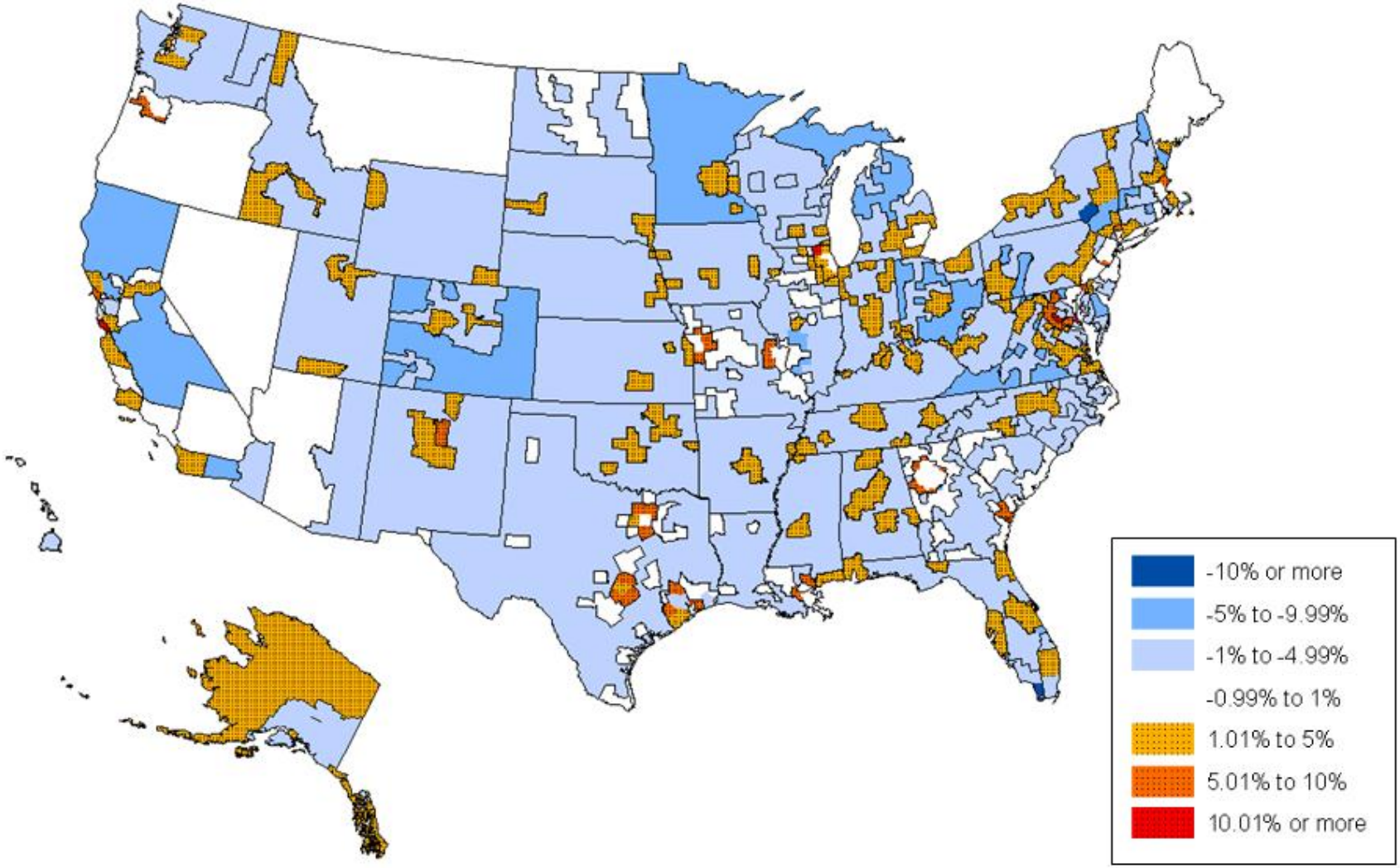


Table 4-4: Top 20 Increases, Baseline to Statewide Tiers

County	State	Baseline Locality	Statewide Tiers Locality	GAF			
				Baseline	Statewide Tiers	Value Difference	Percent Difference
Prince William	VA	Virginia	VA1	0.955	1.111	0.156	16.4%
Manassas city	VA	Virginia	VA1	0.955	1.111	0.156	16.4%
McHenry	IL	Rest of Illinois	IL1	0.945	1.080	0.135	14.3%
Calvert	MD	Rest of Maryland	MD1	0.987	1.111	0.124	12.6%
Santa Cruz	CA	Rest of California	CA2	1.015	1.121	0.106	10.4%
Clarke	VA	Virginia	VA2	0.955	1.047	0.092	9.7%
Fauquier	VA	Virginia	VA2	0.955	1.047	0.092	9.7%
Loudoun	VA	Virginia	VA2	0.955	1.047	0.092	9.7%
Stafford	VA	Virginia	VA2	0.955	1.047	0.092	9.7%
Fredericksburg City	VA	Virginia	VA2	0.955	1.047	0.092	9.7%
Putnam	NY	Poughkpsie / N NYC Suburbs, NY	NY2	1.037	1.135	0.097	9.4%
Los Alamos	NM	New Mexico	NM1	0.944	1.029	0.085	9.0%
Santa Fe	NM	New Mexico	NM1	0.944	1.029	0.085	9.0%
St. Charles	LA	Rest of Louisiana	LA1	0.930	1.013	0.083	8.9%
St. John the Baptist	LA	Rest of Louisiana	LA1	0.930	1.013	0.083	8.9%
St. Tammany	LA	Rest of Louisiana	LA1	0.930	1.013	0.083	8.9%
Cass	MO	Rest of Missouri	MO1	0.898	0.974	0.076	8.5%
Clinton	MO	Rest of Missouri	MO1	0.898	0.974	0.076	8.5%
Franklin	MO	Rest of Missouri	MO1	0.898	0.974	0.076	8.5%
Lafayette	MO	Rest of Missouri	MO1	0.898	0.974	0.076	8.5%

Table 4-5: Top 20 Decreases, Baseline/Statewide Tiers

County	State	Baseline Locality	State Tiers Locality	GAF			
				Baseline	State Tiers	Value Difference	Percent Difference
Ohio	IN	Indiana	IN3	0.944	0.792	-0.152	-16.1%
South Boston City	VA	Virginia	VA6	0.955	0.817	-0.137	-14.4%
Delaware	NY	Poughkpsie / N NYC Suburbs, NY	NY5	1.037	0.920	-0.118	-11.3%
Yellowstone Park, MT	MT	Montana	MT2	0.897	0.800	-0.097	-10.8%
Monroe	FL	Miami, FL	FL2	1.117	1.004	-0.112	-10.1%
Indian River	FL	Fort Lauderdale, FL	FL3	1.053	0.956	-0.097	-9.2%
Washington	IL	East St. Louis	IL4	0.991	0.900	-0.091	-9.2%
Randolph	IL	East St. Louis	IL4	0.991	0.900	-0.091	-9.2%
Montgomery	IL	East St. Louis	IL4	0.991	0.900	-0.091	-9.2%
Macoupin	IL	East St. Louis	IL4	0.991	0.900	-0.091	-9.2%
Bond	IL	East St. Louis, IL	IL4	0.991	0.900	-0.091	-9.2%
Allegany	MD	Rest of Maryland	MD5	0.987	0.905	-0.082	-8.3%
Ulster	NY	Poughkpsie / N NYC Suburbs	NY4	1.037	0.956	-0.082	-7.9%
Sullivan	NY	Poughkpsie / N NYC Suburbs	NY4	1.037	0.956	-0.082	-7.9%
Greene	NY	Poughkpsie / N NYC Suburbs	NY4	1.037	0.956	-0.082	-7.9%
Columbia	NY	Poughkpsie / N NYC Suburbs	NY4	1.037	0.956	-0.082	-7.9%
Butts	GA	Atlanta, GA	GA2	1.008	0.931	-0.077	-7.6%
Coos	NH	New Hampshire	NH3	0.989	0.917	-0.072	-7.3%
Windham	CT	Connecticut	CT3	1.103	1.025	-0.078	-7.1%
Yellow Medicine	MN	Minnesota	MN2	0.962	0.896	-0.066	-6.8%

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5 CROSS-SCENARIO COMPARISONS

Our examination of each alternative scenario has focused on the impact of switching from the existing localities to this alternative, as well as the impact of smoothing on the alternative. In this section, we consider the pros and cons of the different strategies across the scenarios, using two domains of criteria: conceptual differences and the magnitude and distribution of the impacts.

5.1 Conceptual Differences

Our first set of criteria to judge the alternative scenarios addresses the conceptual differences among the different strategies. In particular, we consider the stability of the locality definitions over time, the consistency of those definitions with underlying data, the ease and transparency of calculations, the comparability of the definitions with other localities in Medicare, and the impact of smoothing. Table 5-1 summarizes our rankings for the scenarios on these measures. We explain these rankings below.

Table 5-1: Rank Ordering of Alternatives on Conceptual Criteria
(Ties are scored at the average of the remaining rankings)

Criteria	Baseline	CMS CBSA	Separate Counties	Separate MSAs	Statewide Tiers
Stability over time	1	2	3	4	5
Alignment with underlying data	3	1	4	2	5
Ease of calculation	1	2	4	5	3
Comparability with other Medicare defn	4	1	4	4	4
Impact of Smoothing	1	4	2	3	N/A

Defined-area localities are subject to minor changes annually; cost-based localities are subject to substantial changes with each GPCI update. Because they were defined by CMS, the existing GPCI localities have been stable since their introduction, but they are now viewed as insufficiently responsive to changing economic conditions. Responsiveness cuts both ways: locality definitions that adapt to changing input costs will be more effective in adjusting for the costs faced by physicians. At the same time, frequent changes create administrative burdens.

Among the four alternatives we consider, only the CMS CBSA scenario is purely a defined-area locality, meaning the definition is set external to the data. CBSAs are designed to represent areas that are economically and socially integrated, as evidenced by commuting patterns. The CBSAs are largely stable over time, although they are updated annually based on Census population predictions. An update of the GPCIs will not induce a change in the localities. In contrast, the purely cost-based alternative, the Statewide Tiers, is likely to change significantly with each update of the GPCIs. The Separating Counties and Separating MSAs options fall in the middle, incorporating aspects of the defined-area localities (existing and CBSA) with the cost-based tiered approach.

The CMS CBSA option can be best aligned with the underlying data sources. As noted in the background section, the source data used to generate these alternative scenarios are typically not available at the county level. The Census data, in particular, were provided at the county level for only 233 counties. Other areas were provided at the MSA or "Rest of State" level. While this particular structure reflected the needs for the existing localities, it is unlikely that county-level Census data would be available for earnings in specific occupations in rural counties. Even with the work area definitions used, occupational data were occasionally suppressed due to low sample sizes. HUD rental data are available at the MSA level or the county level for rural counties, but the county data are only inflated between decennial censuses, rather than representing updated survey information. Finally, the malpractice premium areas are usually broad, although in some special cases (Florida, Michigan) the premiums may be set at a city or county level. Altogether, this means that the definitions based on county-level GAFs will in fact rely on data from larger areas. In contrast, the CBSA areas are "intended to provide nationally consistent definitions for collecting, tabulating, and publishing Federal statistics," (OMB November 2007) and therefore are more commonly available measures.

The defined-area localities are the easiest to calculate, while the "Separate" variants are the most difficult. The defined-area localities (existing and CBSA) are the easiest to calculate because they are simply weighted-averages of the county-level GPCIs. The next easiest are the tiers; given ranked GAFs by county, the tiers are identified through simple comparisons. Once the tiers are identified, the GPCIs are created as weighted averages within the tiers. Within these scenarios, calculations are slightly easier when there are fewer localities. The two "Separate" options are the most difficult because of their iterative nature. Take, for

example, the Separate MSAs option. In the first step, GPCIs and then GAFs must be calculated for each MSA in order to rank the MSAs. Once the MSAs are ranked, GPCIs/GAFs must be calculated for the state minus the top cost MSA. If the top MSA passes the threshold criteria, then GPCIs/GAFs must be calculated for the state minus the top two MSAs and so on.

Only the CMS CBSA is comparable to other Medicare locality definitions. The CMS CBSA locality configuration is consistent with the geographic adjustments used for other Medicare payment systems. Other alternative locality configurations discussed in this report are not currently used to calculate the geographic payment adjustments for Medicare payment systems.

Smoothing impacts the MSA-based scenarios the most. Although smoothing does not alter the general results for any scenario, it does impact more counties in the MSA-based scenarios (CMS CBSA and Separate MSAs) than in the others. Counties in MSAs tend to have significantly higher GAFs than non-MSA counties; because the MSA-based localities often group these high-GAF MSA counties together, this produces a greater number of large cliffs than in the other configurations (as summarized in Section 5.3). Smoothing is not applied to the Statewide Tiers.

5.2 Magnitude and Distribution of Changes

The scenarios are more difficult to judge on the basis of the magnitude of the changes, because it is more difficult to determine what changes are more beneficial. This is particularly true given that implementing any of the locality alternatives will be zero-sum: some areas will have diminished GAFs while the GAFs of others will increase. For this reason, we compare the alternatives on the magnitude of changes relative to the baseline, but we do not rank order these as outcomes. Unless otherwise specified, in the values presented below we display smoothed data for all alternative scenarios where smoothing is applied.[11]

All alternative scenarios increase the number of localities. When the existing localities were introduced in 1996, one goal was to reduce the number of localities, which had been 210. As shown in Table 5-2, the number of localities ranges from 523, for the CMS CBSA option,

[11] Smoothing is not applied to the Statewide Tiers because counties in each tier need not be adjacent.

down to 140 for the Statewide Tiers option. The Separate MSAs and Statewide Tiers options both expand the number of localities, but remain below the pre-1997 level.

Table 5-2: Number of Localities under Each Scenario

Indicator	Baseline (Unsmoothed)	CMS CBSA	Separate Counties	Separate MSAs	Statewide Tiers
Number of localities	89	523	267	203	140
Average number of counties per locality	36	6	12	16	23

The CBSA option creates the widest range of GAFs; only the Separate MSAs option creates a narrower range of GAFs than the existing localities. Under the existing localities, the difference between the highest and the lowest GAF is 0.418, ranging from 1.208 in San Mateo, CA to 0.790 in Puerto Rico. The range is higher for the CMS CBSA option, as shown in Table 5-3, although the top and bottom localities remain nearly the same: the San Francisco-San Mateo-Redwood City CA MSA leads at 1.201, and the Aguadilla-Isabela-San Sebastian PR MSA is last at 0.757. The Separate MSAs alternative has the narrowest range at 0.411, because the top area is the somewhat lower combined San Francisco-San Mateo-Redwood City CA MSA at 1.201, but no MSAs in Puerto Rico are pulled out of the statewide locality, so it keeps its 0.789 statewide (territory-wide) value after adjusting for smoothing. The CMS CBSA option creates the largest range of 0.444.

Table 5-3: Range and Changes in GAFs (Smoothed)

Indicator	CMS CBSA	Separate Counties	Separate MSAs	Statewide Tiers
Range in GAF (Existing=0.418)	0.444	0.432	0.411	0.426
Minimum GAF	0.757	0.776	0.789	0.753
Maximum GAF	1.201	1.207	1.201	1.180
Share of Counties with:				
GAF increases	20%	4%	8%	20%
GAF decreases	79%	60%	58%	77%
No change	1%*	36%*	34%*	3%
Share of Counties with GAF Changes of Less than 1%	11%	69%	63%	13%
Mean percent change	-2.0%	-0.7%	-0.7%	-2.2%
Largest percent increase	19.9%	12.9%	14.5%	16.4%
Largest percent decrease	-10.9%	-8.6%	-9.9%	-16.1%

*Except minimal changes due to budget neutralization following smoothing.

Under all of the alternative scenarios, a majority of counties will have lower GAFs, although the changes are smallest under the "Separate" options. The alternative scenarios tend to significantly benefit a small share of counties, with the remaining counties facing decreases. The "Separate" options are most likely to leave GAFs unchanged, and when they do change they are likely to be small changes. This occurs because only the very top areas get pulled out of existing localities or statewide areas. The tiers and the CBSA option all lead to decreases for about 80 percent of counties, with an average fall of about two percent.

All of the alternatives disproportionately lower GAFs for non-MSA counties, although the effect is lowest in the "Separate" options. Table 5-4 shows the number of counties experiencing decreases and increases in each option, split by MSA and non-MSA counties. The last row in each group shows the RVU-weighted average change in the GAFs. In the "Separate" options, non-MSA counties on average experience a 0.9 to 1.1 percent decrease, while MSA counties experience gains of 0.1 or 0.2 percent on average. Under the other options, the non-MSAs experience an average decrease exceeding three percent, and MSAs experience an average increase of 0.4 to 0.5 percent.

Table 5-4: Impacts for Counties in MSAs Compared to Non-MSAs (Smoothed)

	Counties in MSAs	Non-MSA Counties
CMS CBSA		
Number decreased	515	2043
Number increased	624	22
Number no change*	21	3
Maximum	19.9%	8.6%
Minimum	-10.0%	-10.9%
RVU-weighted mean	0.5%	-3.4%
Separate Counties		
Number decreased	591	1349
Number increased	136	7
Number no change*	433	712
Maximum	12.9%	9.2%
Minimum	-7.3%	-8.2%
RVU-weighted mean	0.1%	-0.9%
Separate MSAs		
Number decreased	519	1354
Number increased	238	17
Number no change*	403	698
Maximum	14.5%	8.1%
Minimum	-7.7%	-9.9%
RVU-weighted mean	0.2%	-1.1%
Statewide Tiers		
Number decreased	606	1888
Number increased	532	112
Number no change	22	68
Maximum	16.4%	9.0%
Minimum	-16.1%	-14.4%
RVU-weighted mean	0.4%	-3.0%

*Except minimal changes due to budget neutralization following smoothing.

5.3 Impact of Smoothing

We apply smoothing to three of the four scenarios discussed above: CMS CBSA, Separate High Cost Counties from Existing Localities and Separate High Cost MSAs from Statewide Localities. The Statewide Tiers alternative does not require smoothing because counties in each tier need not be adjacent to one another. Smoothing eliminates discrepancies in the GAFs between adjacent counties of greater than ten percent, thereby reducing the potential complications of having counties with dramatically different GAFs adjacent to one another.

While smoothing does positively impact the GAFs of a limited number of counties in each scenario, the GAF decrease for all remaining counties is minor (less than 0.1%) across all scenarios. As Table 5-5 demonstrates, the application of smoothing does not fundamentally change the relative impacts of each scenario in comparison to the Baseline.

Table 5-5: Range and Changes in GAF

Indicator	Baseline Smoothed	CMS CBSA Unsmoothed	CMS CBSA Smoothed	Separate Counties Unsmoothed	Separate Counties Smoothed	Separate MSAs Unsmoothed	Separate MSAs Smoothed
Range in GAF	0.418	0.444	0.444	0.432	0.432	0.412	0.411
Minimum GAF	0.790	0.757	0.757	0.776	0.776	0.790	0.789
Maximum GAF	1.208	1.201	1.201	1.208	1.207	1.201	1.201
Share of Counties with:							
GAF increases	1%	20%	20%	4%	4%	10%	8%
GAF decreases	0%	80%	79%	61%	60%	59%	58%
No change	99%*	0%	1%*	35%	36%*	31%	34%*
Share of Counties with GAF Changes of Less than 1%	99%	10%	11%	72%	69%	66%	63%
Mean percent change (not weighting for RVUs)	-0.0%**	-2.0%	-2.0%	-0.6%	-0.7%	-0.6%	-0.7%
Largest percent increase	7.1%	20.0%	19.9%	12.9%	12.9%	14.6%	14.5%
Largest percent decrease	-0.1%	-15.6%	-10.9%	-8.1%	-8.1%	-11.3%	-9.9%

* Except minimal changes due to budget neutralization following smoothing.
** Value represents a negative change less than 0.05%

Moreover, Table 5-6 shows that, of the total 3,228 counties or county equivalents included in this analysis, relatively few are impacted by smoothing in any scenario. Even with the CMS CBSA locality configuration, where 92 counties are impacted by smoothing, leading to the creation of 84 new single-county localities, the application of smoothing does not impact the vast majority of counties. Thus, the impact of implementing smoothing is primarily what is intended – that large cliffs between adjacent counties be reduced.

Table 5-6: Number of Counties Impacted by Smoothing

Indicator	Baseline	CMS CBSA	Separate Counties	Separate MSAs
Number of localities (unsmoothed)	89	439	214	130
Number of localities (smoothed)	122	523	267	203
Number of counties impacted by smoothing	33	92	54	75