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Abstract

The federal government uses the Medicare Area Wage Index (MAWI) to adjust prospective payments for local area hospital wages. This disproportionately disadvantages safety-net hospitals in rural, low-income communities. The recent One Big Beautiful Bill Act (OBBBA) will further reduce the revenues of these hospitals – which typically serve a large share of Medicaid patients – by tying Medicaid managed care payment rates to Medicare rates. The MAWI adjustment amplifies this reduction by reducing the benchmark Medicare rates in disadvantaged areas.

As a relatively rural, low-wage state with a large share of residents on Medicaid managed care plans, Kentucky provides a natural case study for illustrating the impact of this combination of policies. Through calibration exercises, we estimate that the MAWI adjustment costs Kentucky hospitals $727 million of Medicare revenue annually, while the OBBBA's rate changes will reduce Medicaid revenue by $1.163 billion annually. We further project that, if the MAWI adjustment were eliminated, this would not only lead to the recoupment of the $727 million in Medicare losses but also reduce the burden of the Medicaid losses by $232 million. Therefore, eliminating the MAWI adjustment would compensate for over 80% of the pending loss of Medicaid revenue from the OBBBA.

Keywords: Area Wage Index, One Big Beautiful Bill, Medicare, Medicaid, hospitals
JEL Codes: I11, I13, I18

I. Introduction

Rising healthcare expenditures in the 1960s and 1970s, particularly for hospital care, prompted U.S. policymakers to seek restraints (Sloan, 1981). Seidman (1979) notes that hospital costs per patient-day in short stay hospitals greatly outpaced the annual consumer price index (CPI), growing at a ratio of 8% to 2% from 1950 to 1965 and at a ratio of 12% to 5% from 1965 to 1976. If hospital reimbursement is tied to costs, and patients face near-zero prices because of insurance, then hospitals have little incentive to contain costs. Hospital size, amenities, staff, and prestige may instead become priorities to attract patients (Robinson and Luft, 1985).

In an effort to alter these incentives, United States Public Law 98-21 introduced Medicare prospective payments for hospitals in 1983 (Social Security Amendment of 1983). The Medicare Inpatient Prospective Payment System (IPPS) intended to incentivize cost containment by providing prospective payments by groups of conditions for inpatient stays, known as diagnostic-related groups (DRGs). Each year, the Centers for Medicare and Medicaid Services (CMS) publish the standard operating payment for Medicare's IPPS and the scalars applied for each DRG. A hospital profits if it can care for a patient at a cost below the payment amount for admissions under a particular DRG. If costs exceed the payment, the hospital incurs a loss. Evidence on the IPPS noted a significant drop in hospital lengths of stay and admissions following implementation, with early cost savings largely stemming from reductions in admissions (Guterman and Dobson, 1986; Sloan et al., 1988; Hodgkin and McGuire, 1994). The Balanced Budget Act of 1997 established a similar Outpatient Prospective Payment System (OPPS), with groups of conditions being called Ambulatory Payment Classifications (APCs) (Balanced Budget Act of 1997).

Payments for DRGs and APCs are not the same across the entire U.S. Section 601(F, G, and H) of the Social Security Amendment introduced the requirement for apportioning and adjusting the standard IPPS payment based on labor and non-labor costs and urban/rural status, providing the legislative basis for the Medicare Area Wage Index (MAWI). Section 4523 of the Balanced Budget Act (1D and 4A) extended prospective payments to outpatient services, and MAWI adjustments were subsequently incorporated for the OPPS. These payment adjustments are made while maintaining budget neutrality, meaning that a higher payment rate in one area needs to be offset by a lower payment rate in another (Social Security Amendment of 1983). The labor portion of the standard operating payment is weighted by the MAWI for the area in which a hospital is located. Index values are determined at the Core Based Statistical Area (CBSA) level for metropolitan and micropolitan areas and collectively for states' rural areas. These values are calculated using the ratio of an area's average hourly hospital wages compared to the national average based on data from three to four years earlier. These ratios are used to adjust the labor-assigned share of the standard payment and to scale that portion's payment amount (Centers for Medicare and Medicaid Services (CMS), n.d.-b).

This method of adjusting payments has the potential to lead to unintended consequences. First, scaling payments by an area's hospital wages weakens hospitals' incentive to restrain growth in their labor costs. In effect, they are able to partially recoup cost growth through higher payments, which echoes the problematic cost-based reimbursement that existed prior to the PPS. Additionally, the redistributive, zero-sum nature of the MAWI adjustment means that other areas' reimbursement rates decline when a particular area's costs increase. As wages rise in relatively affluent urban areas, this can worsen financial strain among struggling hospitals in poorer areas – many of which are rural and already face a shortage of hospital services.

The importance of the MAWI adjustment has recently been amplified by the One Big Beautiful Bill Act (OBBBA) of 2025. One of OBBBA's provisions is that payments authorized under state-directed payment arrangements with Managed Care Organizations (MCOs) are no longer allowed to exceed either 100% or 110% of federal Medicare payment rates for Medicaid expansion and non-expansion states, respectively. While payment rates for traditional state-run Medicaid programs are often lower than those of Medicare, Medicaid coverage is now frequently provided by a private insurer in the form of MCOs. State-directed payments (SDPs) increase the payment rates made by Medicaid MCOs for specified providers/services to be closer to those of other private insurance plans, which are usually much higher than Medicare's rates. In Kentucky, SDPs are applied to inpatient and outpatient hospital services (Kentucky Cabinet for Health and Family Services, 2024, p. 8). Therefore, tying Medicaid MCO payment rates to those of Medicare could lead to substantial losses for hospitals.

Kentucky provides a case study that illustrates these pitfalls. As a relatively rural, low-wage state in which every area had a MAWI value below the average for all data years examined from 2011 to 2025, Kentucky hospitals are particularly vulnerable to payment reductions driven by cost growth in other states (CMS, n.d.-a). Also, a high percentage of Kentucky's residents are on Medicaid, with most of them being on MCO plans with reimbursement rates substantially higher than Medicare rates (CMS, 2026). Therefore, the state will be hit especially hard by the OBBBA's reduction of Medicaid MCO rates to those of Medicare.

Using data largely drawn from the Centers of Medicare and Medicaid Services (CMS), this paper conducts calibration exercises that aim to answer four key questions related to the impacts on Kentucky hospitals of the MAWI and OBBBA. First, how much Medicare revenue do Kentucky hospitals lose annually because of the MAWI adjustment relative to a system with

flat rates nationally? Second, how much Medicaid revenue will they lose annually once OBBBA's rate changes are fully phased in? Third, how much of this lost Medicaid revenue is attributable to Medicare rates being lower than they would otherwise be due to the MAWI adjustment? Fourth, if the MAWI adjustment were eliminated, how would the increased revenue compare to the revenue lost from the OBBBA's rate change?

Our results to all of these questions point to substantial impacts. We estimate lost Medicare revenue from the MAWI adjustment to be over $727 million annually. We project an additional $1.163 billion of annual losses from the OBBBA's Medicaid rate changes, with $232 million of this being due to the MAWI. If the MAWI adjustment were eliminated, this would lead to the recoupment of the $727 million in Medicare losses and the $232 million in MAWI-induced Medicaid losses, for a total of $959 million. In other words, eliminating the MAWI adjustment would compensate for over 80% of the coming loss in revenue from the OBBBA.

II. Policy Details

MAWI Adjustment

Formally, the raw MAWI value for area i in time t is given by the following equation:

$$MAWI_{it} = \frac{Average\ Hourly\ Hospital\ Wage_{it}}{National\ Average\ Hourly\ Hospital\ Wage_{t}} \quad (1)^{1}$$

For inpatient services paid by traditional fee-for-service (FFS) Medicare via the IPPS, this index affects the reimbursement rate in two ways. First, the labor portion of the payment is multiplied by the index, making it higher than the base operating payment if the area's hospital

[1] See Medicare Payment Advisory Commission (MedPAC) (2021).

wage is above the national average and lower if it is below. Second, if the hospital wage is above the national average, the labor portion is given a greater weight relative to the non-labor portion.

Specifically, the labor portion payment for DRG d in area i in time t is computed as

$$Labor\ Payment_{dit} = \begin{cases} If\ MAWI_{dit} \leq 1 \rightarrow MAWI_{dit} \times 0.62 \times Base\ Operating\ Payment_d \\ If\ MAWI_{dit} > 1 \rightarrow MAWI_{dit} \times 0.676 \times Base\ Operating\ Payment_d \end{cases} (2).$$ [2]

The non-labor portion payment in all states besides Alaska and Hawaii (which receive a cost-of-living adjustment) is

$$Non - Labor\ Payment_{dit} = \begin{cases} If\ MAWI_{dit} \leq 1 \rightarrow 0.38 \times Base\ Operating\ Payment_d \\ If\ MAWI_{dit} > 1 \rightarrow 0.324 \times Base\ Operating\ Payment_d \end{cases} (3).$$

Note that, for both below- and above-average hospital wage areas, the weights given to the labor and non-labor portions sum to one. These are then summed and weighted by DRG to compute total payments for a given area. In areas with a wage index value of one or less, the apportionment between labor and non-labor costs is constant for the 15 years of data we later examine; however, the CMS has modified the labor share for areas with index values above one over time.

For outpatient services reimbursed through the OPPS, the adjustment process is broadly similar. Base operating payments for general acute care hospitals are determined by APC groups, which are functionally similar to DRGs. The payment formula splits the APC into labor and non-labor shares, but different weights are used: 60% for labor and 40% for non-labor. These weights are the same regardless of whether the area's MAWI is above or below the median (CMS, 2024, p. 93971).

[2] For details on equations 2 and 3, see Centers for Medicare & Medicaid Services. (n.d.-b).

Elements of the law, and later changes to it, adjust wage index values in a number of ways. A rural floor disallows hospitals in urban areas from having lower wage index values than hospitals in rural areas (Balanced Budget Act of 1997). Other rules, meanwhile, allow certain hospitals to reclassify from urban to rural areas.[3] The CMS is also obligated to generate an imputed floor for all-urban states (states without rural areas) such as New Jersey and Rhode Island, as well as the District of Columbia (D.C.) (42 CFR 412.64(h)(4)). This practice began in October 2004, ended in 2018, and was restarted in 2021.[4] Instituted in 2004 with the imputed floor, the CMS also adjusts wage index values based on the commuting patterns of workers employed by hospitals. If a hospital in a given county qualifies, the adjustment amount is the difference between the two MSAs' index values, weighted by the percentage of hospital workers in the county commuting to the MSA with the higher wage index.[5] If workers are commuting to multiple other MSAs, the adjustment incorporates a weighted average across these based on the

[3] Such a reclassification may occur if an urban hospital is located in a rural census tract in a metropolitan area; if the hospital is located in an area otherwise designated or regulated as a rural area by law; if the hospital would qualify as a rural, regional, or national referral center or be designated as a sole community hospital if it were located in a rural area; or if the hospital meets other criteria specified by the Secretary of the Department Health and Human Services (DHHS) (Social Security Act § 1886(d)(8)(E)).

[4] It uses two separate methods to determine adjustments to MAWI. The first begins by finding the ratio of lowest-to-highest wage index values for each all-urban state and the average of these ratios across all all-urban states. For each state, the higher of these two values is then multiplied by the highest wage index value in the state, which is then used as the imputed floor. To illustrate, for New Jersey in 2025, the lowest-to-highest index ratio is 0.7582 while the all-urban-states average lowest-to-highest index ratio is 0.87095. Therefore, the latter is used. The maximum New Jersey MAWI value is 1.3256, which is multiplied by 0.87095 to obtain an imputed floor of 1.1545. D.C. and Rhode Island have only a single CBSA and can only have a lowest-to-highest index ratio of one. The second method uses the average percentage increase in wage index values gained by areas benefiting from a rural floor. The CMS then increases the lowest wage index value in an all-urban state by this percentage and sets that as the new floor. This provides a noticeable increase for DC and Rhode Island of 14% in 2025, while not generating as large a benefit for New Jersey as method one. After both methods have been applied, the higher floor produced between the methods is used for a given state. For discharges after October 1, 2021, this adjustment is not applied in a budget-neutral manner (42 CFR 412.64(h)(4)(vii)).

[5] For a hospital in a given county to qualify for an outmigration adjustment to its wage index, it must meet each of the following criteria: 1) "Hospital employees in the county commute to work in an MSA with a wage index higher than the wage index of the MSA or rural statewide area in which the county is located"; 2) "At least 10 percent of the county's hospital employees commute to an MSA with a higher wage index."; and 3) "The 3-year average hourly wage of the hospital(s) in the county equals or exceeds the 3-year average hourly wage of all hospitals in the MSA or rural statewide area in which the county is located" (42 CFR 412.64(i)).

commuting population. Also, sparsely populated states have received adjustments to their wage index since 2011. Contiguous US states with a population density of 6 or fewer residents per square mile in at least 50% of their counties are classified as frontier states. The CBSAs and collective rural areas of frontier states have their minimum wage index values set no lower than one (42 CFR 412.64(m)).

In consideration of other low-wage areas, the DHHS sought to increase payments for areas in the bottom quartile of the wage index in 2020. The DHHS contended that relatively low payments for low-wage areas hampered labor recruitment for hospitals in those areas, while higher payments sustained higher wages and recruitment in areas with high wage index values. This payment adjustment was challenged as bureaucratic overreach in a case ultimately decided by the D.C. Circuit Court of Appeals in 2024 (*Bridgeport Hospital v. Becerra*, 2024). The DHHS's policy raised bottom quartile wage index values "by half the difference between (1) their congressionally prescribed value and (2) the value of a hospital at the 25th percentile line for wages" (*Bridgeport Hospital v. Becerra*, 2024, p. 5). The DHHS applied budget neutrality in this effort, resulting in a $245 million redistribution from higher wage hospitals to those in the bottom quartile of the wage index (*Bridgeport Hospital v. Becerra*, 2024). The appeals court ultimately ruled against the DHHS, saying it did not have the authority to adjust the wage index beyond what is congressionally prescribed, and the low-wage and budget-neutral adjustments were reverted. This decision was particularly consequential for Kentucky, as the entire state has a MAWI of well below one, indicating relatively low wages and therefore payment rates (CMS, n.d.-a).

OBBBA Changes to Medicaid Managed Care Reimbursement

With the recent passage of the One Big Beautiful Bill Act (OBBBA) in 2025, the impact of lower Medicare reimbursement rates is no longer limited to hospitals' Medicare revenues. The OBBBA imposes new caps on SDPs, limiting the maximum rate states can direct Medicaid managed care organizations (MCOs) to pay providers to 100% of the Medicare payment rate for ACA Medicaid expansion states such as Kentucky and 110% for non-expansion states. Previously, with prior written approval from the CMS, states could direct their Medicaid MCOs to compensate types of providers such as hospitals up to average commercial rates, which are often substantially higher than Medicare rates (42 CFR 438.6(c)(2)(iii)).

To illustrate, the Kentucky Hospital Rate Improvement Plan (HRIP) is meant to enhance Medicaid hospital reimbursement so long as add-on payments do not cause a hospital's payments to exceed its customary charges to the general public (907 KAR 10:840 § 5; 42 CFR § 447.27). This would appear to cap payments at the average commercial rate when combined with 42 CFR 438.6(c)(2)(iii). Elsewhere in Kentucky regulations, average commercial rates are explicitly mentioned in 907 KAR 10:840 § 4, which concerns trauma hospitals. In this section, the language for Trauma Hospital Rate Improvement (K-THRI) states, "If consistent with federal approval, the department shall operate K-THRI as a supplemental payment arrangement that provides an average commercial rate reimbursement for inpatient hospital services, outpatient hospital services, and professional services." (907 KAR 10:840 § 4(1)). Part (b) of subsection (1) goes on to state that measures will be taken to ensure payments do not exceed commercial rates (907 KAR 10:840 § 4(1)(b)).

These added payments are considered medical assistance under 42 U.S. Code § 1396d(a), meaning they qualify for fund matching under the Federal Medical Assistance Percentage (FMAP) mentioned in the Social Security Act § 1903(a)(1). To obtain federal funds, a state must

propose an amount of total allowable Medicaid expenditures. If approved by the federal government, federal dollars cover a state's FMAP percentage of the total allowable expenditures. The state must finance the rest using non-federal funds. The FMAP percentage is calculated by a formula involving a state's per capita income and the national per capita income. According to the Medicaid and CHIP Payment and Access Committee, Kentucky's Medicaid FMAP is about 71.5% in 2025 (Medicaid and CHIP Payment and Access Commission, 2024). To help pay the state's share of total allowable Medicaid expenditures related to HRIP, Kentucky charges its hospitals a quarterly, per-discharge, hospital inpatient assessment (KRS 205.6406 § 3(h)).

Based on the state's adjustments and state and federal law, Kentucky's increased Medicaid inpatient payments are slightly below the commercial average. The reimbursement improvement from these enhancements is substantial. According to Marshall et al. (2024), states in Kentucky's census division see an average commercial reimbursement for inpatient services that is approximately 176% of the Medicare FFS rate (Marshall et al., 2024). Thus, if Kentucky hospitals receive approximately 95% of the average commercial rate for inpatient services, as indicated by the Kentucky Hospital Association, then hospitals receive about $0.95 \times 176\% \approx 167\%$ of the Medicare FFS payment for Medicaid inpatients (Patrick, 2025). This, however, becomes markedly reduced under the OBBBA.

Section 71116 of the OBBBA states that the "Secretary shall revise section 438.6(c)(2)(iii) of title 42" to limit the maximum SDP to "100 percent of the specified total published Medicare payment rate" for Medicaid expansion states (*One Big Beautiful Bill Act*, 2025). Non-expansion states are limited to "110 percent of the specified total published Medicare payment rate." The act grandfathers in prior approvals and good faith efforts for approval prior to May 1, 2025, that would pay higher rates. However, the government will compel eventual

compliance by reducing payments by 10 percentage points per year beginning in 2028, until states' SDPs align with their relevant cap. As a Medicaid expansion state, this would ensure that Kentucky SDPs are eventually limited to 100% of Medicare.

Kentucky hospitals are especially vulnerable to these payment cuts as Medicaid now covers roughly 1 in 4 residents — about 1.7 million people (Park, 2025). Additionally, 90% of Kentucky's Medicaid recipients are on managed care (CMS, 2026), meaning that the vast majority of Medicaid revenue is subject to the rate cuts. Moreover, Kentucky is relatively rural, and rural hospitals tend to be the most reliant on SDP payments to stay financially viable. Particularly for hospitals in the Appalachian counties that depend heavily on public payers, a reduction in the SDP cap to Medicare rates could lead to service reductions or even closures.

In January of 2026, nearly 405,000 Kentuckians in Appalachia had non-FFS Medicaid insurance (Kentucky Cabinet for Health and Family Services, 2026). Approximately 206,500 Kentuckians were non-dually eligible Medicare beneficiaries (CMS, n.d.-c). Assuming the overall share of Kentuckians on Original Medicare (38.2%) in January of 2026 is the same for Appalachian beneficiaries, then nearly 79,000 Appalachian Kentuckians are non-dually eligible, Original Medicare beneficiaries (CMS, n.d.-c). Based on 2025 estimates from the Census Bureau, Kentucky's Appalachian counties contained over 1,110,000 residents (U.S. Census Bureau, 2026). This suggests that hospital reimbursements for over forty percent of Kentucky's Appalachian residents are impacted by SDPs and the MAWI. The impact of tying SDP payments to Medicare rates is amplified by the MAWI adjustment. By lowering Medicare payment rates in Kentucky, it will now also lower Medicaid rates.

Because of this connection to MAWI, the SDP cap reduction will be the focus of our analysis of the OBBBA. However, it is important to note that other parts of the act also affect

Medicaid in ways that we do not quantify in this study. Medicaid is financed jointly by state and federal governments, and states commonly use provider taxes to help finance their share. The OBBBA immediately prohibits new or increased provider taxes and begins ratcheting down existing taxes in expansion states from the current 6% safe harbor down to 5.5% in 2028 and 3.5% by 2032 (Maslyn, 2025). The law also reduces federal matching for states with eligibility error rates above 3%, adds work requirements for recipients, imposes mandatory six-month (as opposed to annual) redeterminations of eligibility for ACA expansion enrollees, and adds cost-sharing requirements for some enrollees (Maslyn, 2025; Park, 2025; West and Gunville, 2025). All of these changes could plausibly be expected to reduce the number of Medicaid enrollees and therefore hospital revenue, though the lower limit on provider taxes will reduce hospital expenditures, making the net effect ambiguous.

III. Revenue Lost from MAWI Adjustment

Inpatient Services

This section uses data on Medicare IPPS payments and area-specific MAWI values to estimate the amount of revenue Kentucky loses annually due to the IPPS MAWI adjustment relative to a system with the same payments across the entire U.S. The CMS dataset "Medicare Inpatient Hospitals – By Provider" reports total Medicare FFS payments to each hospital in the U.S. that participates in the IPPS, with 2024 being the most recent year of available data at the time of writing.[6] MAWI values for 2024 are available at (CMS, n.d.-a). In 2024, Kentucky had 10 areas with distinct values of the MAWI, nine of which are metropolitan areas, with the 10th

[6] The dataset is available at https://data.cms.gov/provider-summary-by-type-of-service/medicare-inpatient-hospitals/medicare-inpatient-hospitals-by-provider/data.

being the entire rural part of the state.[7] All Kentucky areas had a wage index below 1, so the 0.62 and 0.38 weights for labor and non-labor costs apply.

For each hospital in Kentucky, we estimate Medicare FFS revenue lost in 2024 from the MAWI system as follows. First, the non-labor portion of IPPS payments received is simply 38% of the total reported payments, while the labor portion is the remaining 62%. Dividing the labor portion by the area's MAWI value yields what payments would have been without the adjustment, assuming the labor portion remained 62%. However, this would not be the case in a flat payment system, as the weights for labor and non-labor payments would not vary for areas above vs. below the average national wage. It seems reasonable to us to "meet in the middle" and assign all areas weights of 65% for labor and 35% for non-labor, as opposed to 68% and 32% for above-average-MAWI areas and 62% and 38% for those below the average. Therefore, we rescale the labor portion of the payment by 68/65 (after dividing it by the MAWI) and the non-labor portion of the payment by 62/65.

Table 1 shows the results from this exercise for each Kentucky hospital that participates in the IPPS. The first column is the hospital identifier – the CMS certification number. Using the CMS' look-up tool, we identify the city in which each hospital is located.[8] We use Stats America's city-county finder tool[9] to match each city to a county and then check which counties are in MSAs with unique MAWIs using information from the Kentucky Atlas and Gazetteer (2026). Based on this information, the hospitals in the table are grouped by geographic area. The second column of the table reports actual IPPS revenue, the third and fourth apply the 38% and 62% shares to obtain the non-labor and labor portions of this revenue. The fifth column re-

[7] An 11th area, the Paducah MSA, was added in 2025, but since we use MAWI values from 2024 to match the year of the payment, we treat it as part of the catch-all rural area in our analysis.
[8] This look-up tool is available at https://data.cms.gov/tools/medicare-inpatient-hospital-look-up-tool.
[9] This city-county finder tool is available at https://www.statsamerica.org/CityCountyFinder/.

computes labor revenue after dividing by the MAWI, effectively undoing the adjustment that is applied to actual labor revenue. The sixth and seventh columns re-compute the non-labor and labor revenues using 35% and 65% weights. The next-to-last column adds these to obtain an estimate of counterfactual IPPS revenue if the MAWI adjustment did not exist. The last column subtracts actual revenue to determine the amount lost from the adjustment.

The total amount of lost Medicare fee-for-service revenue from the MAWI adjustment across all Kentucky hospitals, determined by summing the amounts in the last column, is $195,741,569. To put this amount in perspective, total Medicare fee-for-service revenue is $1,530,418,294, so eliminating the MAWI adjustment would increase it by almost 13%. This is a substantial percentage when one considers that the median hospital operating margin was just 3.6% in 2024 (Cost Report Insights, 2026).

Thus far, we have only identified losses in fee-for-service Medicare. A parallel calculation cannot be done for Medicare Advantage (MA) because CMS does not have hospital-level data on payments to hospitals from the private insurers who offer MA plans. Moreover, it is not obvious how the MAWI affects MA payment rates. Although MA plans generally use the same DRG groupings as fee-for-service Medicare (MedPAC, 2025), payments for each DRG are negotiated with hospitals rather than set by the IPPS. Nonetheless, MA plans have less negotiating leverage than commercial plans because under federal law, hospitals must accept Medicare fee-for-service (FFS) rates for out-of-network MA patients. This effectively makes a hospital's fallback price the FFS rate, which applies the MAWI adjustment (Maeda and Nelson 2018). Even if the negotiated rates differ from FFS rates, the local FFS rates – and therefore the MAWI – would certainly influence negotiations. Accordingly, MA-negotiated rates tend to be very similar to Medicare FFS rates, with Maeda and Nelson (2018) finding the average MA price

per discharge to be $10,667 – nearly identical to the average Medicare FFS price of $10,716 for the same stays. Therefore, our analysis treats the MAWI as applying to MA plans.

Our analysis of losses from MA due to the MAWI adjustment is not as detailed as that for FFS because of the lack of hospital-level data. According to the Kentucky Hospital Association (2026), in 2024 52.9% of Medicare inpatient cases were MA and 47.1% were FFS. We assume that the case mixes are similar in the two groups so that this ratio also applies to dollar amounts. This is admittedly not an ideal assumption, but the average ages of FFS and MA beneficiaries in Kentucky are not substantially different (75 and 72 years old, respectively), suggesting that the assumption is at least approximately reasonable.[10] Our estimate of hospitals' annual lost MA revenue due to the MAWI adjustment is therefore simply the lost FFS revenue of $195,741,569 multiplied by 52.9/47.1, which yields $219,845,626. Therefore, we estimate that the total lost inpatient revenue from Medicare – combining both FFS and MA – due to the MAWI adjustment is $415,587,195.

Outpatient Services

Table 8 of the CMS dataset "CMS Program Statistics – Medicare Outpatient Facility" reports payments to Medicare FFS OPPS hospitals by state.[11] The latest data are from 2023. Adding total program payments, total deductible payments, and total coinsurance payments yields total revenue for Kentucky hospitals from the OPPS of $1,260,019,490.

CMS does not provide a comprehensive dataset of outpatient services for each hospital, so we are unable to conduct the same type of hospital-level analysis that we did for inpatient

[10] These average ages are based on Figure 2 from Kentucky Hospital Association (2026), which reports age groups in brackets. We convert these groups into average age by assuming the midpoint for each age group (17 for 0-34, 40 for 35-44, 50 for 45-54, 60 for 55-64, 70 for 65-74, and 80 for 75-84, with the 85 and over group being assigned 90).
[11] These data are available at https://data.cms.gov/summary-statistics-on-use-and-payments/medicare-medicaid-service-type-reports/cms-program-statistics-medicare-outpatient-facility.

services. We therefore assume that the average MAWI across cases paid based on the OPPS is the same as it was for cases paid based on the IPPS in the above analysis: 0.8374. The OPPS uses weights of 60% for labor and 40% for non-labor for all hospitals, which translates to statewide totals of $756,011,694 for labor and $504,007,796 for non-labor.

Counterfactual OPPS revenue without the MAWI adjustment can be estimated by scaling up the labor portion by the inverse of 0.8374, which yields $902,808,328. Since the non-labor portion remains constant, total counterfactual revenue is $1,406,816,124. The Medicare FFS OPPS revenue lost from the MAWI adjustment therefore comes to $146,796,634.

We estimate lost outpatient MA revenue in the same way as we did for inpatient revenue – by multiplying the FFS estimate by the ratio of MA to FFS patients in Kentucky, which is 52.9/47.1. This yields $164,873,502. Total lost outpatient revenue due to the MAWI adjustment from both FFS and MA is therefore $311,670,136. Adding our estimate of lost inpatient revenue brings the total revenue lost by Kentucky hospitals from the MAWI adjustment to $727,257,331.

IV. Revenue Lost from the OBBBA's Medicaid Managed Care Payment Changes

Estimating the annual revenue that will be lost once the OBBBA's changes to Medicaid MCO payments are fully implemented requires five components. The first is how much Medicaid MCOs pay relative to commercial rates. The second is the average commercial payment relative to Medicare. The third is the baseline amount of revenue from Medicaid managed care received by health care providers in Kentucky. The fourth is the percentage of that revenue that goes to hospitals. Finally, we need to know the percentages of that hospital revenue that are for inpatient and outpatient services. With this information, we can project the impact of a change to payments capped at 100% of the Medicare rate.

1. **SDPs Commercial Rate Target:** According to a 2024 document submitted to the Centers for Medicare and Medicaid Services (CMS), Kentucky's SDP compensation for inpatient services aims to be 95% of the commercial rates (Kentucky Cabinet for Health and Family Services, 2024, p. 8). Prior to this, the amount appeared to be 90% (Kentucky Cabinet for Health and Family Services, 2023, p. 8). We will use the more conservative 90%.
2. **Commercial to Medicare payments in KY:** Marshall et al. (2024) indicate that states in Kentucky's census division see an average commercial reimbursement for inpatient services that is approximately 176% of the Medicare fee-for-service (FFS) rate (Marshall et al. 2024). The estimate for outpatient services is 205%.
3. **Baseline revenue from Medicaid managed care for KY providers:** According to Exhibit 17 of MACStats from the Medicaid and CHIP Payment and Access Commission, after subtracting out premium and copayment assistance, Medicaid managed care spending in KY by both federal and state governments was $12.247 billion in FY2024 (Medicaid and CHIP Payment and Access Commission, 2026). This is presumably equivalent to the amount received by KY providers.
4. **Percentage of that revenue that goes to hospitals:** According to the same source, Medicaid fee-for-service spending received by KY hospitals was $360 million in FY2024. Combined Medicaid fee-for-service spending for physicians, dentists, other practitioners, clinics and health centers, other acute care, and prescription drugs was $1.1 billion. Therefore, hospital revenue was 24.7% of total revenue. A similar breakdown by type of provider is not available for Medicaid MCOs, so we assume that the same percentage as fee-for-service applies.

5. **Percentage of hospital revenue for inpatient versus outpatient:** In the 2022 fiscal year (the latest for which we were able to find this information), Kentucky paid $244,981,137.93 for Medicaid inpatient services and $57,108,915.39 for outpatient hospital services (Kentucky Cabinet for Health and Family Services, 2022). This implies an 81%-19% split between inpatient and outpatient revenue. We assume that these percentages apply to Medicaid managed care, even though the dollar amounts are for Medicaid in general.

We can use this information to compute how much less funding paying the Medicare rate will provide hospitals compared to 90% of the commercial rate. First, consider inpatient revenue. If MCOs pay 90% of commercial rates and commercial rates pay 176% of Medicare, then MCOs pay $0.90 \times 1.76 = 1.584$, or 158.4% of Medicare rates. To reduce that to 100%, we need to divide the amount paid by Medicaid MCOs for inpatient services by 1.584. The total amount paid by Medicaid MCOs is $12.247 billion per year, of which 24.7% goes to hospitals, of which 81% is for inpatient services. This yields $2.45 billion in annual inpatient hospital revenues from Medicaid MCOs. Therefore, the inpatient spending amount at 100% of the Medicare rate is $\frac{\$2.45 \text{ billion}}{1.584}$ = $1.55 billion, amounting to a loss of $900 million.

A similar exercise can be performed with outpatient spending. Recall that Marshall et al. (2024) find that commercial insurance reimbursement averages 205% of the Medicare rate in Kentucky's Census Division. If, similarly to inpatient services, Kentucky Medicaid MCOs previously paid 90% of commercial rates for outpatient services, the deflator is $\frac{1}{1.845}$. We obtain annual hospital Medicaid MCO revenue from outpatient services by multiplying the total Medicaid MCO revenue of $12.247 billion by the 24.7% that goes to hospitals and then by the

19% of hospital revenue that comes from outpatient services. This yields $575 million. Dividing by 1.845 leads to new outpatient revenue of $312 million, for a loss of $263 million.

Therefore, combining inpatient and outpatient services, the total estimated revenue loss for Kentucky hospitals from OBBB's tying of Medicaid MCO payments to Medicare rates is $1.163 billion. This amount exceeds the *entire* net operating revenue (profit) of Kentucky hospitals, which was estimated to be $1.1 billion in 2023 (KHA 2024). Clearly, this projected revenue loss could have devastating consequences.

Portion of this Loss Attributable to the MAWI Adjustment

Since Medicare rates will now be used for Medicaid managed care, the same MAWI adjustments that reduce Kentucky's Medicare revenue will now also reduce its Medicaid revenue. We can identify the portion of the Medicaid MCO revenue loss attributable to the MAWI adjustment by computing what that loss would be if such an adjustment were not done. We begin with inpatient services. Above we estimated that Medicaid MCO inpatient revenue in Kentucky will be $1.55 billion after full implementation of the OBBBA's fee adjustments. A 38% non-labor share comes to $589 million, while a 62% labor share comes to $961 million. To remove the MAWI adjustment from the labor share, we first need to know the average MAWI across Kentucky. Using the payment data described in the previous section, we compute the average across Kentucky hospitals, weighted by total Medicare IPPS revenues. This yields an average MAWI of 0.8374. Dividing the actual labor amount by 0.8374 yields a predicted labor amount – still using the 62% weight – of $1.148 billion. Switching to a 65% weight increases this to $1.204 billion, while switching the non-labor portion to a 35% weight decreases it to $542 million. Total Medicaid MCO revenue across Kentucky hospitals under the OBBBA's payment rules but without the MAWI adjustment is therefore estimated to be $1.746 billion.

To summarize, we estimate pre-OBBBA Medicaid MCO revenues for inpatient services of $2.45 billion. OBBBA payment rules plus the MAWI adjustment reduce this to $1.55 billion. Without the MAWI adjustment, total revenues would be $1.746 billion. In other words, OBBBA payment rules alone cost $900 million in inpatient Medicaid MCO revenue, and $196 million of this is attributable to MAWI.

We next turn to outpatient services. Above we estimated that Medicaid MCO outpatient revenue in Kentucky will be $312 million after full implementation of the OBBBA's fee adjustments. The 60% labor share applied to outpatient care comes to $187 million. Dividing this by 0.8374 yields $223 million – an increase of $36 million. Therefore, $36 million of the $263 million of outpatient Medicaid MCO revenue lost due to the OBBBA's payment rules is due to the MAWI adjustment. Adding this $36 million to the analogous inpatient amount of $196 million yields a total amount of OBBBA Medicaid losses attributable to the MAWI of $232 million. This represents 20% of the total lost revenue from the OBBBA Medicaid payment adjustment of $1.163 billion.

Could Eliminating the MAWI Adjustment Offset the Medicaid Losses from OBBBA?

The above calculation shows that eliminating the MAWI adjustment would recoup $232 million of the lost Medicaid revenue from the OBBBA. Of course, if the MAWI adjustment were eliminated, this would also lead to the recoupment of the $727 million in Medicare revenue computed in the previous section. Adding these amounts together yields a total of $959 million, which is 82% of the $1.163 billion per year that we estimated the OBBBA's new Medicaid payment rules will cost Kentucky hospitals. In other words, eliminating the MAWI adjustment would compensate for most of the losses from the OBBBA.

IV. Conclusion

This study used Kentucky as a case study to illustrate how the MAWI adjustment and OBBBA's Medicaid payment reform exacerbate the financial challenges faced by hospitals in low-income, rural communities that serve a large number of Medicaid patients. The MAWI adjustment leads to lower Medicare IPPS and OPPS payments in below-median-hospital-wage areas relative to a flat-rate system. We estimate that Kentucky hospitals lose over $727 million of annual Medicare revenue due to relatively low MAWI values across the state. By eventually tying Medicaid MCO payment rates to Medicare rates, the OBBBA will substantially reduce Medicaid revenue in states where a large percentage of residents are on Medicaid, and where Medicaid is mostly provided through managed care plans that previously paid similar rates to commercial plans. We project that this change will cost Kentucky hospitals $1.163 billion of annual Medicaid revenue. Basing Medicaid MCO rates on Medicare rates means that the OBBBA amplifies the effect of the MAWI adjustment. Indeed, we project that the MAWI adjustment will be responsible for $232 million (20%) of these Medicaid losses.

An additional $1.163 billion of lost hospital revenue could have catastrophic consequences for Kentucky. Since KHA (2024) computed that the total net revenue of all Kentucky hospitals was $1.1 billion in 2023 (KHA 2024), a loss of this magnitude would be enough to make Kentucky hospitals *unprofitable* on average. In turn, this means other sources of federal or state funding would be needed to avoid mass layoffs, service reductions, and closures of the most financially vulnerable hospitals.

Given the interconnectedness of the MAWI and the OBBBA's Medicaid payment reform, a natural question is how far eliminating the MAWI adjustment would go towards mitigating these dire consequences in states like Kentucky. We conclude that it would go quite far – offsetting $959 million of the $1.163 billion in losses, or over 80%. Eliminating or substantially

reforming the MAWI may also be desirable for other reasons. For instance, by adjusting payments by hospital labor costs in a budget neutral manner, the current system effectively taxes low-cost areas in order to subsidize high-cost areas, creating a disincentive to contain costs. More generally, our study illustrates the pitfalls of viewing policies related to health care finance in isolation. In some cases, such as with the MAWI and OBBBA, changing one policy mechanically changes the impact of the other. Even when this is not the case, a reform designed to cut expenditures can have unintended consequences that force a tradeoff between worsening access to health care and implementing other reforms that increase expenditures.

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Table 1 – Number of Cases and Case Mix Index across Kentucky Hospitals that Participate in the Medicare Inpatient Prospective Payment System

Hospital CMS Certification Number	Actual IPPS Revenue	Actual Non-Labor Portion	Actual Labor Portion	Labor Portion / MAWI	Non-Labor Portion with 35% Weight	Labor Portion / MAWI with 65% Weight	Estimated IPPS Revenue without MAWI	Estimated Revenue Lost due to MAWI
Bowling Green, KY MSA (MAWI=0.8692)								
180013	$57,442,161	$21,828,021	$35,614,140	$40,973,470	$20,104,756	$42,956,057	$63,060,813	$5,618,652
180017	$14,729,708	$5,597,289	$9,132,419	$10,506,695	$5,155,398	$11,015,083	$16,170,481	$1,440,773
180124	$15,107,714	$5,740,931	$9,366,783	$10,776,326	$5,287,670	$11,297,761	$16,585,461	$1,477,747
Kentucky Portion of Cincinnati, OH-IN-KY MSA (MAWI=0.9264)								
180001	$15,098,647	$5,737,486	$9,361,161	$10,104,880	$5,284,526	$10,593,826	$15,878,353	$779,706
180045	$29,740,897	$11,301,541	$18,439,356	$19,904,314	$10,409,314	$20,867,426	$31,276,740	$1,535,843
Kentucky Portion of Clarksville, TN-KY (MAWI=0.7827)								
180051	$9,567,242	$3,635,552	$5,931,690	$7,578,498	$3,348,535	$7,945,199	$11,293,734	$1,726,492
Elizabethtown, KY MSA (MAWI=0.8157)								
180012	$38,289,495	$14,550,008	$23,739,487	$29,103,208	$13,401,323	$30,511,428	$43,912,751	$5,623,256
180025	$6,449,514	$2,450,815	$3,998,699	$4,902,168	$2,257,330	$5,139,370	$7,396,700	$947,186
Kentucky Portion of Evansville, IN-KY MSA (MAWI=0.8157)								
180056	$14,977,177	$5,691,327	$9,285,850	$10,685,673	$5,242,012	$11,202,722	$16,444,734	$1,467,557
Kentucky Portion of Huntington, WV-KY MSA (MAWI=0.8151)								
180009	$54,086,453	$20,552,852	$33,533,601	$41,140,475	$18,930,259	$43,131,143	$62,061,401	$7,974,948
Lexington, KY MSA (MAWI=0.8598)								
180010	$53,478,908	$20,321,985	$33,156,923	$38,563,530	$18,717,618	$40,429,507	$59,147,125	$5,668,217
180046	$941,468	$357,758	$583,710	$678,891	$329,514	$711,740	$1,041,254	$99,786
180049	$8,932,015	$3,394,166	$5,537,849	$6,440,858	$3,126,205	$6,752,512	$9,878,717	$946,702
180067	$162,860,841	$61,887,120	$100,973,721	$117,438,615	$57,001,294	$123,121,129	$180,122,423	$17,261,582
180092	$7,267,125	$2,761,508	$4,505,618	$5,240,309	$2,543,494	$5,493,872	$8,037,366	$770,241

180101	$3,371,017	$1,280,986	$2,090,030	$2,430,833	$1,179,856	$2,548,454	$3,728,310	$357,293
180103	$64,803,320	$24,625,262	$40,178,058	$46,729,540	$22,681,162	$48,990,647	$71,671,809	$6,868,489
180143	$6,463,112	$2,455,983	$4,007,129	$4,660,537	$2,262,089	$4,886,047	$7,148,136	$685,024
				Kentucky Portion of Louisville, KY-IN MSA (MAWI=0.8631)				
180016	$3,409,837	$1,295,738	$2,114,099	$2,449,425	$1,193,443	$2,567,946	$3,761,389	$351,552
180040	$98,139,458	$37,292,994	$60,846,464	$70,497,583	$34,348,810	$73,908,756	$108,257,567	$10,118,109
180088	$208,835,132	$79,357,350	$129,477,782	$150,014,809	$73,092,296	$157,273,590	$230,365,887	$21,530,755
180130	$105,285,366	$40,008,439	$65,276,927	$75,630,781	$36,849,878	$79,290,335	$116,140,213	$10,854,847
180138	$5,190,905	$1,972,544	$3,218,361	$3,728,839	$1,816,817	$3,909,267	$5,726,084	$535,179
180141	$58,780,553	$22,336,610	$36,443,943	$42,224,473	$20,573,194	$44,267,593	$64,840,786	$6,060,233
				Owensboro, KY MSA (MAWI=0.8318)				
180038	$58,601,401	$22,268,532	$36,332,869	$43,679,813	$20,510,490	$45,793,353	$66,303,843	$7,702,442
				Non-MSA KY (MAWI=0.7827)				
180002	$3,815,702	$1,449,967	$2,365,735	$3,022,531	$1,335,496	$3,168,783	$4,504,279	$688,577
180004	$4,946,916	$1,879,828	$3,067,088	$3,918,600	$1,731,421	$4,108,209	$5,839,630	$892,714
180005	$5,554,065	$2,110,545	$3,443,520	$4,399,540	$1,943,923	$4,612,421	$6,556,344	$1,002,280
180011	$13,881,274	$5,274,884	$8,606,390	$10,995,771	$4,858,446	$11,527,824	$16,386,270	$2,504,996
180018	$11,850,931	$4,503,354	$7,347,577	$9,387,476	$4,147,826	$9,841,708	$13,989,534	$2,138,603
180019	$5,026,419	$1,910,039	$3,116,380	$3,981,576	$1,759,247	$4,174,233	$5,933,480	$907,061
180020	$2,508,322	$953,162	$1,555,160	$1,986,917	$877,913	$2,083,058	$2,960,970	$452,648
180024	$3,000,178	$1,140,068	$1,860,110	$2,376,530	$1,050,062	$2,491,524	$3,541,586	$541,408
180027	$14,018,361	$5,326,977	$8,691,384	$11,104,362	$4,906,426	$11,641,669	$16,548,096	$2,529,735
180029	$14,206,781	$5,398,577	$8,808,204	$11,253,615	$4,972,373	$11,798,144	$16,770,518	$2,563,737
180035	$85,737,985	$32,580,434	$53,157,551	$67,915,614	$30,008,295	$71,201,853	$101,210,148	$15,472,163
180043	$3,194,729	$1,213,997	$1,980,732	$2,530,64	$1,118,155	$2,653,090	$3,771,246	$576,517
180044	$50,628,955	$19,239,003	$31,389,952	$40,104,704	$17,720,134	$42,045,255	$59,765,389	$9,136,434
180048	$18,118,175	$6,884,907	$11,233,269	$14,351,946	$6,341,361	$15,046,395	$21,387,757	$3,269,582
180050	$5,210,051	$1,979,819	$3,230,232	$4,127,037	$1,823,518	$4,326,732	$6,150,250	$940,199
180064	$3,853,202	$1,464,217	$2,388,985	$3,052,236	$1,348,621	$3,199,925	$4,548,546	$695,344

180066	$1,682,249	$639,255	$1,042,994	$1,332,560	$588,787	$1,397,038	$1,985,825	$303,576
180069	$4,141,247	$1,573,674	$2,567,573	$3,280,405	$1,449,436	$3,439,134	$4,888,571	$747,324
180070	$3,551,396	$1,349,530	$2,201,866	$2,813,167	$1,242,989	$2,949,288	$4,192,276	$640,880
180078	$2,258,230	$858,127	$1,400,103	$1,788,811	$790,381	$1,875,367	$2,665,747	$407,517
180079	$3,442,462	$1,308,136	$2,134,326	$2,726,877	$1,204,862	$2,858,822	$4,063,684	$621,222
180080	$14,335,670	$5,447,555	$8,888,115	$11,355,712	$5,017,485	$11,905,181	$16,922,666	$2,586,996
180087	$6,425,094	$2,441,536	$3,983,558	$5,089,508	$2,248,783	$5,335,775	$7,584,558	$1,159,464
180093	$21,458,025	$8,154,050	$13,303,976	$16,997,541	$7,510,309	$17,820,003	$25,330,312	$3,872,287
180095	$198,574	$75,458	$123,115.88	$157,296.38	$69,500.90	$164,908	$234,408	$35,834
180102	$32,052,274	$12,179,864	$19,872,10	$25,389,562	$11,218,296	$26,618,089	$37,836,385	$5,784,111
180104	$41,064,775	$15,604,615	$25,460,161	$32,528,632	$14,372,671	$34,102,598	$48,475,270	$7,410,495
180105	$2,795,271	$1,062,203	$1,733,068	$2,214,217	$978,345	$2,321,357	$3,299,702	$504,431
180115	$1,875,069	$712,526	$1,162,543	$1,485,298	$656,274	$1,557,167	$2,213,441	$338,372
180116	$7,941,221	$3,017,664	$4,923,557	$6,290,478	$2,779,427	$6,594,856	$9,374,283	$1,433,062
180127	$10,186,184	$3,870,750	$6,315,434	$8,068,780	$3,565,164	$8,459,205	$12,024,369	$1,838,185
180128	$2,632,278	$1,000,266	$1,632,012	$2,085,106	$921,297	$2,185,998	$3,107,295	$475,017
180132	$22,774,716	$8,654,392	$14,120,324	$18,040,531	$7,971,151	$18,913,460	$26,884,611	$4,109,895
180139	$2,964,303	$1,126,435	$1,837,868	$2,348,113	$1,037,506	$2,461,731	$3,499,237	$534,934
180149	$822,835	$312,677	$510,157.70	$651,792	$287,992	$683,330	$971,323	$148,488
180154	$414,909	$157,665	$257,243.58	$328,662	$145,218	$344,565	$489,783	$74,874

Notes: The estimated total inpatient Medicare FFS revenue lost due to MAWI across all Kentucky hospitals, computed by adding all the amounts in the right column, is $195,741,569. Total actual IPPS revenue is $1,530,418,294, and total estimated revenue without the MAWI adjustment is $1,726,159,863.