Memo to: Lorig Charkoudian, Chair, UI Subcommittee, Maryland House of Delegates
From: Chris O'Leary and Ken Kline, W.E. Upjohn Institute
Subject: Maryland 2022 Unemployment Insurance (UI) Reform Options
Date: September 22, 2022

Objective: Simulate a Maryland UI system that provides adequate benefits during unemployment while maintaining incentives for work search and has benefit financing sufficient to maintain an average high-cost multiple (AHCM) of at least 1.0.[1]

Summary of simulation results:

1. Baseline simulation: If neither tax nor benefit changes are made, the Maryland UI reserve position will deteriorate quickly with the AHCM falling below 1.0 in 2027 followed by a quick decline in the AHCM in the following years.
2. If tax schedule A is retained and benefits are not increased, the UI taxable wage base should be indexed to nearly 20 percent of average annual wages to keep the AHCM at or above 1.0 over time.
3. If tax schedule A is dropped, the current UI taxable wage base will lead to a declining AHCM over time even if benefits are not improved.
4. Nearly all states provide 50 percent wage replacement below the maximum weekly benefit amount (WBA). Maryland provides a 54 percent wage replacement below the maximum WBA. However, the average replacement rate depends on the proportion of beneficiaries at or above the maximum WBA.
5. States, like Maryland with the maximum WBA set by statute tend have a higher proportion above the max WBA than states that index the WBA. About half of states index the max WBA, and the average proportion set by these states is a maximum WBA equal to 56 percent of average weekly wages (AWW). Studies suggest 80 percent of beneficiaries would get at least 50 percent wage replacement if the maximum is set at two-thirds the AWW. We simulated setting the Maryland maximum WBA at either 50 percent or two thirds of the AWW.
6. Indexing the Maryland maximum WBA to 50 percent of the AWW would raise average benefit payments by about 39.3 percent and indexing the WBA max to two-thirds of the AWW would increase benefit payment costs by about 64.5 percent. These estimates assume there is no behavioral response that would change the duration of benefit receipt by those getting higher replacement rates.
7. Indexing the minimum WBA to 15 percent of the AWW, indexing the dependent's allowance at 25 percent of the minimum WBA, and setting the earnings disregard at 50 percent of the WBA would increase benefit payments by 0.62. 1.79, and 1.70 percent respectively.
8. The estimated costs of a behavioral response to raising the maximum WBA to 50 percent or two-thirds of the average weekly wage are 7.6 and 12.7 percent respectively.

[1] Federal regulations promise zero interest short-term lending to states that maintain UI reserves so that the AHCM is at least 1.0. The AHCM is the number of years a state could pay UI benefits from reserves at a rate equal to the average of the three highest benefit payouts in the past twenty years. We do not constrain simulations to section 8-612 (f) of the Maryland UI law that says the UI tax schedule will not be lower, if the AHCM did not equal or exceed 1.0 as of December 31 of the second immediately preceding calendar year.

Additionally, there could be an increased application rate resulting from a higher maximum WBA.

9. The existing financing system with the taxable wage base (TWB) set at $8,500 could not finance either increase in the maximum WBA and maintain an AHCM of 1.0 or higher after 2024 either with or without tax schedule A available.
10. If the maximum WBA was set at 50 percent of the AWW an AHCM above 1.0 could be maintained if the TWB was indexed to 20 percent of the average annual wage (AAW) and tax schedule A was dropped, but not with schedule A available. Setting the TWB at 25 percent of the AAW would be sufficient with schedule A available to set the maximum WBA at 50 percent of the AWW.
11. Setting the TWB at 25 percent of the AAW would also be sufficient to maintain an AHCM above 1.0 if the maximum WBA was set at two-thirds of the AWW.
12. Indexing the WBA minimum, dependents allowance, and earnings disregard as described above would all be covered by indexing the TWB to 25 percent of the AAW, and these changes would reduce the risk of poverty those with the lowest annual earnings who become unemployed and qualify for benefits. These improved benefits would reduce return to Temporary Assistance to Needy Families (TANF) by unemployed UI beneficiaries with low prior earnings (Leung and O'Leary, 2020).
13. Tax increases can be dampened after a crisis or recession causing an increase in UI benefit payments if the number of years in the benefit ratio is increased from three to four or five.
14. Short time compensation (STC) or work sharing claims have been a very, very small proportion of all UI benefit payments in Maryland. Non-charging for STC could increase the use of STC by employers considering layoffs. The cost of STC benefits to the Maryland system have been very low in normal years, and in recent high unemployment years the federal government has paid for STC benefits. It would benefit Maryland if more employers knew how use STC before an emergency exists (Houseman et al. 2017).
15. Indexing the taxable wage base to 25 percent of the average annual wage in UI covered employment should be sufficient to cover the costs of improving benefit adequacy in the ways discussed while maintaining an AHCM at or above 1.0 (see Table 12). The benefit improvements would include a maximum WBA indexed at 50 percent of average weekly wages, a minimum set at 15 percent of the maximum, the dependents allowance at 25 percent of the minimum with a maximum dependents allowance equal to the minimum.

Simulation overview: We conduct both macro and micro simulations. The macro simulations look at the likely annual effects of program changes over time through 2032. The micro simulations look at the effects on a recent sample of Maryland UI program participants. The micro simulation results inform related macro simulations.

Program features examined:

1. **Tax Tables:** Maryland has six tax tables A through F. Table A has the lowest tax rates and is in effect when reserves are highest. Table F has the highest tax rates and is in effect when reserves are lowest. We simulate the effects of eliminating UI tax table A. Normally, tax table A

will be in effect the following year if reserves on September 30 are greater than or equal to 5 percent of taxable wages.[2]

2. **Taxable Wage Base (TWB):** The Maryland UI taxable wage base has been fixed at $8,500 per year since 1993. We simulate a range of options for indexing the TWB to increase along with average annual wages (AAW) in Maryland.

3. **Tax Structure:** To dampen the response of employer UI tax rates to increases in benefit charges, O'Leary and Kline (2021) examined the effects of changing the number of years in the benefit ratio for employer experience rating from 3 to 4 to 5. We summarize those results.

4. **Income Disregard:** Most states tie the earnings disregard for partial benefits to a percentage of the individual's entitled weekly benefit amount (WBA) or earnings. The Maryland UI partial benefits earnings disregard is $50 per week, and it has been fixed at that level for many years. We simulate earnings disregards tied to the individual's WBA.

5. **Benefits structure**: The Maryland structure of UI benefits has not been updated in many years. We simulate indexing parameters of the benefit system to average weekly wages (AWW) in Maryland. The parameters include the maximum, minimum, and dependents' allowance.

6. **Dependents' allowance**: The Maryland UI dependents' allowance was set at $8 per dependent up to $40 in 1982 and has not been changed since. We simulate the costs of tying the dependents allowance to an indexed minimum WBA.

7. **Workshare:** O'Leary and Kline (2021b) examined the likely cost of non-charging for benefit payments associated with short time compensation (STC). We summarize those results.

Background on macro simulations:

To do simulations of UI program changes, we must start with a baseline projection of how things might unfold if no benefit or tax changes are made. We use the U.S. Department of Labor UNIS-X model for macro simulations (O'Leary and Kline 2021). The baseline assumptions underlying the Maryland UNIS-X model regard assumed future annual values of the following key economic variables: labor force growth, employment growth, average weekly wage growth, and the unemployment rate. Following is a brief discussion of the baseline assumptions about these variables. A more detailed discussion is given in Appendix A.

Labor force and employment growth rates for 2022 are based on data available through April 2022. In Maryland, after two years of pandemic-related declines, labor force growth has been sluggish. However, the labor force is assumed to increase 1.1 percent in both 2023 and 2024 as

[2] O'Leary and Kline (2021) examined the effects of changing the trigger values for switching between tax schedules. Note that the trigger for switching between tables is based on reserves relative to "taxable" wages while the criterion for reserve adequacy ACHM >= 1.0 is based on total wages. Over time, as average earnings and employment rises, with the taxable wage base fixed at $8,500, "taxable" wages do not rise as fast as total wages. Therefore, reaching the trigger level for tax schedule A by having reserves above 5 percent of "taxable" wages is an easier threshold to reach as wages and employment rises.

new and re-entrants to the labor force help the labor force participation rate recover. Beginning in 2025, through 2032, labor force growth is assumed to be 1.0 percent annually.

Employment growth in Maryland through April 2022 has been quite strong and total employment is expected to grow 1.8 percent in 2022 before assuming a longer-term average, annual growth rate of 1.0 percent beginning in 2023 and continuing through 2032.

With relatively strong employment growth and sluggish labor force growth in 2022, unemployment is expected to decline sharply in 2022 which results in the unemployment rate falling from 5.8 percent in 2021 to 4.3 percent in 2022. With new labor force entrants and re-entrants expected to rise more strongly in 2023 and 2024, the unemployment rate is expected to slightly increase to 4.4 and 4.5 percent, respectively, and slowly decline to 4.2 percent by the end of the forecast period.

The average weekly wage growth rates near-term are expected to be relatively strong due to inflation pressures and resulting cost-of-living wage adjustments. After a 6.9 percent growth rate in 2021, the average weekly wage is expected to grow 4.1 percent annually for 2022 and 2023, with growth rates declining to 3.6 percent in 2024 and 2025 before decelerating to a longer-term average annual growth rate of 2.2 percent through 2032.

Baseline simulation

Table 1 presents the baseline simulation. For this simulation, no modifications were made to current UI financing or benefits. The maximum WBA ($430), minimum WBA ($50), dependents allowance ($8 per dependent and capped at $30) remain throughout the simulation interval as does the $8,500 taxable wage base. Average tax rates used to estimate tax revenue are based on tax schedules A through F, and there were no modifications to the existing Maryland trigger system. Tax schedule C is in force for 2022 and 2023.

Table 1 Baseline Simulation Summary with Maximum WBA Remaining at $430 and the Taxable Wage Base Remaining at $8,500

	Values in millions						
Year	Revenue	Benefits	Year-end trust balance	AHCM	Average WBA	Tax schedule	Average weekly wage
2020	444	1,794	84	0.04	322	A	1,219
2021	710	576	161	0.91	323	"F"	1,307
2022	523	353	1,468	1.01	362	"C"	1,357
2023	539	366	1,691	1.09	369	"C"	1,412
2024	415	384	1,752	1.09	376	A	1,464
2025	422	426	1,794	1.05	383	A	1,517
2026	431	469	1,790	1.02	390	A	1,551
2027	440	508	1,755	0.96	393	A	1,586
2028	448	583	1,653	0.88	397	A	1,622
2029	457	662	1,478	0.76	402	A	1,658
2030	467	697	1,273	0.63	408	A	1,695
2031	477	710	1,062	0.51	413	A	1,734
2032	642	723	999	0.45	418	B	1,773

The key takeaway from Table 1 is the erosion of the trust over time and the resulting decline in the AHCM which accelerates later in the forecast period. Paragraph 612-8(f) does not arrest the decline in the AHCM below 1.0. Since the system is on tax schedule A when the AHCM falls below 1.0, the tax schedule triggers are not designed to maintain reserves with an AHCM at or above 1.0. The AHCM is based on reserves relative to total wages while the tax schedule triggers are based on reserves relative to taxable wages which increase more slowly tha total wages because the taxable wage base is fixed at $8,500. The decline in the ACHM over time is attributable to the fixed taxable wage base of $8,500 which becomes a smaller and smaller share of total wages in Maryland over time as wages and employment rise. The erosion of this funding base combined with benefit cost increases as wage growth raises the average weekly benefit strains UI reserves. Even without increasing the maximum WBA, benefit costs are pushed upward further by the assumed increasing levels of new entrants and reentrants to the labor force who cycle in and out of employment and unemployment, and therefore, the UI system.

Options for indexing the taxable wage base—with and without tax schedule A

Next, we summarize alternative ways of indexing the taxable wage base to the growth in average annual wages over time. All taxable wage base modifications are assumed to begin in 2024 and results will be presented with and without tax schedule A. Table 2 shows the range of taxable wage base options tested. Figures 1 and 2 graphically display the impact of these alternatives on the average high-cost multiple with and without schedule A as an available tax table. The results in Figures 1 and 2 also *assume no change in benefits.* Benefit modifications will be introduced later.

Table 2 Alternative Taxable Wage Base Scenarios Assumed to Begin in 2024

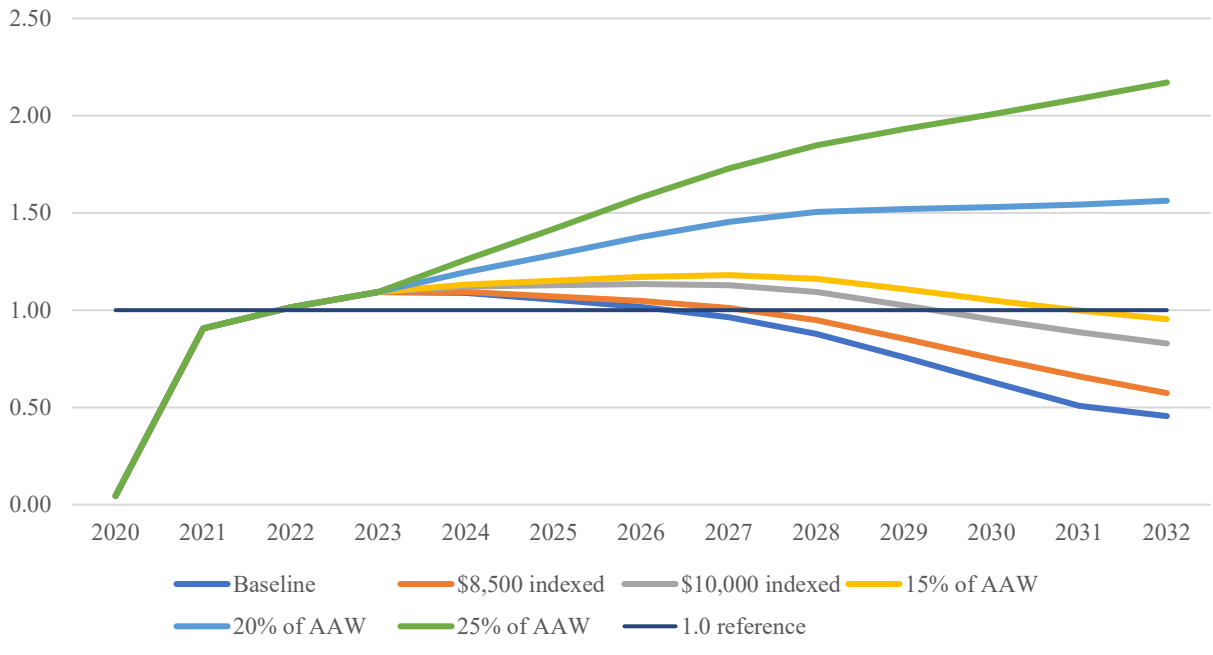
		Alternative Indexed TWB Amounts beginning in 2024					
	Avg weekly	$8,500	$10,000	Percent of Prior Year Annual Wage (*2)			
Year (*1)	wage	(indexed)	(indexed)	15%	20%	25%	30%
2020	1,219	8,500	8,500	8,500	8,500	8,500	8,500
2021	1,307	8,500	8,500	8,500	8,500	8,500	8,500
2022	1,357	8,500	8,500	8,500	8,500	8,500	8,500
2023	1,412	8,500	8,500	8,500	8,500	8,500	8,500
2024	1,464	8,810	10,360	11,020	14,690	18,360	22,030
2025	1,517	9,130	10,740	11,420	15,220	19,030	22,830
2026	1,551	9,340	10,980	11,830	15,780	19,720	23,660
2027	1,586	9,550	11,230	12,100	16,130	20,160	24,200
2028	1,622	9,760	11,480	12,370	16,490	20,620	24,740
2029	1,658	9,980	11,740	12,650	16,870	21,080	25,300
2030	1,695	10,200	12,000	12,930	17,250	21,560	25,870
2031	1,734	10,430	12,270	13,220	17,630	22,040	26,450
2032	1,773	10,670	12,550	13,520	18,030	22,540	27,040

Table 2 notes: (*1) The average weekly wage used here is from the model. Historically, this value matches what is found in the UI Quarterly Data Summary and the UNIS-X model defines it as total wages of taxable plus reimbursable employers over a twelve-month period divided by average taxable plus reimbursable covered employment over the same period with that calculated amount (wages per covered employee) then divided by 13. This value is slightly different than values reported in ETA 394 which were used to develop the assumptions in the baseline simulation. However, since the inputs to the model are based on expected percentage changes in the average weekly wage, the differences in the levels between the two data sources is not an issue. (*2) Values rounded to the nearest $10. Use of the annual wage from the prior year is to simulate actual implementation due to the lag in reporting of taxable wages and an expected computation date around September 30 of the prior calendar year.

As Figure 1 shows graphically, given the economic assumptions and no benefit or tax schedule modifications, simply maintaining the 1.0 AHCM standard would require setting the taxable wage base somewhat above 15 percent of the average annual wage. Simply indexing the current $8,500 base or very modestly increasing it to $10,000 along with indexation would be insufficient to support the trust at the 1.0 AHCM level. Even indexation at 15 percent begins to erode mid-way through the forecast interval.

The results change considerably if tax schedule A was eliminated and as Figure 2 suggests, indexation somewhere between the current $8,500 base and $10,000 would be sufficient, *assuming no benefit modifications*. Table 3 reports the simulation results summarized graphically in Figures 1 and 2.[3]

Figure 1 Average High Cost Multiple (AHCM) Values Over Time from Alternative Taxable Wage Base (TWB) Scenarios Taking Effect in 2024 with **Schedule A Preserved** and No Change in Benefit Levels



[3] For Figures 1 and 2, the AHCM associated with the taxable wage base indexed at 30 percent of the average annual wage is not shown. With no benefit modifications, the TWB set that high would be very unrealistic.

Figure 2 Average High Cost Multiple (AHCM) Values Over Time from Alternative Taxable Wage Base (TWB) Scenarios with **Schedule A Dropped** and No Change in Benefit Levels

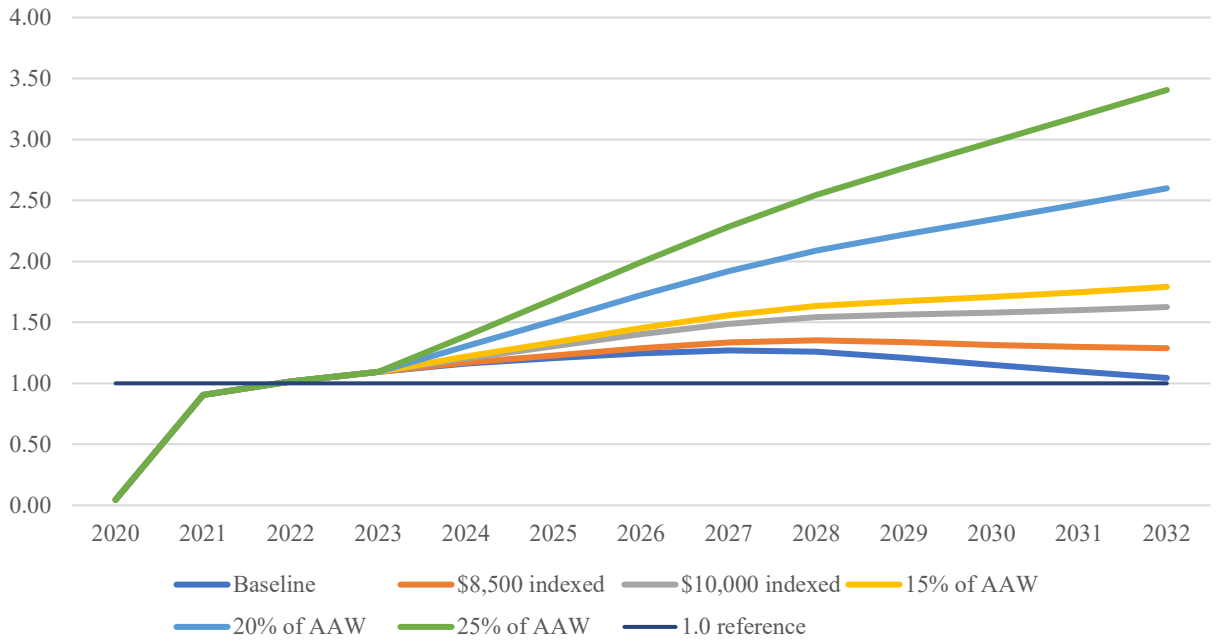


Table 3 Average High-Cost Multiple across Taxable Wage Base Scenarios with and without Schedule A

		Indexed TWB Values beginning in 2024					
		$8,500	$10,000	Percent of Prior Year AAW			
Year	Baseline	(Indexed)	(Indexed)	15%	20%	25%	30%
2020	0.04	0.04	0.04	0.04	0.04	0.04	0.04
2021	0.91	0.91	0.91	0.91	0.91	0.91	0.91
2022	1.01	1.01	1.01	1.01	1.01	1.01	1.01
2023	1.09	1.09	1.09	1.09	1.09	1.09	1.09
	Schedule A Preserved						
2024	1.09	1.09	1.12	1.13	1.20	1.26	1.32
2025	1.05	1.07	1.13	1.15	1.28	1.42	1.70
2026	1.02	1.05	1.13	1.17	1.38	1.58	1.95
2027	0.96	1.01	1.13	1.18	1.45	1.73	2.17
2028	0.88	0.95	1.09	1.16	1.50	1.85	2.35
2029	0.76	0.85	1.02	1.11	1.52	1.93	2.50
2030	0.63	0.75	0.95	1.05	1.53	2.01	2.64
2031	0.51	0.66	0.89	1.00	1.54	2.09	2.79
2032	0.45	0.57	0.83	0.95	1.56	2.17	2.93
	Schedule A Dropped						
		$8,500	$10,000	Percent of Prior Year AAW			
	Baseline	(Indexed)	(Indexed)	15%	20%	25%	30%
2024	1.16	1.17	1.21	1.22	1.30	1.39	1.47
2025	1.21	1.23	1.30	1.33	1.51	1.69	1.86
2026	1.25	1.29	1.40	1.45	1.72	1.99	2.26
2027	1.27	1.33	1.49	1.56	1.92	2.28	2.65
2028	1.26	1.35	1.54	1.63	2.09	2.54	3.00
2029	1.21	1.34	1.56	1.68	2.22	2.77	3.31
2030	1.15	1.31	1.58	1.71	2.34	2.98	3.61
2031	1.10	1.30	1.60	1.75	2.47	3.19	3.91
2032	1.04	1.29	1.63	1.79	2.60	3.41	4.21

Options for indexing the maximum weekly benefit amount

There are 26 states that as of 2019 indexed the maximum weekly benefit amount to the average weekly wage in their state. These states are presented graphically in Figure 3 along with the share of the average weekly wage each state uses to define is maximum weekly benefit. The shares average 0.56 (56 percent of the average weekly wage) across these states.

Figure 3 Share of the Average Weekly Wage Used to Set the Maximum Weekly Benefit Amount in the 26 States that Indexed their Maximum to the AWW in 2019

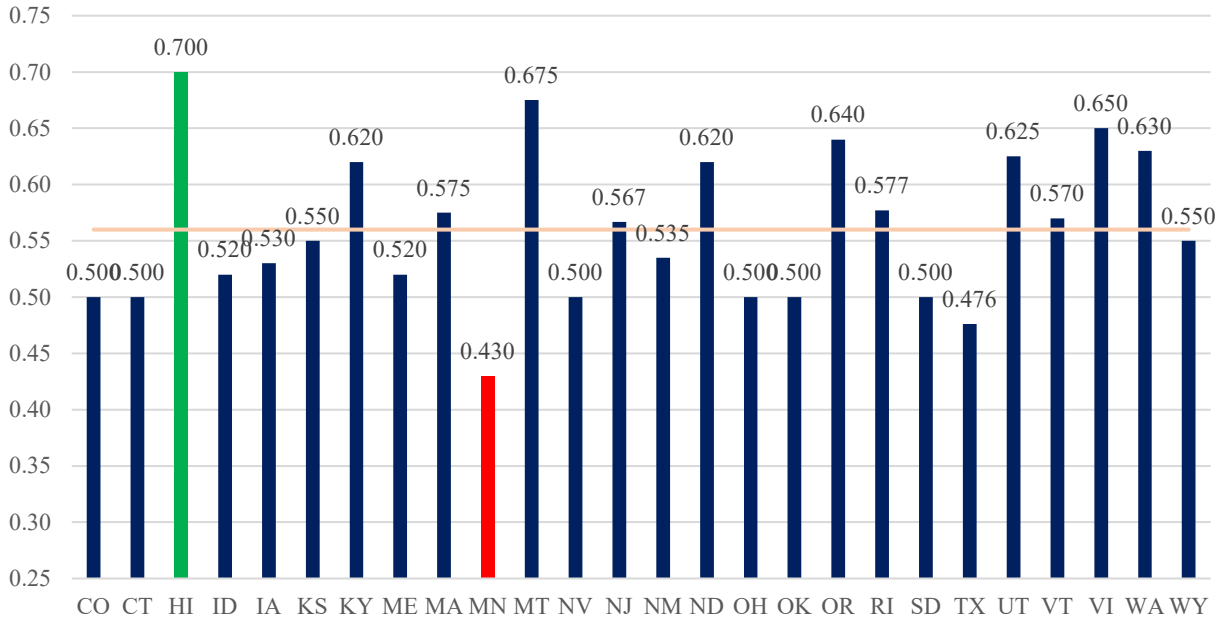


Table 4 Wage Replacement and UI Recipiency Rates in 2019 by Indexed Maximum WBA Status

	Average WBA (2019)	Average Weekly wage (2018)	Replacement rate	Recipiency rate (2019)
All States and territories (n = 53)	349	989	0.353	0.265
Do not index maximum (n=18)	292	1011	0.289	0.215
Index or had indexed (n = 35)	378	978	0.386	0.291
No adjustments or repeals (n = 26)	408	980	0.416	0.310
Adjust or repealed (n = 9)	292	974	0.300	0.236

Source: ETA 394 (https://oui.doleta.gov/unemploy/hb394.asp)

Table 4 presents further analysis of the importance of indexation of the maximum WBA to wage replacement and associated UI recipiency rates in the states grouped by UI maximum WBA rules. Using a simple average across all 50 states and three territories, in 2019 UI replaced on average 35.3 percent of covered workers' average weekly wages.[4] Also, there is an observed positive correlation between the average wage replacement and the share of unemployment persons who apply for and receive UI benefits. The latter is referred to as the UI recipiency rate. In 2019 just under 27 percent of unemployed persons received UI benefits across all states and territories.

[4] The wage replacement rate used here is based on the average weekly benefit amount received by UI beneficiaries in 2019 as a share of the average weekly wage among covered workers. This assumes UI recipients' earnings are comparable to the state average. If UI recipients average weekly earnings are lower than the state weekly average, the replacement rate would be higher. Without micro data from all states and territories, we do not know the extent of any bias in the measure presented.

There are 18 states that do not index their maximum WBA and these states are associated with the lowest wage replacement and UI recipiency rates in 2019 as presented in Table 4. Among the 26 states that indexed maximum WBAs in 2019, their UI systems replaced 41.6 percent of their average wage and had the highest rates of UI participation as measured by the UI recipiency rate.

In response to the impact of the financial crisis 2007-2009, there were nine states that previously indexed their maximum WBA but as of 2019 had repealed or modified indexation under existing statutes due to the state UI reserve balance. Like states that do not and have never indexed the maximum WBA, these states are associated with rather low wage replacement and UI participation. These states replace about 30 percent of their average wage compared with over 41 percent for states that retained and did not modify indexation of the maximum WBA. These nine states also have a considerably lower share of unemployed receiving UI (23.6 percent compared with 31.0 percent for states that index and did not modify).

Indexed Maximum at 50 Percent or Two-Thirds of the AWW

Table 5 summarizes how the maximum weekly benefit amount would change for two simulation scenarios, one that indexes the maximum to 50 percent of Maryland's average weekly wage, and the other that sets the maximum at two-thirds of the average weekly wage. The latter (two-thirds of the average) is regarded as a standard that would ensure that 80 percent of UI beneficiaries receive at least 50 percent of the average wage. The 50 percent wage replacement rate is regarded as the proper balance between consumption needs and work search incentives among the involuntary unemployed (ACUC 1996, p. 22, recommendation 1995-22).

Table 5 Maximum Weekly Benefit Amounts as a Percentage of the Prior Year's Average Weekly Wage beginning in 2024

Year	Avg weekly wage	Maximum by percent of AWW 50%	2/3rds
2020	1,219	430	430
2021	1,307	430	430
2022	1,357	430	430
2023	1,412	430	430
2024	1,464	706	942
2025	1,517	732	976
2026	1,551	758	1,011
2027	1,586	776	1,034
2028	1,622	793	1,057
2029	1,658	811	1,081
2030	1,695	829	1,105
2031	1,734	848	1,130
2032	1,773	867	1,156

As of 2021, the current maximum WBA of $430 was 35 percent of the prior year's average weekly wage ($430 / $1,219).[5] Assuming the maximum is tied to 50 percent of the average wage beginning in 2024, the maximum would rise to an estimated value of $706 from $430. Indexation at two-thirds beginning in 2024 would more than double the maximum, raising it to an estimated $942.

Table 6 presents a summary of the estimated cost of these two methods of setting the maximum weekly benefit. Assuming no behavioral response, benefit payments would increase nearly 28 percent in 2024 with 50 percent indexation and over 49 percent using two-thirds. With growth in the average weekly wage, costs relative to the current, fixed $430 maximum in the baseline continue to accelerate. The model suggests these modifications over the nine-year simulation interval (2024-2032) would require over $2 billion additional revenue when using 50 percent indexation, and $3.3 billion if the maximum WBA was set to two-thirds of the average weekly wage.

Table 6 Costs of Setting the Maximum WBA to 50 Percent or Two-Thirds of the Average Weekly Wage (dollar values in millions)

		Max WBA 50 Percent of AWW			Max WBA at Two-Thirds of AWW		
Year	Baseline	Simulated	Change from baseline	Percent change	Benefit cost	Change from baseline	Percent change
2020	1,793.8	1,793.8			1,793.8		
2021	575.7	575.7			575.7		
2022	353.2	353.2			353.2		
2023	366.3	366.3			366.3		
2024	384.3	490.9	106.6	27.7	573.6	189.3	49.3
2025	426.3	557.7	131.4	30.8	653.8	227.5	53.4
2026	468.6	627.1	158.6	33.8	736.9	268.4	57.3
2027	507.7	690.1	182.4	35.9	812.4	304.7	60.0
2028	582.5	804.4	221.9	38.1	948.5	366.0	62.8
2029	662.1	929.4	267.3	40.4	1,097.9	435.8	65.8
2030	697.1	994.9	297.8	42.7	1,177.5	480.4	68.9
2031	710.0	1,030.5	320.4	45.1	1,221.6	511.6	72.1
2032	723.5	1,068.0	344.5	47.6	1,268.1	544.7	75.3
2024-2032	5,162.2	7,193.1	2,030.9	39.3	8,490.5	3,328.3	64.5

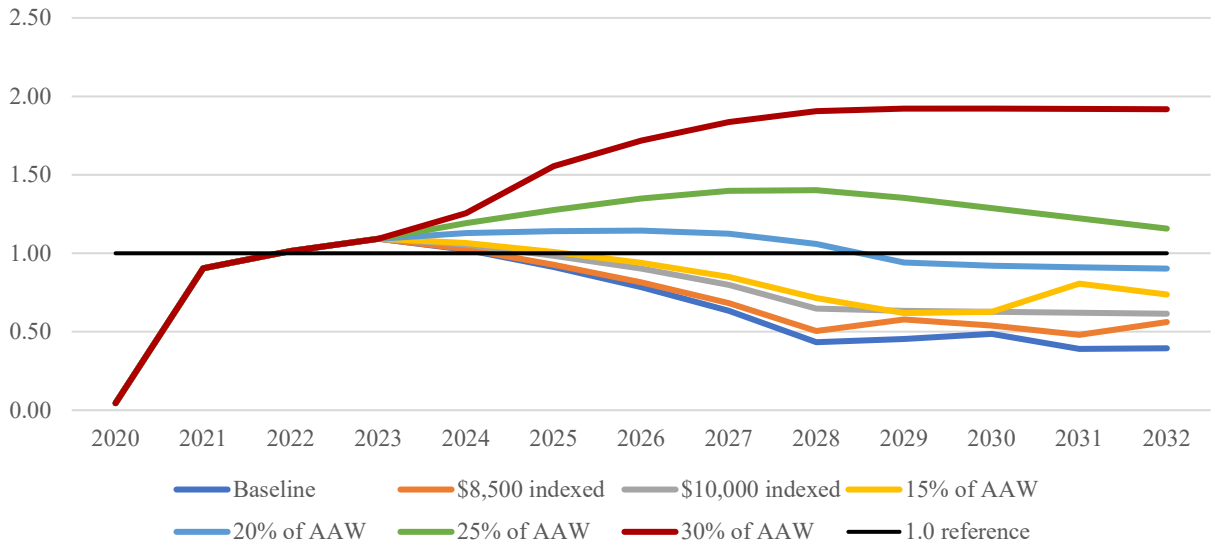
Indexed Taxable Wage Base to Pay for Indexed Benefits

To pay for the increased benefit costs associated with raising the wage replacement rate in Maryland, we combined the modifications to the maximum benefit with the indexed taxable wage base simulations previously discussed. Figures 3 and 4 summarize simulation results for

[5] The prior year's average weekly wage is used to mimic lags in wage record availability and the date the average is determined

the increased maximum set to 50 percent of the average weekly wage, one preserving tax schedule A and another which sets tax schedule B as the lowest tax rate structure.

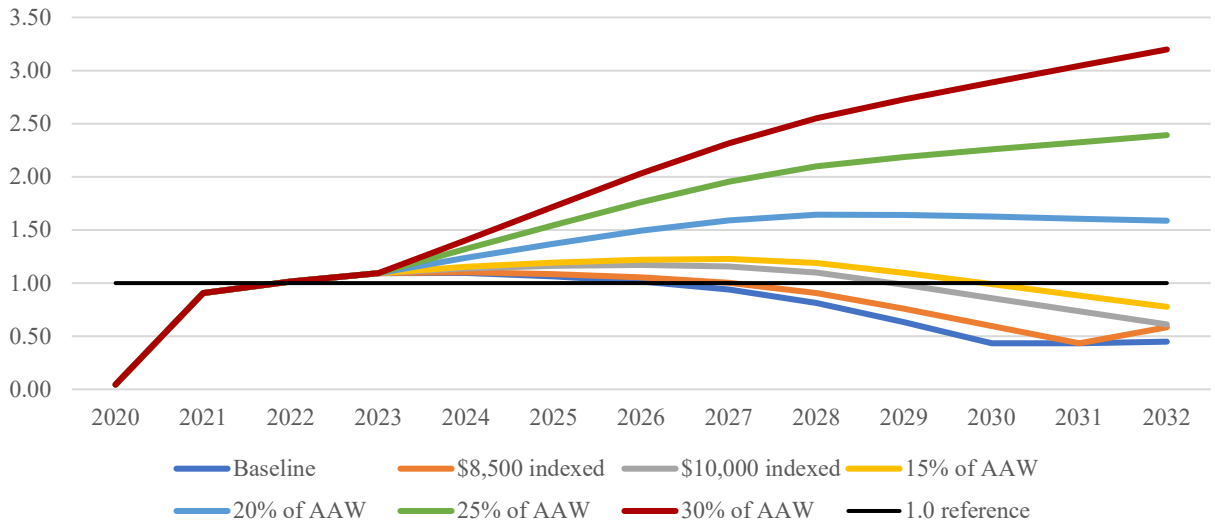
Figure 3 Average High Cost Multiple Over Time after Increasing the **Maximum WBA to 50%** of the Average Weekly Wage Under Alternative Taxable Wage Base Scenarios and **Preserving Schedule A** with Changes Taking Effect in 2024



If schedule A is preserved, using the AHCM standard of 1.0 as guide, the simulations summarized in Figure 3 suggest the taxable wage base would need to be set at a minimum of 20 percent of the average annual wage, though the AHCM slips slightly below 1.0 later in the forecast interval. This suggests a slightly higher percentage, something approaching 25 percent of the average annual wage would be needed.

Figure 4 presents the same simulations for a maximum WBA set to 50 percent of the average weekly wage only tax schedule A is dropped. With tax schedule A removed and schedule B becoming the lowest rate schedule, the taxable wage base would need to be set slightly more than 15 percent of the average annual wage. However, the model suggests 15 percent of the average annual wage would be slightly insufficient to preserve the 1.0 standard late in the forecast. This suggest something between 15 and 20 percent of the of average annual wage would be needed for the taxable wage base.

Figure 4 Average High Cost Multiple Over Time after Increasing the **Maximum WBA to 50%** of the Average Weekly Wage Under Alternative Taxable Wage Base Scenarios and **Dropping Schedule A** with Changes Taking Effect in 2024



Figures 5 and 6 summarize simulations where the maximum weekly benefit amount is set to two-thirds of the average weekly wage. In this scenario, if schedule A is preserved, the taxable wage base would need to be set to 25 percent of the average annual wage to keep the AHCM above 1.0 over time (Figure 5). If the maximum weekly benefit amount was set to two-thirds of the average weekly wage and schedule A was dropped, the model suggests the taxable wage base would need to be a minimum of 20 percent of the average annual wage (Figure 6).

Following Figures 5 and 6 are Tables 7 through 13 which present greater detail of the data presented in the figures including which tax schedules would be in effect throughout the years of the simulation (2024 to 2032). Following Table 13 is a discussion of modifications to the minimum weekly benefit, allowance for dependents, and the earnings disregard.

Figure 5 Average High Cost Multiple Over Time after Increasing the **Maximum WBA to Two-Thirds** of the Average Weekly Wage Under Alternative Taxable Wage Base Scenarios and **Preserving Schedule A** with Changes Taking Effect in 2024

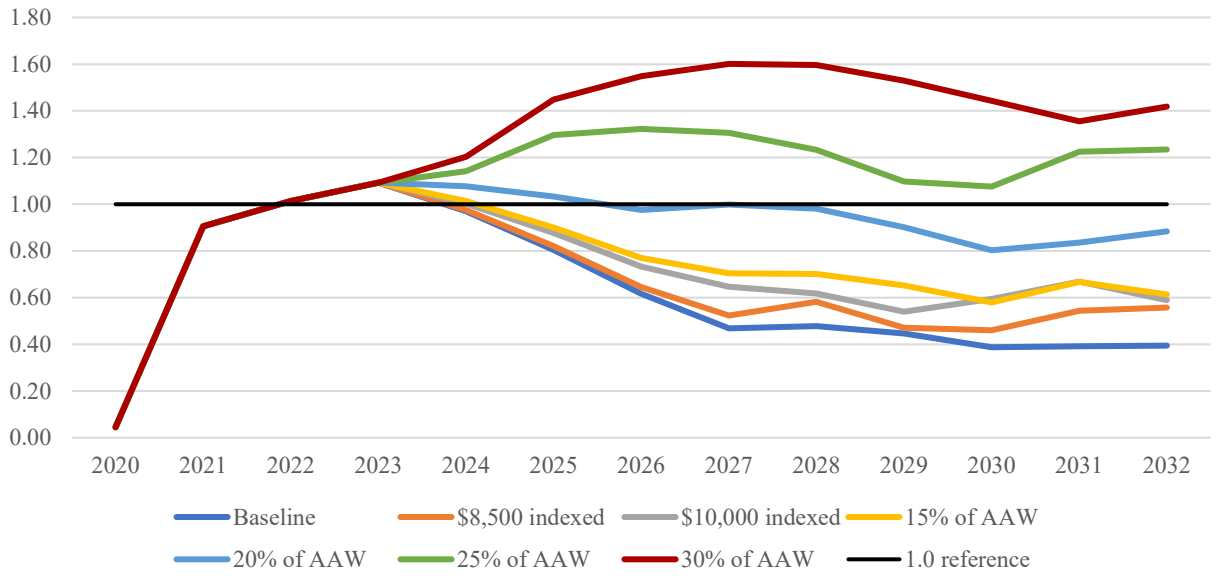


Figure 6 Average High Cost Multiple Over Time after Increasing the **Maximum WBA to Two Thirds** of the Average Weekly Wage Under Alternative Taxable Wage Base Scenarios and **Dropping Schedule A** with Changes Taking Effect in 2024

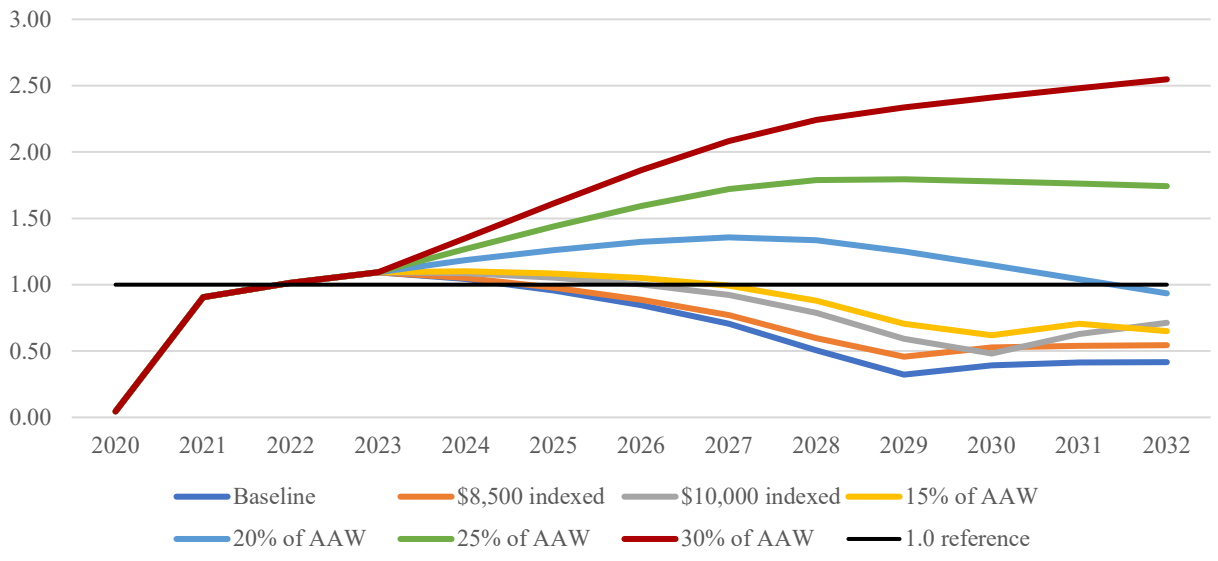


Table 7 Baseline Scenario Introducing the Maximum WBA at 50% or Two-Thirds of AWW

	Max WBA 50% of AWW			Max WBA 2/3 of AWW		
Year	AHCM	Average tax rate	Tax rate schedule	AHCM	Average tax rate	Tax rate schedule
2020	0.04	0.0197	A	0.04	0.0197	A
2021	0.91	0.0323	"F"	0.91	0.0323	"F"
2022	1.01	0.0228	"C"	1.01	0.0228	"C"
2023	1.09	0.0228	"C"	1.09	0.0228	"C"
			Baseline with Schedule A Preserved			
2024	1.02	0.0170	A	0.97	0.0170	A
2025	0.91	0.0170	A	0.80	0.0170	A
2026	0.78	0.0170	A	0.62	0.0170	A
2027	0.63	0.0170	A	0.47	0.0225	B
2028	0.43	0.0170	A	0.48	0.0393	D
2029	0.45	0.0393	D	0.45	0.0393	D
2030	0.49	0.0393	D	0.39	0.0393	D
2031	0.39	0.0293	C	0.39	0.0452	E
2032	0.39	0.0393	D	0.39	0.0452	E
			Baseline with Schedule A Dropped			
2024	1.10	0.0225	B	1.04	0.0225	B
2025	1.06	0.0225	B	0.96	0.0225	B
2026	1.02	0.0225	B	0.85	0.0225	B
2027	0.94	0.0225	B	0.71	0.0225	B
2028	0.81	0.0225	B	0.50	0.0225	B
2029	0.63	0.0225	B	0.32	0.0293	C
2030	0.43	0.0225	B	0.39	0.0510	F
2031	0.43	0.0393	C	0.41	0.0452	E
2032	0.45	0.0393	C	0.42	0.0452	E

Table 8 Maximum WBA at 50 percent or Two-Thirds of the Average Weekly Wage and the Taxable Wage Base of $8,500 Indexed with both Changes beginning in 2024, with and without Schedule A

	50% of AWW for Max WBA			2/3rds of AWW for Max WBA		
Year	AHCM	Average tax rate	Tax rate schedule	AHCM	Average tax rate	Tax rate schedule
2020	0.04	0.0197	A	0.04	0.0197	A
2021	0.91	0.0323	"F"	0.91	0.0323	"F"
2022	1.01	0.0228	"C"	1.01	0.0228	"C"
2023	1.09	0.0228	"C"	1.09	0.0228	"C"
		TWB $8,500 and Indexed and Schedule A Preserved				
2024	1.03	0.0170	A	0.98	0.0170	A
2025	0.93	0.0170	A	0.82	0.0170	A
2026	0.81	0.0170	A	0.65	0.0170	A
2027	0.68	0.0170	A	0.52	0.0225	B
2028	0.50	0.0170	A	0.58	0.0393	D
2029	0.58	0.0393	D	0.47	0.0293	C
2030	0.54	0.0293	C	0.46	0.0393	D
2031	0.48	0.0293	C	0.54	0.0452	E
2032	0.56	0.0393	D	0.56	0.0393	D
		TWB $8,500 and Indexed and Schedule A Dropped				
2024	1.10	0.0225	B	1.05	0.0225	B
2025	1.09	0.0225	B	0.98	0.0225	B
2026	1.06	0.0225	B	0.89	0.0225	B
2027	1.00	0.0225	B	0.77	0.0225	B
2028	0.91	0.0225	B	0.60	0.0225	B
2029	0.76	0.0225	B	0.46	0.0293	C
2030	0.60	0.0225	B	0.53	0.0452	E
2031	0.43	0.0225	B	0.54	0.0393	C
2032	0.58	0.0452	E	0.54	0.0393	C

Table 9 Maximum WBA at 50 percent or Two-Thirds of the Average Weekly Wage and a Taxable Wage Base of $10,000 Indexed with both Changes beginning in 2024, with and without Schedule A

	50% of AWW for Max WBA			2/3rds of AWW for Max WBA		
Year	AHCM	Average tax rate	Tax rate schedule	AHCM	Average tax rate	Tax rate schedule
2020	0.04	0.0197	A	0.04	0.0197	A
2021	0.91	0.0323	"F"	0.91	0.0323	"F"
2022	1.01	0.0228	"C"	1.01	0.0228	"C"
2023	1.09	0.0228	"C"	1.09	0.0228	"C"
			TWB $10,000 and Indexed and Schedule A Preserved			
2024	1.06	0.0170	A	1.00	0.0170	A
2025	0.98	0.0170	A	0.88	0.0170	A
2026	0.90	0.0170	A	0.73	0.0170	A
2027	0.80	0.0170	A	0.65	0.0225	B
2028	0.65	0.0170	A	0.62	0.0293	C
2029	0.63	0.0293	C	0.54	0.0293	C
2030	0.63	0.0293	C	0.59	0.0393	D
2031	0.62	0.0293	C	0.67	0.0393	D
2032	0.62	0.0293	C	0.59	0.0293	C
			TWB $10,000 and Indexed and Schedule A Dropped			
2024	1.14	0.0225	B	1.09	0.0225	B
2025	1.16	0.0225	B	1.05	0.0225	B
2026	1.17	0.0225	B	1.00	0.0225	B
2027	1.16	0.0225	B	0.92	0.0225	B
2028	1.10	0.0225	B	0.79	0.0225	B
2029	0.99	0.0225	B	0.59	0.0225	B
2030	0.86	0.0225	B	0.48	0.0293	C
2031	0.74	0.0225	B	0.63	0.0452	E
2032	0.61	0.0225	B	0.71	0.0393	D

Table 10 Maximum WBA at 50 percent or Two-Thirds of the Average Weekly Wage and a Taxable Wage Base Indexed at 15 percent of the Average Annual Wage with both Changes beginning in 2024, with and without Schedule A

	50% of AWW for Max WBA			2/3rds of AWW for Max WBA		
Year	AHCM	Average tax rate	Tax rate schedule	AHCM	Average tax rate	Tax rate schedule
2020	0.04	0.0197	A	0.04	0.0197	A
2021	0.91	0.0323	"F"	0.91	0.0323	"F"
2022	1.01	0.0228	"C"	1.01	0.0228	"C"
2023	1.09	0.0228	"C"	1.09	0.0228	"C"
	TWB at 15% of AAW and Schedule A Preserved					
2024	1.07	0.0170	A	1.01	0.0170	A
2025	1.01	0.0170	A	0.90	0.0170	A
2026	0.94	0.0170	A	0.77	0.0170	A
2027	0.85	0.0170	A	0.70	0.0225	B
2028	0.72	0.0170	A	0.70	0.0293	C
2029	0.62	0.0225	B	0.65	0.0293	C
2030	0.63	0.0293	C	0.58	0.0293	C
2031	0.81	0.0393	D	0.67	0.0393	D
2032	0.74	0.0225	B	0.61	0.0293	C
	TWB at 15% of AAW and Schedule A Dropped					
2024	1.15	0.0225	B	1.10	0.0225	B
2025	1.19	0.0225	B	1.08	0.0225	B
2026	1.22	0.0225	B	1.05	0.0225	B
2027	1.23	0.0225	B	0.99	0.0225	B
2028	1.19	0.0225	B	0.88	0.0225	B
2029	1.10	0.0225	B	0.70	0.0225	B
2030	0.99	0.0225	B	0.62	0.0293	C
2031	0.88	0.0225	B	0.70	0.0393	D
2032	0.78	0.0225	B	0.65	0.0293	C

Table 11 Maximum WBA at 50 percent or Two-Thirds of the Average Weekly Wage and a Taxable Wage Base Indexed at 20 percent of the Average Annual Wage with both Changes beginning in 2024, with and without Schedule A

	50% of AWW for Max WBA			2/3rds of AWW for Max WBA		
Year	AHCM	Average tax rate	Tax rate schedule	AHCM	Average tax rate	Tax rate schedule
2020	0.04	0.0197	A	0.04	0.0197	A
2021	0.91	0.0323	"F"	0.91	0.0323	"F"
2022	1.01	0.0228	"C"	1.01	0.0228	"C"
2023	1.09	0.0228	"C"	1.09	0.0228	"C"
	TWB at 20% of AAW and Schedule A Preserved					
2024	1.13	0.0170	A	1.08	0.0170	A
2025	1.14	0.0170	A	1.03	0.0170	A
2026	1.14	0.0170	A	0.98	0.0170	A
2027	1.12	0.0170	A	1.00	0.0225	B
2028	1.06	0.0170	A	0.98	0.0225	B
2029	0.94	0.0170	A	0.90	0.0225	B
2030	0.92	0.0225	B	0.80	0.0225	B
2031	0.91	0.0225	B	0.84	0.0293	C
2032	0.90	0.0225	B	0.88	0.0293	C
	TWB at 20% of AAW and Schedule A Dropped					
2024	1.24	0.0225	B	1.19	0.0225	B
2025	1.37	0.0225	B	1.26	0.0225	B
2026	1.49	0.0225	B	1.32	0.0225	B
2027	1.59	0.0225	B	1.36	0.0225	B
2028	1.64	0.0225	B	1.33	0.0225	B
2029	1.64	0.0225	B	1.25	0.0225	B
2030	1.63	0.0225	B	1.15	0.0225	B
2031	1.61	0.0225	B	1.04	0.0225	B
2032	1.59	0.0225	B	0.94	0.0225	B

Table 12 Maximum WBA at 50 percent or Two-Thirds of the Average Weekly Wage and a Taxable Wage Base Indexed at 25 percent of the Average Annual Wage with both Changes beginning in 2024, with and without Schedule A

	50% of AWW for Max WBA			2/3rds of AWW for Max WBA		
Year	AHCM	Average tax rate	Tax rate Schedule	AHCM	Average tax rate	Tax rate schedule
2020	0.04	0.0197	A	0.04	0.0197	A
2021	0.91	0.0323	"F"	0.91	0.0323	"F"
2022	1.01	0.0228	"C"	1.01	0.0228	"C"
2023	1.09	0.0228	"C"	1.09	0.0228	"C"
	TWB at 25% of AAW and Schedule A Preserved					
2024	1.19	0.0170	A	1.14	0.0170	A
2025	1.27	0.0170	A	1.30	0.0225	B
2026	1.35	0.0170	A	1.32	0.0170	A
2027	1.40	0.0170	A	1.31	0.0170	A
2028	1.40	0.0170	A	1.23	0.0170	A
2029	1.35	0.0170	A	1.10	0.0170	A
2030	1.29	0.0170	A	1.08	0.0225	B
2031	1.22	0.0170	A	1.23	0.0293	C
2032	1.16	0.0170	A	1.23	0.0225	B
	TWB at 25% of AAW and Schedule A Dropped					
2024	1.32	0.0225	B	1.27	0.0225	B
2025	1.55	0.0225	B	1.44	0.0225	B
2026	1.76	0.0225	B	1.59	0.0225	B
2027	1.95	0.0225	B	1.72	0.0225	B
2028	2.10	0.0225	B	1.79	0.0225	B
2029	2.19	0.0225	B	1.79	0.0225	B
2030	2.26	0.0225	B	1.78	0.0225	B
2031	2.33	0.0225	B	1.76	0.0225	B
2032	2.39	0.0225	B	1.74	0.0225	B

Table 13 Maximum WBA at 50 percent or Two-Thirds of the Average Weekly Wage and a Taxable Wage Base Indexed at 30 percent of the Average Annual Wage with both Changes beginning in 2024, with and without Schedule A

	50% of AWW for Max WBA			2/3rds of AWW for Max WBA		
Year	AHCM	Average tax rate	Tax rate schedule	AHCM	Average tax rate	Tax rate schedule
2020	0.04	0.0197	A	0.04	0.0197	A
2021	0.91	0.0323	"F"	0.91	0.0323	"F"
2022	1.01	0.0228	"C"	1.01	0.0228	"C"
2023	1.09	0.0228	"C"	1.09	0.0228	"C"
	TWB at 30% if AAW and Schedule A Preserved					
2024	1.25	0.0170	A	1.20	0.0170	A
2025	1.56	0.0225	B	1.45	0.0225	B
2026	1.72	0.0170	A	1.55	0.0170	A
2027	1.84	0.0170	A	1.60	0.0170	A
2028	1.91	0.0170	A	1.60	0.0170	A
2029	1.92	0.0170	A	1.53	0.0170	A
2030	1.92	0.0170	A	1.44	0.0170	A
2031	1.92	0.0170	A	1.36	0.0170	A
2032	1.92	0.0170	A	1.42	0.0225	B
	TWB at 30% if AAW and Schedule A Dropped					
2024	1.40	0.0225	B	1.35	0.0225	B
2025	1.72	0.0225	B	1.61	0.0225	B
2026	2.03	0.0225	B	1.86	0.0225	B
2027	2.32	0.0225	B	2.08	0.0225	B
2028	2.55	0.0225	B	2.24	0.0225	B
2029	2.73	0.0225	B	2.34	0.0225	B
2030	2.89	0.0225	B	2.41	0.0225	B
2031	3.05	0.0225	B	2.48	0.0225	B
2032	3.20	0.0225	B	2.55	0.0225	B

Options for Other Benefit Reforms

In this section, we present results from microsimulations of the cost of increasing the minimum weekly UI benefit, the amount of the allowance for dependents, and the earnings disregard. Since the UNIS-X model does not easily simulate these components of Maryland's UI system, we used micro, administrative, UI claims data to simulate changes to these often-neglected components of UI.

The sample includes a subset of UI beneficiaries who filed claims between 2015 and 2019 for whom we could also replicate their WBA using available UI wage records. From there, we simulate the following changes: 1) setting the minimum weekly benefit amount equal to 15 percent of the prior year's average weekly wage, 2) setting the allowance for each dependent to one-fourth of the minimum weekly benefit (up to a maximum of four dependents), and 3) setting the earnings disregard equal to 50 percent of the weekly benefit amount. These simulations assume no changes to Maryland minimum monetary eligibility requirements.[6]

We next report a second set of benefit simulations paralleling the prior set but reducing the minimum weekly benefit from 15 percent to 10 percent of the average weekly wage. The percentages used for the dependents allowance (25 percent of the minimum) and the earnings disregard (50 percent of the WBA) are not changed. However, because the minimum is lower, the amount of the allowance for dependents will fall for all persons claiming dependents, and the earnings disregard will be lower for some beneficiaries in the sample who report earnings on their claim form.

Finally, because the earnings disregard is simulated as a function of the weekly benefit amount, and because prior simulations discussed have increased maximum benefit levels, we assume the maximum is at two-thirds of the prior year's average weekly wage.

Table 14 presents the results of these modifications and shows the incremental cost of simulated items based on the available program administrative data for 2015 to 2019. Not surprisingly, the largest incremental cost increase results when raising the maximum weekly benefit amount to two-thirds of the average weekly wage. From there, the incremental percentage change in benefit payments from setting the minimum at 15 percent of the AWW, the dependents allowance at one-fourth of the minimum, and the earnings disregard at 50 percent of the WBA are 0.6, 1.8, and 1.7 percent respectively. The total incremental percentage increase in benefit payments suggested by the micro data would be about 4.2 percent.

The simulation was repeated with the minimum WBA reduced from 15 to 10 percent of the prior year's average weekly wage. The incremental cost of all three additional benefit enhancements is slightly less than 3 percent. However, comparing the results for the minimum WBA, setting the minimum at 10 percent of the average weekly wage suggests there are a substantial number of UI beneficiaries who qualify for WBAs in the range between the 10 and 15 percent of average

[6] To be eligible applicants must have earned 1.5 times their high quarter wages in the base period, and at least $1,176 in their high quarter, meaning at least $1,800 in the base period if their earnings just reached the minimum required.

weekly wages who would be impacted by the change in the factor for setting the minimum WBA.

The micro-data analysis suggests that modifications to the minimum benefit, allowance for dependents, and the earnings disregard contribute relatively little to added total UI benefit payments. However, when using fixed dollar amounts for these benefit components, as is current law in Maryland, lengthy periods between legislative modifications reduce their value to the unemployed in real terms over time. And these are beneficiaries with the lowest prior earnings histories who are probably at greatest risk of slipping into poverty during unemployment. Indexing the minimum WBA, dependents allowances, and earnings disregard as we have described here would maintain their real value to UI beneficiaries at "relatively small" incremental costs to the system.

Table 14 Simulated Maryland UI Benefit Costs Using Micro Data Sample of Benefit Years beginning in 2015 - 2019 (dollar values in millions, *1)

	Total benefits	Change	Percent change
Micro sample selected (*1)	2,056.4		
+ Max WBA 2/3 of AWW	2,574.3	517.9	25.18
+ Min WBA 15% of AWW	2,590.2	15.9	0.62
+ Dependents' allowance, 1/4 min WBA	2,636.6	46.4	1.79
+ Earnings disregard 50% of WBA	2,681.4	44.8	1.70
Sum of all modification		625.0	30.39
Cost of minimum, DA and disregard		107.1	4.16
Modify Minimum WBA to 10 Percent of AWW			
Micro sample selected (*1)	2,056.4		
+ Max WBA 2/3 of AWW	2,574.3	517.9	25.18
+ Min WBA 10% of AWW	2,577.0	2.7	0.10
+ Dependents' allowance, 1/4 min WBA	2,605.4	28.5	1.11
+ Earnings disregard 50% of WBA	2,649.2	43.8	1.68
Sum of all modification		592.8	28.83
Cost of minimum, DA and disregard		74.9	2.91

Note: (*1) The sample includes regular UI beneficiaries with benefit year begin dates in 2015 through 2019. For benefit recipients whose weekly benefit amount before dependents allowance was below $430, a requirement was further imposed that the calculation of the recipient's WBA using the quarterly wage records matched the value in the administrative UI claims data file. In the administrative data, for recipients whose WBA before allowance for dependents would have been greater than the $430 maximum, we cannot apply the same restriction since the value supplied for all such recipients is capped at the $430 maximum.

More Years Added to the Benefit Ratio Calculation

Maryland uses a three-year benefit ratio to experience rate employers. Therefore, because of averaging benefit charges relative to payrolls over three years, benefit ratios rise quickly after new benefit charges are added to the numerator. For a given increase in benefit charges, everything else constant, a four- or five-year benefit ratio would increase tax rates by a smaller amount but would maintain increases for a longer period. Figure 7 gives a simple graphical example of the effect of changing from a 3-year to a 4- or 5-year benefit ratio. In this example,

the benefit ratio directly determines the tax rate, taxable wages are fixed at $1,000 per year for a hypothetical employer, and there are $10 in benefit charges every year except in 2017 when benefit charges jump to $30.

Figure 7 Effect of a 2017 Spike in Benefit Charges on UI Tax Payments with a 3, 4, or 5 year Benefit Ratio (BR)

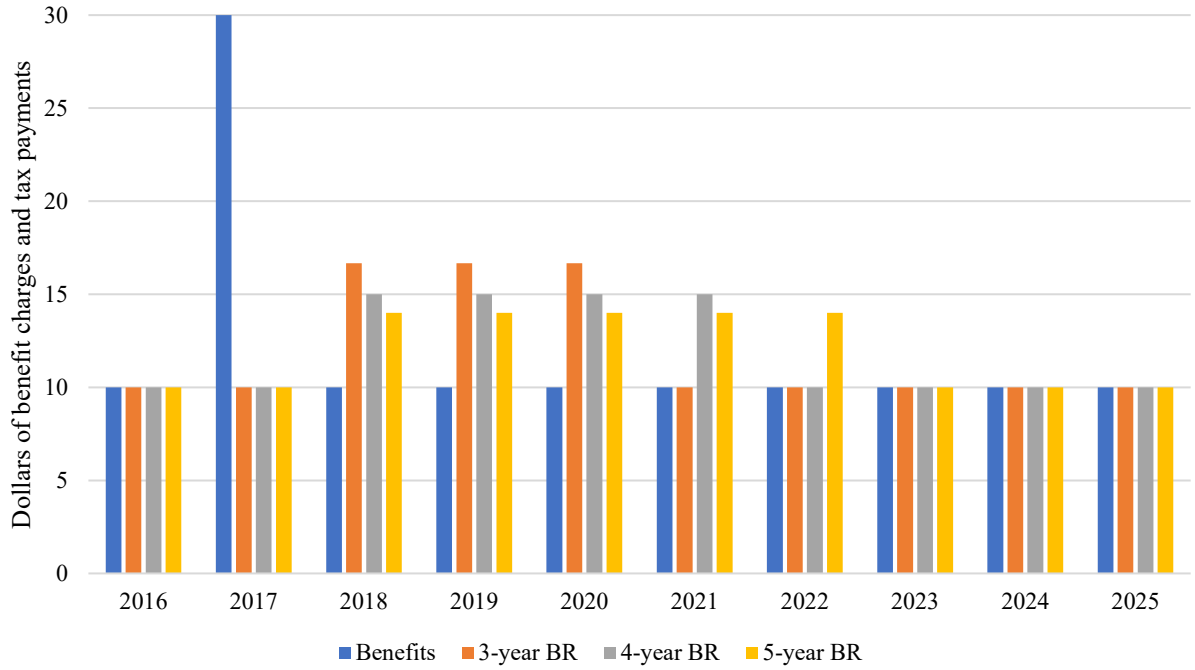


Figure 1 shows employer annual tax payments are the same level before 2017 and after 2022. This employer is in the experience rated range of tax rates being neither at the maximum nor minimum tax rate. Over the five-year period, 2018 to 2022, total tax payments for a firm in this scenario would be $70 under all three benefit ratio calculations. Under the three-year benefit ratio, the firm pays $16.67 in the three years 2018 through 2020 for a total of $50, plus $10 each year in 2021 and 2022 for a grand total of $70. Using the four-year benefit ratio, the firm would have paid $15 in each of the four years 2018 through 2021 for a total of $60 plus an additional $10 in 2022, also making the grand total $70. If the benefit ratio was calculated over a five-year period, that firm would pay $14 each year between 2018 and 2022, again for a grand total of $70

The $20 marginal increase in *benefit charges* in 2017 impacts the benefit ratio and tax rates applied in 2018 and beyond. If the aim is to dampen the immediate increase in taxes, then adding years to the benefit ratio will reduce the size of the annual tax increase. As the example shows adding years to the benefit ratio prolongs the repayment period. Furthermore, since there are no interest charges in the repayment period, future payments can be discounted. Since the total repayment is the same, the longer-term repayment is lower since discount rates are positive.

Short-Time Compensation (Workshare)

The Maryland workshare program, also known as short time compensation (STC), was signed into law in 1984 with the first Maryland workshare beneficiaries in 1985. The program can be a powerful tool for employers to use in periods of slack demand to help preserve relationships with employees. For employees, workshare helps avoid the difficulty of complete separation, keeps them connected to their employer, and keeps fringe benefits like health insurance active. Workshare helps employers return to full production quickly by just expanding hours with workers already on the payroll who have the knowledge and skills to do the job so that hiring and training costs are avoided.

Maryland workshare activity is summarized in monthly reports to the U.S. Department of Labor, Employment and Training Administration (ETA) on UI claims—ETA report 5159. The reports on STC activity summarized in Table 15 for 2010 to 2021 show that workshare is not widely used by Maryland employers. The ETA 5159 data for this period show that an average of 14 employer plans were active in any month with an average of 79 workers receiving STC benefits in any month in the period. The number of STC plans in place spiked dramatically in 2020 to 73 active plans on average per month and the average monthly number of plans in 2021 was 54 (through August). The modest dollar amount of benefits associated with these claims is consistent with limited usage. For example, in 2010, during the financial crisis, the highest total dollars in STC benefits were paid out among all pre-pandemic years. Total 2010 benefit payments for Maryland STC were $1.26 million. That same year, total regular UI payments to Maryland employees of taxable employers amounted to nearly $850 million (O'Leary and Kline 2021).

The available data for workshare show low usage rates of this potentially valuable UI program by Maryland employers. Non-charging of STC benefit payments against firms could increase program participation rates with a small impact on the Maryland UI reserve position. In non-recessionary times, the numbers of employers using workshare as an alternative to UI are small but suspending or reducing benefit charges during these periods, along with an informational campaign about the program, could broaden the knowledge of the program that would be more widely operational in crisis periods when federal funding could be forthcoming (Houseman et al. 2017).

There have been three recent cases of federal funding for workshare. The Middleclass Tax Relief and Job Creation Act of 2012 provided for up to three years of 100 percent reimbursement for workshare benefit payments. Some states passed these reimbursements on to individual employer accounts so that employer UI tax rates were not affected by workshare benefits during that period. Similarly, the Coronavirus Aid Relief and Economic Security (CARES) Act in 2020 and the American Rescue Plan (ARP) in 2021 fully reimbursed states for workshare benefits. Since workshare benefits are normally charged to employers and benefit charges normally increase employer tax rates, reimbursing for workshare benefits and not charging employers for benefit payments could induce employers to use workshare over layoffs to avoid UI tax rate increases while maintaining contact with employees.

The small scale of workshare usage means the cost of providing STC reimbursement would be modest. If the popularity of workshare expands, the costs could rise. However, it appears that in severe crises the federal government is likely to pay for workshare benefits, and during non-crisis periods employer usage of workshare is low. It may well be worth broadening knowledge of workshare throughout the employer community so that it could become a widely used tool for macroeconomic stabilization in crisis periods.

Table 15 Summary of ETA 5159 Short-Time Compensation (Workshare) in Maryland

	Claims		Total payment amount ($)		Active Plans per Month (*2)
Year	Total	Monthly average	Total	Average per Claim ($) (*1)	
2010	1,390	116	1,262,720	908	
2011	708	59	624,472	882	
2012	549	46	595,141	1,084	7
2013	620	52	347,487	560	5
2014	53	4	110,211	2,079	4
2015	139	12	37,573	270	2
2016	159	13	185,120	1,164	3
2017	18	2	89,741	4,986	2
2018	268	22	197,375	736	2
2019	1,148	96	109,058	95	1
2020	5,759	480	6,090,356	1,058	73
2021	546	47	1,281,997	2,348	43
	11,357	79	10,931,251	963	14

Note: (*1) The average amount of UI payments per claim is only an approximation as it assumes payments are made in the same year during which the claim was filed. Persons filing a workshare claim late in a year are likely to receive UI payments in the subsequent year. (*2) Maryland did not begin reporting the number of firms with active plans each month until July 2012. Plans appear in the data each month they are active. The number of unique plans in a year is not known.

Costs of increasing benefit generosity with a behavioral response

Program cost simulations presented to this point ignore the likelihood of a behavioral response by UI beneficiaries to an increase in the wage replacement rate. Raising and/or indexing the maximum WBA will raise the wage replacement rate for those at the previously fixed maximum WBA. A summary of studies about the effect of benefits on durations of UI receipt suggests that a 10 percent increase in the wage replacement rate will increase UI benefit durations by about 1.0 week (Decker 1997, pp. 292-296). The impact estimates range between 0.5 and 1.5 weeks and mostly regard first spell effects. Very few Maryland UI benefit years involve more than one spell of UI benefit receipt.

Table 16 shows simulated values of the average weekly wage (AWW) and average weekly benefit amount (AWBA) from 2022 to 2032. Assuming that any change in Maryland benefit generosity would take effect in 2024 we use those values to simulate the cost of a behavioral response to the increased wage replacement. Note that since the replacement rate formula is not adjusted below the maximum WBA, the wage replacement rate is only increased for those with calculated WBAs above the current maximum of $430 and below the new maximum. Our simulation approximates the overall effect by considering the average change in the wage

replacement rate. As Table 16 shows, with the maximum WBA fixed at $430 the average WBA in 2024 is simulated to be $376. Relative to average weekly wages (AWW) in the prior year the replacement rate is 0.266 (= $376/$1,412). Setting the maximum WBA at 50 percent of the AWW yields $503 or a 2024 wage replacement rate of 0.356 which is a 34.0 percent increase. Setting the maximum WBA at two-thirds of the AWW yields a maximum WBA of $612 for a wage replacement rate of 0.433 or an increase of 62.9 percent.

Assuming the behavioral response is a 1 week increase in benefit duration for every 10 percent increase in wage replacement, increasing the maximum WBA to 50 percent of the AWW would increase the average duration of benefits by 3.40 weeks, and increasing the maximum WBA to two-thirds of the AWW would increase the average duration of benefits by 6.29 weeks. Since we don't have 2024 values for the average duration of benefit receipt, we use 2019 values to simulate costs.

Table 16. Simulated Average Weekly Wage, Average Weekly Benefit Amounts (WBA) and Wage Replacement Rates

	Baseline Scenario			Maximum 50% of AWW			Maximum 2/3rds of AWW		
Year	Average Wage	Average WBA (4)	Replacement rate (*1)	Average WBA ($)	Replacement rate (*1)	Percentage Change	Average WBA ($)	Replacement rate (*1)	Percentage change
2020	1,219	322		322			322		
2021	1,307	323	0.265	323	0.265	0.0	323	0.265	0.0
2022	1,357	362	0.277	362	0.277	0.0	362	0.277	0.0
2023	1,412	369	0.272	369	0.272	0.0	369	0.272	0.0
2024 (*2)	1,464	376	0.266	503	0.356	34.0	612	0.433	62.9
2025	1,517	383	0.262	528	0.360	37.7	645	0.440	68.2
2026	1,551	390	0.257	551	0.363	41.4	675	0.445	73.3
2027	1,586	393	0.253	566	0.365	44.1	695	0.448	77.1
2028	1,622	397	0.251	583	0.368	46.8	719	0.453	80.8
2029	1,658	402	0.248	602	0.371	49.5	743	0.458	84.7
2030	1,695	408	0.246	621	0.375	52.4	769	0.464	88.7
2031	1,734	413	0.243	641	0.378	55.4	796	0.470	92.9
2032	1,773	418	0.241	663	0.382	58.5	824	0.475	97.1

Notes: : (*1) Defined as the average weekly benefit amount divided by the prior year's average weekly wage. (376/1,412).

(*2) Assuming a ten percent increase in the wage replacement rate results in an extra week of UI duration, setting the maximum at 50 percent of the AWW would increase duration by 3.4 weeks. In 2019, the average UI duration in Maryland (ETA 394) was 17.7 weeks and a 3.4 week increase would raise total UI benefit costs by 19.2 percent [(3.4)/(17.7)]. According to 2019 UI micro data available to Upjohn, Maryland spent $436,020,509 on UI benefits. After an increase in UI benefit duration of 19.2 percent, total costs would rise to $468,993,768 which is an increase of 7.6 percent. The percentage cost increase is less than the 19.2 percent increase in duration because benefit year duration is capped at 26 weeks and not all UI beneficiaries would see an increase in their durations by that percentage because of that maximum. Similarly, a maximum WBA of two-thirds of the average weekly wage, with the resulting 63 percent increase in the replacement rate, would imply an unlikely duration increase of 6.3 weeks and an increase in total benefit costs 35.6 percent (6.3/17.7). Applying that to the same 2019 micro data resulted in a total benefit cost increase of 12.7 percent because the maximum potential duration of benefits is capped at 26 weeks.

In 2019, the average UI duration in Maryland (ETA 394) was 17.7. A 3.4 week increase in duration would raise total UI benefits paid by 19.2 percent (= 3.4/17.7). According to 2019 UI micro data available to Upjohn, Maryland spent $436,020,509 on UI benefits in 2019. An increase in UI benefit duration of 19.2 percent would raise the total cost of benefits to $468,993,768 which is an increase of 7.6 percent. Since we simulate costs using actual weeks paid in 2019, the percentage cost increase is less than 19.2 percent because the maximum duration for beneficiaries is capped at 26 weeks meaning that not all UI beneficiaries would see an increase in their durations by that percentage.[7] Similarly, for a maximum WBA at two-thirds

[7] For example, someone who drew 20 weeks of benefits would be simulated at 24 weeks duration, but someone who drew 25 weeks would be simulated at 26 weeks, and so forth.

of the average weekly wage, the resulting increase in benefit costs would be 35.6 percent (= 6.29/17.70). However, applying that increase to the 2019 Maryland data on benefit payments results in a total benefit cost increase of 12.7 percent because the maximum potential duration of benefits is capped at 26 weeks.

In discussing the effects of adding behavioral responses to cost estimates, it should be noted that we have focused on point estimates of the mean response. Naturally, there is a distribution around the mean. Since the range of estimates for the behavioral response to a 10 percent increase in the wage replacement rate is between 0.5 and 1.5 weeks, we should regard our point estimates of 7.6 and 12.7 percent benefit payment increases for the maximums pegged at 50 and 67 percent as being in the middle of a range that with bounds above and below these means. In terms of financing a complete package of indexed benefit improvements (maximum, minimum, dependents allowance, and earnings disregard), we should recognize that a taxable wage base indexed to 25 percent or one-quarter of average annual wages should be sufficient along with the current set of six tax schedules and trigger thresholds for switching between schedules. That is, a TWB at one-third of AAW should keep the ACHM above 1.0 over time.

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Appendix A: Baseline Simulation Assumptions

The UNIS-X model for Maryland, developed by the U.S. Department of Labor, allows users to simulate state policy modifications related to UI financing and benefits. However, predicted values from those policy changes such as annual revenue, benefit payments, and trust fund balance are always measured relative to a baseline forecast that combines economic assumptions with existing program parameters. At the time of this writing, the data used by the model were incomplete for 2021 and the model was still using 2020 as its "base year" (update expected in August 2022). This meant some adjustments were needed to force the model to solve to values for the variables that were complete for 2021.

Tax schedule F was in effect for 2021 though employers were not charged for pandemic related benefits paid in 2020—unless considering the 2020 period would yield a lower benefit ratio for the employer. To capture the non-charging for 2020 when determining firms' 2021 tax rates, a modification was made to the average tax rate used by the model for schedule F in 2021 to force the solution to return actual tax revenue received that calendar year. Results of the macro simulation also reflect the imposition of UI tax schedule C in effect for 2022 and 2023. Based on revenue received in the first quarter of 2022 and seasonal revenue patterns observed, the average tax rate used for schedule C was adjusted to force the model to solve to an estimate of total revenue for 2022. That same schedule C tax rate was issued for calendar year 2023 as well.

Labor Market

Table A1 presents some history and forecast values for labor market economic inputs to the UNIS-X model used for the Maryland macro simulations. There are four key inputs to the Maryland model: 1) labor force growth, 2) covered employment growth, 3) the total unemployment rate, and 4) the average, weekly wage. Data needed to define the first three items are from the U.S. Department of Labor, Bureau of Labor Statistics, Local Area Unemployment Statistics (LAUS) (https://www.bls.gov/lau/data.htm). Data for covered employment and the average weekly wage are from the United States Department of Labor, Employment and Training Administration, ET Financial Data Handbook, 394 (https://oui.doleta.gov/unemploy/hb394.asp).

LAUS, monthly, seasonally adjusted data were downloaded through 2021 and then averaged to derive annual numbers. The average weekly wage and its growth for 2021 of 6.9 percent is based on three quarters of average weekly wage data from the UI Quarterly Data Summary (https://oui.doleta.gov/unemploy/data_summary/DataSum.asp). For the LAUS labor market data (labor force, employment, unemployment, and the unemployment rate), averages for 2022 are based on the average of monthly, seasonally adjusted data through April. An exception to this is for the assumed average for 2022 for the labor force. Here we chose to use the January through April average of the non-seasonally adjusted labor force data because it yielded unemployment levels and, therefore, unemployment rate levels, that were very consistent with UI initial and continued claims data observed thus far in 2022 in Maryland.

Labor force growth in 2022 has been sluggish and is assumed to rise just 0.2 percent. The relatively sharp rise in employment, estimated to grow 1.8 percent based on incoming data, means that the unemployment rate is expected to fall sharply in 2022, averaging 4.3 percent, down from the 5.8 percent average for 2022. New and re-entrants to the labor force are expected to increase labor force participation in 2023 and 2024 leading to 1.1 percent annual growth in the labor force before slowing slightly to a 1.0 percent average growth rate for the remainder of the forecast period. The 1.1 percent growth rate for 2023 and 2024 is the average labor force growth rate observed since 1976. The 1.0 percent rate for the remainder

of the forecast interval is based on the average observed for 1989 through 1999 which did include a mild recession in 1991-1992.

After its 1.8 percent growth in 2022, total employment is expected to growth 1.0 percent annually through 2032 which is its average growth rate overserved from the 1989-1999. However, the UNIS_X model for employment growth requires growth rates for total UI covered employment. To derive those estimates, we used the annual data for Maryland for 1976 through 2020 and estimated an ordinary-least -squares (OLS) regression of the natural log of UI covered employment (from ETA 394) as a function of the natural log of total employment. The estimated coefficient on the log of total employment is an elasticity that measures the percentage change in UI covered employment for a one percent change in total employment.

The estimated parameter or elasticity is 1.178. We set forecast values for covered employment growth rates for 2022 through 2032 as the product of that parameter estimate and the assumed growth rate for total employment.

The average weekly wage showed very strong gains during the pandemic rising 10.3 percent in 2020. This can be attributed to layoffs among relatively lower wage earners during the pandemic and continued steady employment through greater work flexibility, such as work-from-home, among relatively higher paid individuals when faced with pandemic lockdowns and restrictions. However, recent inflationary pressures greatly lessen the likelihood of near-term stabilization of the average weekly wage even as labor markets return to more traditional relationships unrelated to the pandemic.

Based on three quarters of 2021 data, average weekly wage growth remains strong at 6.9 percent. With inflationary pressures and cost-of-living adjustments, the average weekly wage is assumed to grow 4.1 percent annually in 2022 and 2023 which is the average growth rate observed 1989-1999. It decelerates slightly to 3.6 percent annual growth rates in 2024 and 2025 before slowing to the assumed 2.2 percent annual growth through 2022 which is the modest average growth rate observed coming out of the financial crisis.

UI Recipiency

A key parameter in the UNIS-X model is the relationship between the insured unemployment rate (IUR) and the total unemployment rate (TUR). The ratio of the insured-to-total unemployment rate is a proxy for what economists refer to as the UI recipiency rate or the share of unemployed who receive UI benefits. Data for the total unemployment rate are from LAUS and were discussed previously. Data for the insured unemployment rate are from the UI Quarterly Data Summary.

We examined the history of this ratio over three different time periods. Between 1989 and 1999, the ratio of the insured-to-total unemployment rate averaged 0.381. The ratio declined to an average of 0.356 between 1999 and 2009 and was 0.337 between 2009 and 2019. While somewhat arbitrary, we chose the middle ground (0.356) and adjusted the model to hit that ratio. The adjustments are discussed in the next section.

Model Parameter Adjustments

The UNIS-X model allows the user to adjust model estimates to better align results with forecast assumptions, available recent data, and desired simulation scenarios. The user can adjust four model parameters for each year in the simulation: 1) TUR-to-IUR, 2) average weekly benefits, 3) total weeks compensated, and 4) taxable wages.

Table A2 presents the values (in percent) that were used to adjust the model's estimates to be consistent with forecast assumptions. Adjustments to the IUR-TUR relationship are quite extreme for 2021 and 2022 but were needed to hit the observed insured unemployment rate for 2021 and the rate that would be consistent with available data for 2022 for the total unemployment rate.[8] We believe this extreme was induced into the model because of the low UI recipiency rate leading up to the pandemic which spiked upward dramatically in 2020 and is included in the model's base year and automatic re-estimation. Values for this adjustment become more consistent beginning in 2023 and are those needed to hit the target ratio of the insured-to-total unemployment rate (0.356).

The average weekly benefit amount was adjusted downward slightly. Given the available data through April for the average weekly benefit amount in Maryland (UI Monthly Financial Data Summary), the model seemed to over-predict the likely average for 2022. This -2.0% adjustment was carried through the duration of the forecast interval.

The adjustments to the number of weeks compensated were needed to dampen the model's prediction of total UI benefit costs, particularly in 2022 given actual, observed UI payments and likely seasonal UI patterns for the remainder of the year. This downward adjustment was preserved in the early years of the forecast interval to reflect the current, very low labor force participation rates. But the forecast assumes increased labor force growth and as new and re-entrants to the labor force cycle through employment and unemployment, UI benefit costs are expected to rise and be more consistent with historic "norms." Therefore, this adjustment was phased to zero.

Finally, taxable wages were reduced slightly to make the 2022 tax revenue forecast more consistent with incoming information and the expected total revenue for 2022 given historical, quarterly patterns of UI tax revenue.

[8] The UNIS-X model parameter for the relationship between the insured unemployment rate and the total unemployment rate is simply the inverse of the we have discussed the relationship in this appendix (ratio of the insured unemployment rate to the total unemployment rate or the UI recipiency rate).

Table A1 Economic Inputs into the Baseline UNIS-X Model Forecast

	Labor Force		Total Employment		Total Unemployment		Total	Covered Employment		Average Weekly Wage	
Year	Level	Percent change	Level	Percent change	Level	Percent change	Unemployment rate	Level	Percent change	Level	Percent change
2005	2,931,581	1.6	2,800,381	1.8	131,621	-1.0	4.5	1,880,566	1.8	823.72	4.3
2006	2,984,444	1.8	2,859,388	2.1	124,396	-5.5	4.2	1,904,282	1.3	856.98	4.0
2007	2,989,317	0.2	2,878,633	0.7	111,323	-10.5	3.7	1,910,889	0.3	893.21	4.2
2008	3,027,934	1.3	2,891,046	0.4	136,426	22.5	4.5	1,890,528	-1.1	912.71	2.2
2009	3,049,869	0.7	2,819,927	-2.5	230,472	68.9	7.6	1,802,579	-4.7	926.19	1.5
2010	3,078,368	0.9	2,837,523	0.6	241,423	4.8	7.8	1,786,957	-0.9	950.05	2.6
2011	3,097,300	0.6	2,870,547	1.2	226,443	-6.2	7.3	1,801,864	0.8	971.91	2.3
2012	3,120,947	0.8	2,906,880	1.3	214,429	-5.3	6.9	1,835,696	1.9	996.51	2.5
2013	3,128,908	0.3	2,925,343	0.6	204,282	-4.7	6.5	1,864,253	1.6	995.56	-0.1
2014	3,125,017	-0.1	2,945,699	0.7	179,106	-12.3	5.7	1,883,368	1.0	1,017.93	2.2
2015	3,139,988	0.5	2,983,591	1.3	156,905	-12.4	5.0	1,931,327	2.5	1,048.67	3.0
2016	3,155,918	0.5	3,020,666	1.2	135,091	-13.9	4.3	1,964,486	1.7	1,067.23	1.8
2017	3,243,896	2.8	3,114,402	3.1	129,316	-4.3	4.0	1,986,119	1.1	1,095.17	2.6
2018	3,261,068	0.5	3,141,771	0.9	118,745	-8.2	3.6	2,005,211	1.0	1,123.99	2.6
2019	3,326,497	2.0	3,212,188	2.2	114,342	-3.7	3.4	2,024,088	0.9	1,156.97	2.9
2020	3,227,527	-3.0	3,011,292	-6.3	215,421	88.4	6.7	1,817,592	-10.2	1,276.13	10.3
2021	3,175,550	-1.6	2,989,593	-0.7	183,322	-14.9	5.8	1,802,163	-0.8	1,364.70	6.9
2022	3,181,286	0.2	3,043,508	1.8	137,777	-24.8	4.3	1,840,450	2.1	1,420.57	4.1
2023	3,217,318	1.1	3,074,977	1.0	142,341	3.3	4.4	1,862,868	1.2	1,478.73	4.1
2024	3,253,758	1.1	3,106,771	1.0	146,987	3.3	4.5	1,885,559	1.2	1,532.55	3.6
2025	3,286,280	1.0	3,138,894	1.0	147,386	0.3	4.5	1,908,527	1.2	1,588.32	3.6
2026	3,319,126	1.0	3,171,349	1.0	147,777	0.3	4.5	1,931,774	1.2	1,624.05	2.2
2027	3,352,301	1.0	3,204,139	1.0	148,162	0.3	4.4	1,955,304	1.2	1,660.59	2.2
2028	3,385,807	1.0	3,237,269	1.0	148,538	0.3	4.4	1,979,121	1.2	1,697.95	2.2
2029	3,419,649	1.0	3,270,741	1.0	148,908	0.2	4.4	2,003,228	1.2	1,736.15	2.2
2030	3,453,828	1.0	3,304,559	1.0	149,269	0.2	4.3	2,027,629	1.2	1,775.21	2.2
2031	3,488,349	1.0	3,338,727	1.0	149,622	0.2	4.3	2,052,327	1.2	1,815.14	2.2
2032	3,523,216	1.0	3,373,248	1.0	149,967	0.2	4.3	2,077,325	1.2	1,855.98	2.2
2033	3,558,430	1.0	3,408,126	1.0	150,304	0.2	4.2	2,102,629	1.2	1,897.73	2.2
Avg growth 2009-2019:		0.9		1.3							2.2
Avg growth 1999-2009:		1.0		0.5							3.6
Avg growth 1989-1999:		1.0		1.0							4.1
Avg growth 1976-2021:		1.1		1.1							4.4

Table A2 Summary of Adjustments Made to UNIS-X Model Parameters

	Parameter adjustment values in percent (%)			
Year	TUR-to-IUR	Avg weekly benefits	Total weeks compensated	Taxable wages
2021	183.0	none	7.0	none
2022	233.0	-2.0	-36.0	-1.5
2023	-29.0	-2.0	-38.0	none
2024	-29.3	-2.0	-38.0	none
2025	-24.6	-2.0	-33.0	none
2026	-24.6	-2.0	-28.0	none
2027	-24.6	-2.0	-23.0	none
2028	-24.8	-2.0	-13.0	none
2029	-24.7	-2.0	-3.0	none
2030	-24.4	-2.0	none	none
2031	-24.3	-2.0	none	none
2032	-24.2	-2.0	none	none