LEGISLATIVE REPORT

Impact of increasing the minimum weekly benefit amount

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Executive summary

During the 2021 Legislative session, lawmakers raised Washington's minimum weekly benefit amount (MWBA) for unemployment insurance (UI) claimants. Without this statutory change, the MWBA would have increased by $20/week, from $201/week to $221/week. But after the change, which took effect in July 2021, the:

- Rate used to calculate MWBA increased from 15 to 20 percent of the "average weekly wage."
- MWBA increased by $94/week, from $201/week to $295/week.

Employment Security Department (ESD) staff have created a model to study the impacts of receiving a higher MWBA on claimant outcomes and behavior. This is ESD's second in a series of five reports submitted annually in December.

Highlights

Because of the MWBA increase to $295/week in July 2021, UI claimants who received the increased MWBA between July 4, and Aug. 8, 2021:

- Earned an average additional $1,760.20 in wages in the quarter after filing their UI claim.
- On average, were 4.1 percentage points more likely to be reemployed in the quarter after filing their UI claim.
- Claimed 2.7 fewer weeks on average, suggesting the higher MWBA helped them finance their job search.
- Because they claimed for fewer weeks, they ended up claiming slightly less overall in benefits — despite receiving the higher weekly benefit amount.
- ESD's modeling implies an average reduction of $178.29 in total benefits claimed.

In this report, ESD studies outcomes for, and behavior of, 86,023 UI claimants whose benefit years began between April 4 and Aug. 8, 2021, and have since concluded. Of these, 4,772 people (5.5 percent) received the increased MWBA between July 4 and August 8 of 2021. The model accurately measures the impact of the MWBA increase but does so with a limited sample size. As ESD is required to complete this analysis annually until Dec. 1, 2025, we will have incrementally larger sample sizes from which to conduct analyses and draw conclusions.

Background

In 2021, Engrossed Substitute Senate Bill (ESSB) 5061 amended Revised Code of Washington (RCW) 50.20.120[1] so that:

> "For claims with an effective date of July 1, 2021, or after, the minimum amount payable weekly shall be 20 percent of the 'average weekly wage' for the calendar year preceding such June 30th," an increase from 15 percent of the "average weekly wage."

Accordingly, the MWBA increased from $201/week to $295/week on July 4, 2021.

RCW 50.12.355(1)(b)[2] requires ESD to provide an:

> "Analysis of the impact of the minimum weekly benefit amount increase, including comparing wages earned and benefits claimed for those individuals receiving the minimum weekly benefit amount and the average claim duration for those individuals."

In this report, we study outcomes for, and behavior of, UI claimants whose benefit years began between April 4 and Aug. 8, 2021. For these claimants, the one-year window to claim UI benefits, called the "benefit year," concluded as of Aug. 8, 2022.

Weekly benefit amounts

Washington adjusts the minimum and maximum weekly benefit amounts every year based on the state's average weekly wage. Before the policy change in July 2021, the MWBA was 15 percent of the average weekly wage. Since July 4, 2021, it has been 20 percent. In 2020 to 2021, the average weekly wage was $1,475. Since the average weekly wage tends to increase each year, the MWBA tends to increase each year.

On July 4, 2021, the MWBA increased both because the average weekly wage increased and because the percent used to calculate the MWBA increased from 15 to 20. Had the percent not increased, the MWBA would have been $221/week (15 percent of $1,475). The maximum

[1] See the RCW here: https://app.leg.wa.gov/rcw/default.aspx?cite=50.20.120.
[2] See the RCW here: https://app.leg.wa.gov/RCW/default.aspx?cite=50.12.355.

weekly benefit amount increased from $844/week to $929/week because of the increase in the average weekly wage. [3]

Base year. ESD calculates the UI weekly benefit amount (WBA) using claimants' earnings in their "base year." The base year is the first four calendar quarters of the five quarters prior to the quarter of their claim. If a claimant worked fewer than 680 hours in their base year, then ESD uses an alternative base year, which is the four quarters preceding the claim.

WBA calculations. The WBA is the average of the two highest earning quarters in the base (or alternative base) year, multiplied by 0.0385 (1/26, rounded). If that amount is below the MWBA, the claimant receives the MWBA. If that amount is above the maximum, the claimant receives the maximum.

Maximum benefit amounts. After determining claimants' WBA, ESD calculates the maximum or total amount of benefits they can receive. It is the smaller of these two options:

- 26 times the WBA.
- One-third of the total gross earnings in the base (or alternative base) year.

Example calculation

This is an example calculation of the WBA, total benefit amount, and the number of weeks people can claim before exhausting benefits. A hypothetical UI claimant earns $9,000 in the first quarter of their base year, $10,000 in the second, $11,000 in the third, and nothing in the fourth. The two highest base-year quarterly earnings are $10,000 and $11,000.

- This claimant's WBA would be $404/week.
- The total amount of UI benefits this claimant could receive is $10,000, even though 26 times $404 is $10,504.
    - They would receive $404 for 24 weeks, and $204 in week 25.
    - The total number of weeks they could claim would be 25, since they would reach $10,000 in benefits then.

[3] For more information on how the WBA is calculated, see https://esd.wa.gov/unemployment/calculate-your-benefit. Note that the website updates to reflect the current process, not necessarily the process that existed for 2021 claimants.

Relationship between maximum benefit amount and claim duration

In practice for many MWBA recipients, the amendment to RCW 50.20.120 increased the amount they could claim per week but decreased the total number of weeks in which they could claim benefits. A majority (70 percent) of claimants who received the higher MWBA did not experience an increase in the total benefits they could claim. About 30 percent of MWBA recipients *did* experience an increase in both their WBA and the total amount of money they could claim over the course of their benefit year. However, no MWBA recipients with benefit years starting between July 4 and Aug. 8, 2021, received the maximum possible increase in benefits of $1,924 ($74/week times 26 weeks).[4]

Claimants whose maximum benefit amount is $7,670 ($295*26), and receive $295/week, will exhaust their benefits in 26 weeks. However, if their maximum benefit amount is less than $7,670 and they claim $295/week, they will exhaust benefits more quickly.

- The average maximum benefit amount for MWBA recipients who claimed between July 4 and Aug. 8, 2021, was $5,535.80.
- Claimants would exhaust this amount in 19 weeks, as they could get the MWBA of $295 for 18 weeks and an additional payment of $225.80 in the 19th week.
- The increase in the MWBA reduced the number of weeks that claimants could receive compensation before exhausting their benefits by 3.1 weeks.

Methodology

Careful statistical analysis is necessary to attribute changes in peoples' careers and claim duration to the higher MWBA. To accurately measure the impact of the MWBA increase, ESD used a regression model. This approach allows us to control for the factors that explain who is impacted by the MWBA policy change and to what extent. The model tells us the average impact of the MWBA increase on MWBA recipients' careers. See the Appendices for technical details.

[4] In the absence of ESSB 5061, the MWBA would have increased to $221/week on July 4, 2021. The people who were most impacted by ESSB 5061 would have received $221/week, but actually received $295/week – a difference of $74/week. Claiming all 26 weeks of $295/week instead of $221/week would mean that they were compensated an additional $74/week for 26 weeks, or $1,924.

Simpler approaches, like comparing average earnings for people who received the MWBA before and after July 2021, show a correlation that can be influenced by things like labor market seasonality. Such a correlation does not accurately reflect the causal impact of the policy change.

Data

In this section, we report statistics on claimants who registered for UI in quarters two, three and four of 2021. Some of these claimants had open benefits years at the time of writing, Aug. 8, 2022. The statistics reported here may update as the data mature.

Of the 470,891 people that filed initial claims in these three quarters, 169,193 were monetarily eligible. These people were assigned a WBA and a corresponding fund was earmarked for each of them in the state's Unemployment Insurance Trust Fund. A week after registering for UI benefits, these 169,193 individuals could begin filing claims. Successful claims typically result in the payment of 1/26 of the amount earmarked for a claimant. Claimants can apply for benefits once per week for 52 weeks. This 52-week period is their "benefit year" and it begins when claimants register for UI benefits.

To successfully claim UI benefits on a registered account, claimants must meet additional eligibility criteria. For instance, they must be able, available, and actively searching for work and they must also respond to all ESD inquiries about their claim. Ineligibility can result in a one-time denial (claim week), or an indefinite denial. People with one-time denials can apply for benefits again in the next week and can be successful or unsuccessful on any of their weekly applications. Ineligibility can also result in an indefinite denial. This is the case, for instance, when a fraudulent claim is detected.[5]

Of the 169,193 people that were monetarily eligible and registered for UI benefits, only 148,669 filed a claim to receive UI compensation. The 20,524 people who registered for UI but didn't claim any money may have found a job between their UI registration and the time when they could begin claiming.[6] Also, most people with effective dates of claim in quarters three and four of 2021 still have open benefit years. They have not yet claimed money on their accounts, but still can if they choose to do so and meet non-monetary eligibility criteria.

[5] For more information, see the Washington state UI Handbook: https://media.esd.wa.gov/esdwa/Default/ESDWAGOV/Unemployment/ESD-Handbook-for-Unemployed-Workers.pdf

[6] Adjudication times increased during the pandemic and remained high in 2021. In some cases, this caused a substantial lag between claimants' filing for UI and being assigned a WBA.

Of the 148,669 people that attempted to claim at least one week of benefits, only 107,290 people received payments. The 41,379 people that filed for UI but have not received any UI compensation have either been indefinitely denied benefits (11,625 people) or received temporary denials in each of their applications to date (29,754 people). Some may still successfully apply to receive UI compensation. Some of the indefinitely denied people can have their denials redetermined if they comply with ESD requests. All the temporarily denied people can still successfully claim benefits if their benefit years are ongoing and they meet eligibility criteria on future applications.

In this study, we focus on people that applied for UI and met all the following criteria:

- Were monetarily eligible.
- Whose benefit year had concluded by Aug. 8, 2022.
- Who received UI compensation.[7]

A total of 41,979 people received UI compensation in quarter 2, 2021. Of these, 19.25 percent of people qualified for a WBA less than, or equal to, $295/week and 18.91 percent qualified for the maximum benefit amount of $844/week. The remaining 61.84 percent received some WBA between $295/week and $844/week. Another 13,368 people claimed in quarter 3, 2021, and had a benefit year that concluded as of Aug. 8, 2022. Of these, 18.93 percent received the MWBA, and 21.16 percent received a WBA of $844/week or more. The remaining 51,907 claimants whose benefit years started in 2021 and who have received UI compensation still have open benefit years.

Results

In this section, we present the estimates of the average treatment effects from our regression model. We looked at impacts on people's careers and claim durations.

[7] We drop a small number of people from our study who are younger than 18, or who have benefit years that predate the typical 5 quarters before the claim.

Career results

Earnings. Because of the increase in the MWBA, on average, claimants who received both WBAs of $295/week after the increase and compensation earned an additional:

- $2,133.20 from working in the same quarter as the UI claim.
- $1,760.20 in the quarter after the claim.

Reemployment. Because of the increase in the MWBA, on average, UI claimants who received both the MWBA after the increase and compensation were 4.1 percentage points more likely to be employed in the quarter after the UI claim.

The first row in *Table 1* reports the average impact of the MWBA increase on claimants who got the MWBA. The second row gives the 95 percent confidence interval for the estimate.

Table 1: Career-Oriented Results

Results	Earnings in the Quarter of the Claim	Earnings in the Quarter After the Claim	Employment in the Quarter After the Claim
Average Treatment Effect on the Treated	$2,133.20	$1,760.20	4.1 percentage points
95% Confidence Interval	[$1,368.96, $2897.44]	[$1050.17, $2470.23]	[2.14, 6.06]

Claim results

Claim duration. For MWBA recipients that received compensation after July 4, the average claim duration was 9.28 weeks. They received $295/week and so, on average, a total of $2,737.60 in benefits. In the absence of the policy, their average claim duration would have been 11.97 weeks and they would have received, on average, $243.60/week. Without ESSB 5061, they would have received a total of $2,915.89.[8] Accordingly, these recipients claimed more money per week over fewer weeks and, on net, claimed $178.29 less because of the MWBA increase.

[8] Note that, in the absence of ESSB 5061, the MWBA would have still increased to $221/week on July 4, 2021.

Table 2: Claim-Oriented Results

Results	Weeks of Benefits Claim	Implied Impact on Dollars of Benefits Claimed
Effects on Claims Because of SB5061	-2.69 Weeks	-$178.29
95% Confidence Interval	[-2.99, -2.39]	[-$251.37, -$105.21]

UI Advisory Committee perspectives

RCW 50.12.355(3) directs the Department to "use an existing unemployment insurance advisory committee comprising of members of business and members of labor to consult in the development of this report, including any evidentiary assumptions underlying the report. The report must be specifically discussed in a minimum of two meetings of the committee each year prior to submitting the report. The report must also include a section for committee members to respond directly to the contents of the report."

ESD discussed the report at UI Advisory Committee meetings on Aug. 30 and Sept. 27, 2022. Below are responses to the contents of the report from committee members.

General public representatives

The Unemployment Law Project (ULP), a general public representative, provided the following views:

> "The Employment Security Department's report to the legislature and the governor on the impact of Washington's minimum weekly benefit amount (MWBA) increase, mandated by SB 5061 in 2021 and codified in RCW 50.20.120, presents very relevant and useful data and analysis.
>
> The Unemployment Law Project believes this report confirms that the MWBA increase is benefiting Washington's unemployed workers and their families, the interests of Washington's employers, and the health of our economy, and the calculation of the MWBA at 20 percent of the average wage, or a higher percentage, should continue. (For consistency with terms used in the report, we suggest that the title of the report be changed to "Impact of increasing the minimum weekly benefit amount.")
>
> We wish to comment on the context of this report, first, by drawing attention to state benefit data from 2019, the last pre-pandemic year. Washington's minimum and

maximum weekly benefit amounts are high compared to other states and increase with our average wage. However, it is important to note that the percentage of unemployed people who receive ANY benefits in Washington is significantly lower than those percentages in many other states, especially those of the other West Coast states:

- Large numbers of unemployed workers in Washington who may be eligible for benefits are not receiving them for a variety of reasons—as reflected in our recipiency rate (percentage of unemployed receiving benefits) which has fallen significantly over the last couple of decades (39.4% in 2005; 28.4% in 2019). It now tends to be around average among the states and much lower than Oregon's recipiency rate (34.9% in 2019) and California's (41.7% in 2019).

- Similarly, Washington workers who do apply for benefits are often denied — as is reflected in our denial rates, also disproportionately high. In 2019, the year before the pandemic, 42.8% of all Washington claims were denied compared to Oregon's 25.1% rate of denials and California's 21.5%.

The key questions asked in this study concerned the outcomes for and behavior of claimants with benefit years starting between April 4, 2021 and August 9, 2021 and were essentially these:

- Did claimants who received the increased MWBA earn less from working in the quarter after their UI initial claim?
- Were claimants who received the increased MWBA less likely to become reemployed in the quarter after filing their UI claim?
- Did recipients of the increased MWBA receive more weeks of benefits?
- Did recipients of the increased MWBA end up being paid more overall in benefits?

As these questions suggest, there may be an unstated suspicion behind enactment of SB 5061 that when claimants receive a higher benefit, they have greater incentive not to search for a job and not to return to work. If that suspicion exists, the data and analysis reported here do not confirm it for the period studied.

Rather, the figures reported in this study actually suggest a correlation between receiving an increased benefit and collecting benefits for fewer weeks and between receiving an increased benefit and finding a job faster. This study also tends to confirm

that benefit amounts that replace a higher percentage of benefit claimants' income have a positive influence upon their ability to search for and find new work.

We appreciate this study's use of a regression model to also estimate the average causal impact of the MWBA increase on claimants' careers and on their weeks of benefits claimed and dollars of benefits claimed. The causal impact in this analysis confirms that claimants receiving the increased MWBA were more likely to be reemployed and receive income from a job in the quarter after their claim and they were likely to receive less in benefits over a shorter duration of benefit claim.

However, we wish to emphasize that while the measures studied here may pertain to the impact of RCW 50.20.120 upon claimants' speed of reemployment and the balance of the trust fund — and they indicate a positive impact on both of those counts—the measures only partially address the explicit purpose of Title 50 and its reason for existing, as stated in RCW 50.091.010: reducing involuntary unemployment and the suffering caused thereby to the minimum.

RCW 50.12.355, which mandates this legislative report, does not specifically require that the analysis cover the impact of the MWBA increase upon the welfare of benefit recipients and their families during and after the time of benefit recipiency: e.g., their income security, their ability to meet basic needs, and their ability to pursue reemployment. However, that welfare is integral to understanding the impact of RCW 50.20.120 upon the state's success in carrying out the purpose of Title 50. We urge the Department to include analysis of the impact of Washington's MWBA increase on the welfare of claimants and their families in any future reports.

In summary, the legislative report "Impact of increasing the weekly minimum benefit amount" presents useful and relevant data confirming that the formula for calculating Washington's MWBA has benefited workers, employers, and the state economy. We believe the report justifies continuance of the MWBA at 20 percent or a higher percentage of the state average wage. We urge the Department to include measures relating to the impact of the increased MWBA on the welfare of claimants and their families in any future analyses.

Thank you for the opportunity to comment on this important report to the legislature and the governor."

The ESD thanks ULP for their comments.

Employer representatives

The employer representatives provided the following views:

> "The business representatives of the Unemployment Insurance Advisory Committee appreciate the opportunity to provide perspective and comments on the Minimum Weekly Benefit Report, and would also like to acknowledge the thoughtful and collaborative process the department utilized for this report as well as in soliciting feedback. We believe there are two relevant topics to consider when reviewing the increase to the MWBA impact, which we outline below.
>
> First, which may not have been contemplated by policy makers, is that while the MWBA increased, the maximum benefit amount did not. This results in claimants being eligible for a higher weekly benefit, but benefits exhaust over a shorter period of time. Additional evaluation may be needed in this area.
>
> Second, and most importantly, we believe the timing of the MWBA increase occurring simultaneously with the end of pandemic business restrictions and the reinstatement of work search requirements raise valid questions about the causal relationship identified in the report for this time period.
>
> While the study identifies and controls for a number of variables, we do not believe it adequately accounts for the significant difference in economic conditions that drastically changed the same date as the MWBA increased. On July 1, the same date the MWBA increase took effect, government imposed pandemic restrictions on businesses that limited business activity ended, allowing all businesses to resume activity and rehire workers, contributing to a workforce shortage, which was responded to by many employers by offering increased wages and signing bonuses as they competed for workers. Additionally, the week of July 4, which was also the same week the MWBA increased, the requirement for claimants to search for work and document those activities in order to remain eligible for benefits resumed. Both employers and claimants were substantially impacted by the change in economic conditions related to the pandemic.
>
> Because the study examines UI claimants between April 2021 and August 2021, it is not possible to isolate the economic impacts on increased employment and increased earnings, like it is possible to isolate and control for college degree, year of graduation, industry of employment, etc. The pandemic impacted workers of all demographics across all industries, and economic conditions were different for all workers across all industries after July 1, 2021. For this reason, we disagree with the Department's conclusion that "UI claimants who received the MWBA after the increase were 4.1 percent more likely to be employed in the quarter after the UI claim because of the policy" and that "claim duration decreased because of the increase from $201/week to $295/week suggesting that the additional benefits helped them finance their job

search." (Bold and italics added) We disagree a causal relationship can be established, and certainly no data was presented to suggest how the additional MWBA was utilized by claimants.

The business representatives of the Unemployment Insurance Advisory Committee will continue to work with the Department on analyzing the impact of the increase in the minimum weekly benefit amount. We are pleased to see workers were more likely to be reemployed after July 1, and that free market competition for talent allows workers to enjoy increased earnings. However, we believe this is more likely related to pandemic restrictions ending and business activity resuming, and the study does not support the conclusion that it was caused by the increase in the minimum weekly benefit amount."

The ESD thanks the employer representatives for their comments.

Employee representatives

The employee representatives provided the following views:

"The Labor representatives of the Unemployment Insurance Advisory Committee appreciate the analysis conducted by ESD staff, and for the opportunity to provide comment. As a matter of analysis, we appreciate the transparency reflected in the description of the regression provided by the author, and for the qualifications attached to the conclusion which recognize what the data indicated, while emphasizing itself as only one data point amongst more to come.

With respect to the findings, we are encouraged by the initial notion that additional resources during periods (or at least *this* period) of joblessness lead to shorter claims, and over-all lower claims costs driven by re-employment. It's further encouraging to see that, upon returning to the workforce, claimants earned more on average in their new positions than they had in their former jobs prior to being unemployed. The conclusion that claimants were better able to finance their job search, albeit qualified, is credible to us, particularly given that these workers are by definition resource stretched by virtue being minimum weekly benefit recipients. When workers have more money in their pocket, they are better able to adjust to obstacles otherwise preventing effective work search activities. An additional 40, 50, or even the full 94 dollars in weekly payments makes it easier for job searchers to secure childcare for job interviews or resume preparation at a Work Source. It contributes to food security, and rent payments, the lack of which demands more immediate attention than job search activities simply as a matter of life and living.

We do have concerns, however, that the maximum benefit amount, when determined by the one-third of total gross earnings in the base (or alternate) year, will short some workers their full 26 weeks of benefits during periods of unemployment that do not benefit from a strong labor market. The current labor economy is thirsty for workers, making it easier for many job seekers to secure employment that meets their skill set, professional goals, or economic needs. Indeed, this research indicates that workers generally secured work at higher pay than those jobs they had left. This particular period of mass unemployment was unique due to the nature of the Covid-19 pandemic's impact on our economy, versus those periods in 2008, 2003, and earlier. In those instances, there were not as many jobs as there were job-seekers. While the increased earnings of workers returning to work, and the alacrity with which they returned to work, in *this* case is encouraging, we do need to better understand the variables contributing to those positive outcomes. We should be careful about applying these outcomes as lessons for other circumstances without acknowledging the current economic climate.

All told, this early data is promising, and we look forward to further analysis. We want to ensure that the Department is looking for any unintended consequences that might lead to a shortening of total weeks of unemployment due to heightened minimum weekly benefits. Such tracking is important so the Legislature can make policy adjustments during periods of high unemployment due to lack of employment opportunities, perhaps by preferring one minimum weekly benefit calculation over another, or guaranteeing the full 26 weeks without limitations driven by maximum, total benefit caps. This should ensure workers have the support they need without undermining the positive elements of having a higher weekly minimum benefit amount."

The ESD thanks the employee representatives for their comments.

Appendix A: Regression basics

The goal of Appendix A is to describe how regression models can, in general, inform the statistician about the causal impact of a policy change. We recommend that readers who are unfamiliar with regression models read this appendix before reading Appendix B, which explains the modeling used to reach the conclusions in this report, and Appendix C, which delves deeper into controlling for economy-wide trends with "fixed effects".

Consider a basic model that explains the relationship between two variables: a dependent variable (like earnings) denoted Y_i for individual i, and an independent variable (like college major choice) denoted X_i for individual i. We can write the basic model as follows:

$$Y_i = \beta_1 X_i + \epsilon_i.$$

The terms β_1 and ϵ_i require some explanation. We want to fit this model to data (e.g. all available information on people's earnings and major choices) in order to estimate β_1. This variable tells us how a person's college major is correlated with their earnings.

The parameter ϵ_i is an "error" term. It contains all the factors correlated with earnings except for college major choice. In general, it contains all factors correlated with the dependent variable that are not included in the model as independent variables. In this basic model, the error term would include things like gender, race, age, experience, college choice, and anything else correlated with earnings.

Including something in the model removes it from the error term. If we include, for instance, age in this regression

$$Y_i = \beta_1 X_i + \beta_2 age_i + \epsilon_i$$

then the error term contains everything that is correlated with earnings *except for college major and age.*

This is important because the accuracy of the estimate of β_1 depends on what is in the error term. There are two types of variables that can make up ϵ_i:

- Type 1: variables that are correlated with both Y_i and X_i, and
- Type 2: variables that are correlated with Y_i but not with X_i.

If we include all the "Type 1" variables in our model (removing them from the error term) that ensures that the error term is, itself, not related to our variable of interest, X_i. The assertion

that the model contains all type 1 variables is typically referred to as the "conditional independence assumption." In our modeling, we rely on this assumption to accurately measure the impact of the MWBA increase on claimants' earnings, reemployment probability, and claim duration.

Appendix B: Modeling details

Let y_i be the outcome variable of interest for individual i, and T_i be an indicator variable for whether someone was impacted by the policy change. This variable T_i is equal to zero for those with WBA greater than $295, or who claimed before the policy change. It is equal to one for individuals who claim the MWBA after July 4th. Consider the following model:

$$y_i = \beta_0 + \beta_1 T_i + \beta_2 E_i^{q1} + \beta_3 E_i^{q2} + \beta_4 E_i^{q3} + \beta_5 E_i^{q4} + \beta_6 E_i^{q5} + \beta_7 A_i + W_i + X_i\theta + \epsilon_i \quad (1)$$

The variables E_i^{q1}, E_i^{q2}, E_i^{q3}, E_i^{q4}, and E_i^{q5} are the earnings used to determine a person's WBA (either their base year or alternative base year earnings). The variable A_i is equal to one for the individuals whose WBA is calculated using the alternative base year. The variable W is an intercept variable (also known as a "fixed effect," see Appendix C for more information) that controls for the week in which a person's benefit year began. These seven control variables determine claimants' WBA. They also determine whether or not someone was impacted by the amendment to RCW 50.20.120, and to what degree. Controlling for these two factors allow us to isolate the effect of the MWBA increase on the outcome variable. The variable X_i is a matrix of demographic information that includes gender, education, race, ethnicity, age, disability status, sector of the separating employer, occupation, and county of residence. The parameter θ is a corresponding vector of regression coefficients. Including X_i increases the precision of our estimate of β_1. The variable ϵ_i is a normally distributed error term.

This regression gives an unbiased estimate of β_1 because all variables that determine T_i are included in the regression. The conditional independence assumption holds.[9]

[9] We say that identification obtains in this regression because ϵ_i is uncorrelated with T_i. This is because we included all the values that go into calculating someone's WBA in the regression. Given the date, earnings in the base (or alternative base) year, and whether someone's base year was used or not, the weekly benefit amount is known. Because everyone in this sample lost their job through no fault of their own (and so was eligible to claim UI), people are not able to influence when their claim occurs. (Results are robust to dropping the first and second weeks of July, when people may have "waited to claim to get a higher WBA.") As such, while the error term contains things that will be correlated with the outcome variable, like motivation, there is nothing in the error term that is correlated with T_i.

Isolating impact on claimants who received compensation

The regression model in equation (1) tells us the average effect of the MWBA increase for everyone who filed a claim, was monetarily eligible after the policy change and whose benefit year had concluded. However, only a fraction of these claimants received UI compensation. The remainder may have been denied on non-monetary eligibility grounds or may not have attempted to claim at all.

To isolate the impact of the MWBA increase on MWBA claimants who received compensation, we can fit an updated version of the model in equation (1). In this updated model, we introduce three new variables and interact them with treatment. They are:

1. η_i^p. This indicator variable is equal to one for individual i if they never received compensation on their claim because they were indefinitely denied UI benefits on non-monetary eligibility grounds. This could be because their previous employer successfully appealed their claim (maybe they quit instead of losing their job through no fault of their own) or when their application has issues that the claimant never resolves. This variable is equal to zero for all others.
2. η_i^t. This indicator variable is equal to one for individual i if they never received compensation on their claim because they were denied temporarily on non-monetary eligibility grounds each time they applied. This could be because they never complied with work search criteria, because they returned to work or for other reasons.
3. η_i^d. This indicator variable is equal to one for individual i if they never received compensation on their claim because they never applied for compensation.

The updated regression model includes these variables themselves, and as interaction terms on the treatment variable:

$$y_i = \beta_0 + \beta_1^c T_i + \beta_2 E_i^{q1} + \beta_3 E_i^{q2} + \beta_4 E_i^{q3} + \beta_5 E_i^{q4} + \beta_6 E_i^{q5} + \beta_7 A_i + W_i + X_i\theta + \eta_i^p + \eta_i^t + \eta_i^d + \beta_8 T_i \eta_i^p + \beta_9 T_i \eta_i^t + \beta_9 T_i \eta_i^d + \epsilon_i$$

The estimate $\hat{\beta}_1^c$ is the net impact of the MWBA increase on claimants:

- Who received compensation;
- Whose benefit year has expired;
- Who claimed after July 4; and
- Who received a WBA of $295/week.

This is the parameter estimate reported for the estimates of earnings and employment in *Table 1* and benefit duration in *Table 2*.

Appendix C: Fixed effects

The goal of Appendix C is to describe how regression models can generally account for economy-wide trends by incorporating variables known as "fixed effects." In the context we study in this report, important examples of economy-wide trends include:

1) The minimum and maximum WBA when the claimant begins their benefit year.
2) Work search requirements being reinstated on July 4, 2021.
3) Covid-19 business restrictions ending on June 30, 2021.
4) The Covid-19 pandemic disrupting labor market activity.
5) Inflation.

Consider the model from Appendix A again. Suppose for the purposes of this example, that we have data on all Washington state residents who graduated college between the years 2000 and 2010.

$$Y_i = \beta_1 X_i + \epsilon_i$$

Here, as before, Y_i is a dependent variable (like earnings) for individual i, and X_i is an independent variable (like college major choice) for individual i. The estimate of β_1 tells us how Y_i changes when X_i changes.

The error term in this basic model, ϵ_i, contains all the factors correlated with Y_i (earnings) except for X_i (college major choice).

Fixed effects are a type of control variable that we can include in the model, which capture a broad range of factors that influence Y_i – they are a specific type of catch-all control variable. A fixed effect is simply an indicator variable for each of the values a variable can take.

Consider an example in this model relating earnings to college major choice. Let γ_i be a fixed effect for the year in which a person graduated college. Then the model is typically written in a short-hand notation:

$$Y_i = \beta_1 X_i + \gamma_i + \epsilon_i, \text{ where}$$

$$\gamma_i = \mathbb{I}(A_{2000}) + \mathbb{I}(A_{2001}) + \mathbb{I}(A_{2002}) + \mathbb{I}(A_{2003}) + \mathbb{I}(A_{2004}) + \mathbb{I}(A_{2005}) + \mathbb{I}(A_{2006}) + \mathbb{I}(A_{2007}) + \mathbb{I}(A_{2008}) + \mathbb{I}(A_{2009}) + \mathbb{I}(A_{2010})$$

and where $\mathbb{I}(A_{2000})$ equals one for everyone who graduated college in the year 2000, and zero for everyone else; $\mathbb{I}(A_{2001})$ equals one for everyone who graduated college in the year 2001, and zero for everyone else; and so on.

As before, including a control variable in our model means that it is no longer contained in the error term. This idea is straightforward when we are including a variable like age but is more abstract when including indicator variables for each year that a person graduated college.

These indicator variables each remove *everything common to all people that graduated college in a specific year* from the error term. For instance, they control for prevailing labor market conditions in the year that they graduated, inflation in the year they graduated and much more.

Fixed effects are powerful catch-all variables and they often contribute substantially to regression analyses. Removing *everything common to all people that graduated college in a specific year* considerably changes the estimate of β_1 in this simple model because it removes a large number of factors from the error term. Doing so improves the likelihood that the conditional independence assumption holds.

In the model in equation (1) in Appendix B, the fixed effects control for the five variables listed at the beginning of this appendix, and many more.