Net Impact Evaluation of a Reemployment Services Scheduling System

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Employment Security Department
WASHINGTON STATE

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Executive summary

In July 2019, the Washington state Employment Security Department changed the process for scheduling reemployment service appointments. The change was meant to increase scheduling flexibility for unemployment insurance (UI) claimants selected for reemployment services – the Reemployment Services and Eligibility Assessment (RESEA) program – by offering them choices between appointment times and dates.

Employment Security staff modeled the effect of this scheduling process change. The process change reduced the number of missed appointments by 3,472 over the next 32 weeks – a reduction in the no-show rate of 9.36 percentage points.

When UI claimants do not attend a reemployment service appointment, they may be disqualified from receiving one week of UI benefits as a consequence. Because the no-show rate decreased, it is possible the new scheduling system reduced the number of benefit disqualifications. Employment Security staff modeled the effect of this scheduling process change on disqualifications. The process change resulted in 763 fewer disqualifications over the next 32 weeks.

The UI claimants who benefitted from this process change were more likely to self-identify as African American/Black and male, were younger, and earned less than their peers.

Introduction

When people lose their job through no fault of their own, they may qualify to receive weekly unemployment insurance payments. These cash payments replace some of the worker's lost income while they search for a new job. In addition to cash support, state governments may provide reemployment assistance services. For example, government service providers may help the worker develop and execute a plan to find new employment in a one-on-one appointment, review and help update a worker's resume, or help them explore the possibility of searching for new types of job opportunities. In Washington state, reemployment assistance services are typically administered through the Reemployment Services and Eligibility Assessment (RESEA) program.

The RESEA program's main goal is to help workers find appropriate jobs faster. A randomized controlled trial run in 2022 (Brigandi et al. 2024) showed that Washington state's RESEA program, on average:

- increased the probability of employment in the first and second quarters after the UI claim by 2.4 and 1.7 percentage points, respectively,
- increased earnings in the first and second quarters after the UI claim by $842.93 total,
- reduced the probability that they exhausted UI benefits by 2.7 percentage points, and
- because RESEA recipients found jobs slightly faster, reduced the amount of UI benefits claimants received by $435.75.

Similar reemployment assistance programs have also been shown to help claimants find jobs faster and earn slightly more income from employment over the year following service receipt.[1] Because they find jobs faster, they may withdraw fewer weeks of unemployment insurance benefits, which can generate tax reductions for employers. For these reasons, these types of services are helpful for workers and the economy.

There is also some evidence on how to design reemployment services to increase their effectiveness. For example, bundling service administration with a UI eligibility review appears better than conducting separate meetings for service delivery and eligibility assessments (Michaelides et al., 2012) and multiple meetings can be more effective than a single RESEA meeting (Klerman et al., 2019). The Washington state RESEA program incorporates these evidence-based approaches to improving service strategies.

There is little evidence, however, on the effect that various scheduling processes have on access to reemployment services. Offering claimants more flexibility in scheduling may increase the appointment attendance rate. The direct benefit is that more job seekers can receive useful job search assistance. In addition, more UI claimants can have their eligibility checked, which may reduce improper payments and, thereby, taxes levied on employers.

This report documents the results of an evaluation of changing the scheduling process for Washington state RESEA appointments in July 2019. Before the change, job seekers were notified they had been selected to receive job search assistance and told the time and location for the appointment. Employment Security staff manually processed claimant information to determine RESEA schedules for each office. After the change, the scheduling system was more flexible: People were contacted and directed to a state government website where they could

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[1] See summaries of the effects of job search assistance services in Crépon and Van Den Berg (2016) and Card, Kluve, and Weber (2018). See evaluations of the Reemployment and Eligibility Assessment (REA) program, which preceded the RESEA program, in Manoli, Michaelides, and Patel (2018); Klerman et al (2019); Michaelides and Mueser (2020), and Michaelides and Mueser (2022).

select an appointment time and location from a calendar application. A software automatically processed information and executed the scheduling tasks.

Employment Security staff modeled the effect of the process change on the no-show rate. Depending on the model used, the no-show rate decreased between 5.75 and 9.36 percentage points over the 32 weeks following the scheduling process change.

Employment Security staff modeled the profile of claimants who were most likely affected by the scheduling change. That is, Employment Security staff identified the claimants who attended their RESEA meeting but, if there had not been a change in the scheduling process, most likely would have not attended their meetings. This classification exercise allowed Employment Security staff to document who likely benefited from the scheduling process change. Claimants who most likely benefitted were more likely to self-identify as African American/Black and male and were, on average, younger than their peers. They tended to have lower incomes prior to their UI claim.

State governments may disqualify people who do not attend their reemployment service appointments from receiving UI benefits. These disqualifications are a loss of some UI benefits. Because the scheduling process change reduced the no-show rate, it likely reduced the number of disqualifications. Employment Security staff modeled the effect of the process change on disqualifications. Introducing more flexibility into the scheduling process reduced the number of disqualifications by between 708 and 763 issues, depending on the model used, over the course of the 32 weeks following the process change.

Description of RESEA services

Washington's RESEA program consists of at least two one-on-one meetings – initial and follow-up meetings – with RESEA staff and the claimant.[2] In the initial meeting, RESEA staff:

1. Conduct an unemployment insurance eligibility review. This includes a review of the claimant's work search activities and referrals to adjudication, as appropriate, if a potential issue is identified.
2. Provide individualized labor market and career information intended to help the claimant find suitable employment.

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[2] Program requirements are listed in Policy 2000, available at: https://media.multisites.wa.gov/media/WPC/adm/policy/2000.pdf.

3. Provide information and referrals to career services to support the claimant's return to work. This may include referrals to local, regional, or state resources to support the daily needs of the claimant, such as financial aid and supportive services.

4. Provide support to the claimant to develop and implement a reemployment plan.

5. Enroll the claimant into Wagner-Peyser Employment Services.

The follow-up meeting must take place within 30 days of the initial meeting. In the follow-up meeting, RESEA staff provide all the same services as in the initial meeting, as well as review the claimant's reemployment plan that was developed in the prior meeting. Additional RESEA meetings may be scheduled after the first follow-up at the discretion of the staff, based on the claimant's needs.

Selection and scheduling process before July 2019

Selection and scheduling are both important topics for this study. Employment Security *selects* eligible UI claimants to receive RESEA services. After selecting claimants, Employment Security conducts a *scheduling* process to determine which claimants fill which specific appointment slots. The selection process was automated, and the scheduling procedure changed, in July 2019.

Before July 2019, the selection and scheduling process – with some simplifications for exposition[3] – was as follows:

1. Claimants were assigned to their closest WorkSource office's queue.[4] Offices had separate queues for English-language appointments and Spanish-language appointments. Claimants were added to the queue matching their language preference.

2. Each week, all eligible claimants in an office's queue were sorted by a score that they are assigned when they register for UI. This score is called the Worker Profiling and Reemployment Services (WPRS) score.

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[3] This is a slight simplification of the selection process for the purpose of expositional clarity. For example, ex-service members who claim unemployment insurance are prioritized in the selection process, but that is not reflected in the description in this report. The exact details of the selection process are omitted since they did not change during the study period. See Policy 2000 or Brigandi et al. (2024) for additional information.

[4] In Washington state, American Job Centers are called WorkSource offices.

3. Employment Security staff selected claimants for RESEA starting with the highest WPRS score and working down. The number of claimants selected each week was determined by the number of available appointments in each office and language group. This was done separately for each office, and often required multiple hours to complete and verify each week.

4. Once selected, claimants were notified via mail of their appointment location, date, and time.

5. If not selected, claimants remained in the queue and were considered again in the following week. Claimants were considered for selection up to five times. After the fifth time considered, if they were never selected, they were removed from the queue and not considered for RESEA again during that UI benefit year.

Two changes in July 2019

In July 2019, the selection process was automated though the selection procedure itself was not changed. Since July 2019, the selection process has occurred in a software called the Reemployment Appointment Scheduler (RAS). Each week, RAS selects claimants for RESEA services using the same process as before. The only difference is the change from a manual selection process (Employment Security staff selecting people) to automated selection (a software doing the selection automatically).

The scheduling process changed as well in July 2019. Previously, selected claimants were notified of the pre-determined date, time, and location of their meeting. Now, claimants are notified that they must schedule their own RESEA appointment. They visit Employment Security's website where they see a calendar application that displays available dates and times for appointments in the next three weeks. They select the appointment that works best for them.

The transition period

No new RESEA meetings were scheduled while the RAS software system was prepared, implemented, and tested. The final RESEA appointment scheduled using the old process was in the week of June 10, 2019. The first RESEA appointment scheduled through RAS was on July 22, 2019. During this five-week period, previously scheduled appointments were held, but no new

meetings were scheduled. UI claimants were not made aware of the change in scheduling process before it occurred.[5]

No-shows before and after the introduction of RAS

Before July 2019, a no-show occurred when a claimant had a meeting scheduled and failed to attend that meeting. Since July 2019, there are two ways for the person to be a no-show: Some people do not go to Employment Security's website to schedule a meeting, and some people schedule a meeting but then fail to attend it.

If a person is a no-show, then Employment Security sends them a questionnaire called an Advice of Rights. This questionnaire solicits information about why the person did not attend their RESEA meeting. Depending on the responses to the questionnaire, people may be disqualified from receiving one week of UI benefits. People who respond, and who have a justifiable cause for missing their meeting, are not disqualified from receiving UI benefits. Justifiable causes include, but are not limited to, illness or disability, a job interview or work opportunity scheduled at the same time as the meeting, and severe weather conditions.

If a disqualification occurs, then the claimant loses UI benefits for a specific week. People who scheduled a meeting but did not attend it are disqualified from receiving benefits in the week that their meeting was scheduled to occur. People who do not respond to the questionnaire or respond without good cause, and failed to schedule their appointment by the designated deadline, are denied benefits in the week of the deadline.

In summary, for people who scheduled a meeting, a disqualification only occurs if the person:

1) filed for UI compensation in the week their meeting was scheduled,
2) did not attend their RESEA meeting, and
3) was unable to provide a good cause reason for not attending the meeting in the advice of rights questionnaire.

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[5] The timing of the introduction of RAS in July 2019 was based on administrative processes, not claimant attributes. In addition, it is unlikely that claimants waited to file UI claims until after the new scheduling process was in place. This is for two reasons. First, workers who are eligible for UI almost always lose their job through no fault of their own, and so did not choose whether they separate from their employer before or after the introduction of RAS. Second, since workers didn't know the timing of the scheduling process change, they would not adjust their claim filing behaviors to coordinate with the timing of the RAS roll-out.

For people who did not schedule a meeting, a disqualification only occurs if the person:

1) filed for UI compensation in the final week that they were eligible to schedule a meeting, and

2) did not fill out the advice of rights questionnaire or was unable to provide a good cause reason for not attending the meeting in the advice of rights questionnaire.

If a disqualification occurs, it results in the denial of a single week of UI benefits at most. If those benefits were already disbursed, the claimant must pay them back to Employment Security.

Exemptions

Claimants may be exempted from attending their RESEA appointment for several reasons. For complete details, see Policy 2000.[6] After being notified of their selection for RESEA, workers who meet one of the exemption criteria may contact Employment Security. For example, someone can be exempted from RESEA if they have returned to work or if they had a standby agreement with their previous employer.

Since the primary goal of this analysis is to document the effect of RAS on the attendance rate, people who had an exemption or notified Employment Security of their exemption status are not included in the modeling exercise. They do not need to attend a meeting, and their non-attendance is not considered a no-show.

Data description

The data in this study span Jan. 1, 2017 to Feb. 24, 2020, the last Monday of February 2020. More recent data are not included because of the pandemic.[7]

Employment Security staff linked administrative data sources to construct the analytical database. These administrative data contain information on RESEA meetings scheduled, attendance, and disqualifications arising from no-shows. Appointment records were linked with unemployment insurance and tax records, which provide claimants' self-reported

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[6] https://media.multisites.wa.gov/media/WPC/adm/policy/2000.pdf.
[7] Labor market conditions during the pandemic were very different from conditions in 2017-2019. In addition, no RESEA meetings were scheduled from March 15, 2020, through Jan. 15, 2021.

demographic information,[8] quarterly earnings and quarterly hours worked histories,[9] claim duration, total benefits claimable during the benefit year, and total UI benefits received.

The study sample includes all claimants who were scheduled to attend RESEA appointments before the introduction of RAS and all claimants who were notified about the need to schedule and attend RESEA appointments after the introduction of RAS. As noted above, the analytical sample excludes UI claimants who were exempted from attending their initial RESEA appointments.

The analytical sample includes 152,903 observations of claimants contacted to receive RESEA services before RAS was introduced, and 35,717 after it was introduced. If a claimant became unemployed twice during our observation period, Employment Security staff treated their unemployment spells (and any RESEA appointment attendance decisions) as separate events.

Figure 1 displays select demographic information, educational attainment, the average earnings in the two quarters prior to the quarter of the UI claim, and the number of people who were considered for RESEA before and after RAS was introduced. UI claimants who are eligible for RESEA in Washington state from January 2017 through February 2020 were mostly male, mostly self-reported that they were Caucasian/white, and were often college educated.

Some of the summary statistics are very similar before and after the introduction of RAS. For instance, the average age of RESEA-eligible UI claimants was 44.0 years old before RAS was introduced, and 44.2 years old afterwards. The percent of RESEA-eligible UI claimants who identified as female was 43.0% before RAS, and 43.4% afterwards. Before and after RAS, 60.2% of RESEA-eligible UI claimants identified as Caucasian/white.

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[8] Note that some people indicate that they prefer not to respond to inquiries about demographic information.

[9] The wage records used in this analysis are only from employers in Washington state, whose jobs are covered by unemployment insurance. They exclude earnings garnered from out-of-state employers, as well as earnings from uncovered work such as self-employment and informal work. All earnings data in this analysis are adjusted for inflation and Winsorized at the top one percent.

Figure 1. Summary statistics (dollar amounts provided in 2019 dollars)

Washington state, Jan. 1, 2017 through Feb. 24, 2020. Source: Employment Security Department/Data Architecture, Transformation and Analytics

Demographic characteristic	Before RAS	After RAS
Average age	44.0	44.2
Percent female	43.0%	43.4%
Percent White	69.2%	69.2%
Percent Black	5.6%	4.5%
Percent Asian and Pacific Islander	4.4%	4.0%
Percent Hispanic	16.5%	21.1%
Average earnings quarter before claim	$12,481.67	$13,871.89
Average earnings two quarters before claim	$12,486.55	$13,547.58
Percent with high school or less	40.0%	37.9%
Percent with college degree	49.3%	50.4%
Percent with post-college degree	6.2%	7.3%
Number of claimants	NA	NA
Number of people	152,903	35,717
Number of people per week	1,185.3	1,116.1

Note: Inflation adjustment was conducted using the Consumer Price Index for all urban consumers.

However, some of the summary statistics are different before and after the introduction of RAS. These differences include an increase in the percent of RESEA-eligible UI claimants who identify as Hispanic, a decrease in the percent who identify as African American/Black, and an increase in the earnings people received for working in the two quarters preceding the quarter of their UI claim. This is likely because of seasonal changes in the composition of UI claimants each year. There are three years of data before RAS in the analytical database, but only seven months of data in the post-RAS database. The pre-RAS data in *Figure 1* capture demographic information from each part of the year, but the post-RAS data in *Figure 1* capture demographic characteristics in only part of the year. As such, seasonal changes in claimant characteristics influence the post-RAS data more than the pre-RAS data.

These differences before and after the introduction of RAS are important to draw attention to because, in theory, they may affect the analytical approach that Employment Security staff used. This is discussed further in the next section, which describes the analytical approach.[10]

Figure 2 breaks down the demographic summary statistics based on attendance decisions. In columns two and three, Employment Security staff provide data on claimants who were considered for RESEA before RAS was introduced. The second column gives information on the 94,319 individuals who attended their scheduled RESEA meeting; the third column gives information on the 58,584 individuals who did not attend. Column four gives the difference between the summary statistics for these two groups.

Before RAS was introduced, people who did not attend their meeting tended to be younger, identify as male, and earn less money from working in the two quarters prior to their unemployment spell when compared to people who attended their RESEA appointment. They were more likely to have attained a high school education or less. They were more likely to self-identify as African American/Black and less likely to self-identify as Caucasian/white.

Columns five and six provide summary statistics for claimants who were considered for RESEA after the introduction of RAS. The fifth column gives information on the 25,883 individuals who attended their RESEA meetings; the sixth column gives information on the 9,834 individuals who did not attend. The seventh column shows the difference in the summary statistics. As with the pre-RAS claimants, people who did not attend tended to be younger, identify as male, and earn less in the quarters leading up to the claim.

The likelihood that an individual chose to not attend their meeting decreased from 38.3% before RAS to 27.5% after RAS. After RAS was introduced, the differences between attendees' and no-shows' earnings prior to the claim increased. The differences before RAS were around $1,500, and after RAS they were around $2,500.

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[10] In Appendix A, Employment Security staff present the results of a placebo check to examine how these changes over time in UI claimants' characteristics may affect the main modeling results. The results in Appendix A contain evidence that changes in demographic composition over time do not explain the main findings.

Figure 2. Summary statistics (amounts provided in 2019 dollars)

Washington state, Jan. 1, 2017 through Feb. 24, 2020. Source: Employment Security Department/Data Architecture, Transformation and Analytics

Demographic characteristic	Attended before RAS	No-show before RAS	Difference	Attended after RAS	No-show after RAS	Difference
Average age (years)	45.7	41.1	4.6*	45.3	41.3	4.0*
Percent female	44.8%	39.9%	4.9 p.p.*	44.2%	41.2%	3.0 p.p.*
Percent white	70.7%	66.9%	3.8 p.p.*	69.7%	67.8%	1.9 p.p.*
Percent Black	4.6%	7.2%	-2.2 p.p.*	3.9%	6.2%	-2.9 p.p.*
Percent Asian and Pacific Islander	4.6%	4.1%	0.5 p.p.*	4.3%	3.2%	0.9 p.p.*
Percent Hispanic	16.2%	17.1%	0.9 p.p.*	21.5%	20.0%	1.5 p.p.*
Average earnings in the quarter before the claim	$13,024.63	$11,607.56	$1,417.07*	$14,566.00	$12,069.71	$2,486.29*
Average earnings two quarters before the claim	$13,074.99	$11,539.21	$1,535.78*	$14,263.53	$11,661.48	$2,602.05*
Percent with high school or less	36.6%	45.2%	-8.6 p.p.*	35.5%	44.4%	-8.9 p.p.*
Percent with college degree	51.7%	45.3%	6.4 p.p.*	52.0%	46.2%	5.8 p.p.*
Percent with post-college degree	7.2%	4.6%	2.6 p.p.*	8.2%	4.9%	3.3 p.p.*
Number of people	94,319	58,584	N/A	25,883	9,834	N/A

Note: The abbreviation p.p. means percentage points. A star symbol (*) indicates a p-value < 0.001 for the statistical hypothesis test that the attendees' and no-shows' means are the same. Inflation adjustment was conducted using the Consumer Price Index for all urban consumers.

Weekly time series data

Employment Security staff analyzed weekly time series data. These are constructed by aggregating data for all UI claimants who were selected to receive RESEA services in the same calendar week, excluding exempted individuals.

Figure 3 shows the number of individuals notified they were selected to receive RESEA each week (blue triangles) and the number of no-shows for initial appointments in each week (red circles). The x-axis is the date. The vertical blue rectangle indicates the transition period from the old scheduling system to RAS, when no RESEA meetings were scheduled. The vertical red line indicates the first week in which RAS was used to schedule RESEA appointments. There are

165 weeks considered in the study (including the five missing weeks during the implementation of RAS), spanning three years and two months.

Figure 3. Weekly appointments scheduled and no-shows

Washington state, Jan. 1, 2017 through Feb. 24, 2020. Source: Employment Security Department/Data Architecture, Transformation and Analytics
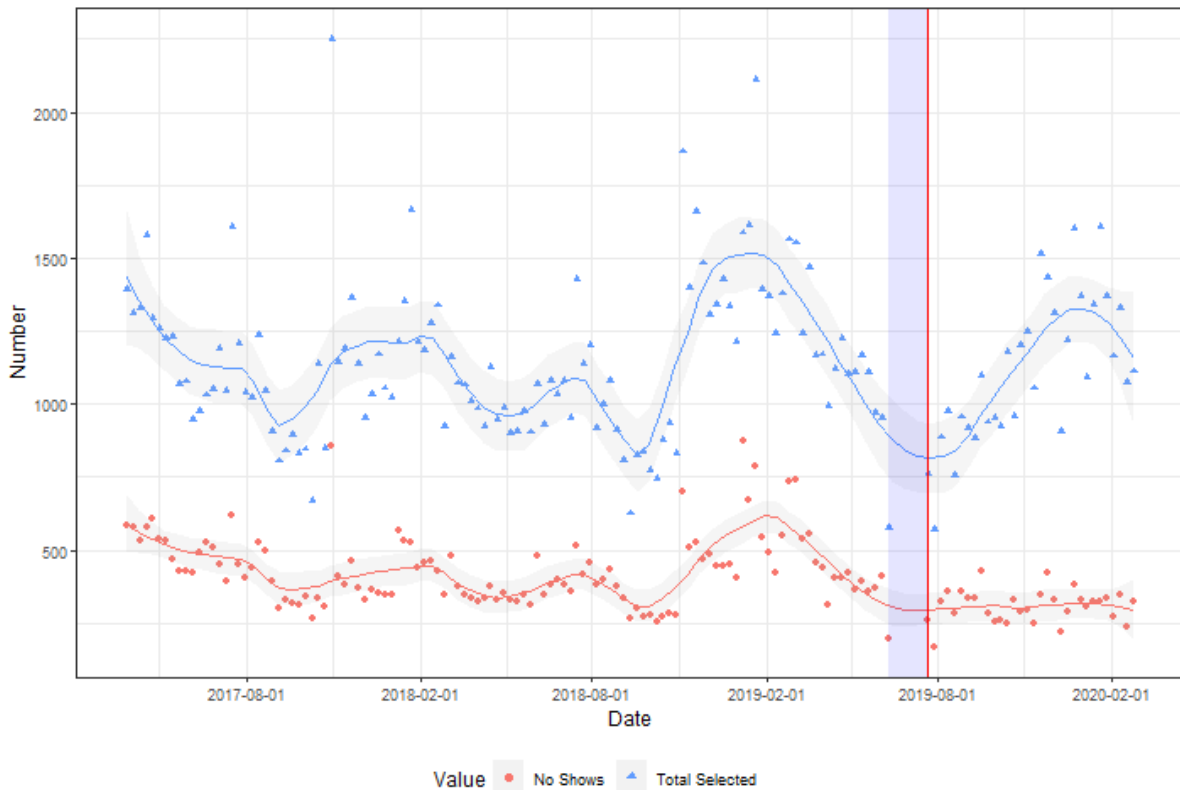
Note: The lines of best fit and the confidence intervals are calculated using local polynomial regression, operationalized via the "ggplot2" package in R (Wickham, 2016).

The data exhibit seasonal variation, with the largest number of people selected for RESEA (and the largest number of no-shows) occurring around the start of each year. This tracks the seasonal pattern in UI claims: there is typically a surge in UI claims as agricultural production and tourism opportunities decrease in the fall and winter.[11] Before RAS, the number of no-shows exhibits a similar pattern to the total number of people selected for RESEA. After RAS,

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[11] See Employment Security's 2022 Labor Market and Economic Report for more information on seasonality in UI claims: https://media.esd.wa.gov/esdwa/Default/ESDWAGOV/newsroom/Legislative-resources/2022-annual-economic-report.pdf.

the two timeseries have different patterns: the number of people selected for RESEA increased without a corresponding increase in the number of no-shows.

Empirical methods

To study the impact of the introduction of RAS, Employment Security staff fit two interrupted time series (ITS) models to the weekly cohort data for the no-show rate. The first is a linear ITS model, and the second uses an autoregressive integrated moving average (ARIMA) regression model.[12]

For both models, the key assumption is that the only thing affecting the no-show rate *that changed in July 2019* is the scheduling process. That is, the changes in demographic composition of people selected for RESEA before and after the introduction of RAS – following standard UI seasonal patterns – are assumed to *not affect* the no-show rate. Appendix A contains evidence that supports this assumption.

Both models predict what would have happened if RAS had not been instituted as the new scheduling system in the summer of 2019. Then, they compare actual no-shows after the introduction of RAS to the predictions.

Linear ITS model

In this study, the time period begins in the first week of 2017 and continues through the week of Feb. 24, 2020. ESD staff denote the no-show rate in the week 1 of 2017 as $\bar{y}_1$, the no-show rate in the following week as $\bar{y}_2$, and so on. The no-show rate in the last week of the study is $\bar{y}_{165}$. The time series analyzed is $\bar{y}_t = (\bar{y}_1, \bar{y}_2, \ldots, \bar{y}_{165})$ and the corresponding index of weeks is $week_t = (1, 2, \ldots, 165)$.

RAS was implemented from week 129 to week 133. The first weekly cohort to use RAS has week index 134. Let R_t be a variable that takes only values zero and one, denoting the period before and after the introduction of RAS, respectively. For the weeks one through 133 in these data, it takes value zero. For weeks 134 through 165, it takes value one. Following Bernal, Cummins, and Gasparrini (2017), the linear ITS regression model is:

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[12] For more information on these methods, see Bernal, Cummins, and Gasparrini (2017) or Schaffer, Dobbins, and Pearson (2021).

$$\bar{y}_t = \beta_0 + \beta_1\, week_t + \beta_2\, R_t + \beta_3\, (week_t - 134)\, R_t + \epsilon_t$$

where ϵ_t is a normally distributed error term. Fitting this model to data using ordinary least squares provides the estimates $\hat{\beta}_0, \hat{\beta}_1, \hat{\beta}_2$, and $\hat{\beta}_3$. The coefficients $\hat{\beta}_2$ and $\hat{\beta}_3$ indicate how the real-world outcomes differ from the counterfactual case where there was no implementation of RAS. Specifically, $\hat{\beta}_2$ indicates whether there was a discontinuous change in the level of $\bar{y}_t$ in week 134, when RAS was first used, and $\hat{\beta}_3$ indicates whether the introduction of RAS changed the rate at which $\bar{y}_t$ changes over time.

ARIMA ITS model

The second model that Employment Security staff fit is an ARIMA model, a type of model that allows Employment Security staff to account for patterns, like seasonality, in the timeseries data. Employment Security researchers used the "forecast" package in R (Hyndman et al., 2024) to conduct this modeling exercise. This package contains functionality to fit many ARIMA models to the data, calculate goodness-of-fit measures for each, and select the best fit model for analysis.[13]

As in the case of the linear model, the estimate of the effect of RAS on the no-show rate is calculated by comparing the real data against model predictions of what would have occurred in the absence of RAS. The predictions from the ARIMA model may be more accurate, since the model's increased complexity allows it to account for seasonality and other patterns.

Results

Employment Security staff report the results for the linear ITS and ARIMA ITS models in *Figures 4* and *5*, respectively. These figures include the weekly time series as black dots, a vertical blue rectangle indicating the five weeks when Employment Security transitioned to RAS, and a vertical red line indicating the first week in which RAS was operational.

The predictions of the weekly no-show rates had RAS not been adopted are given with a dashed blue line, to the right of the vertical red line. Model fits on the observed data are provided by a solid black line. The gray shaded bands indicate the 95% confidence intervals.[14]

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[13] Of the models tested, the best fit model for the RESEA no-show data was an ARIMA(2,1,2)(0,1,1)$_{52}$ model. For additional descriptions of this model, see Hyndman and Khandakar (2008).
[14] The confidence intervals and prediction interval for *Figure 4* were programmatically generated using the ggplot package in R (Wickham, 2016).

Figure 4 presents the results for the linear ITS model. Comparing the predicted number of no-shows per week (dashed line) to the observed data (solid line) gives an estimated number of no-shows *averted* per week. Over the 32 weeks following the introduction of RAS, the linear ITS model predictions indicate that the introduction of RAS reduced the number of no-shows by 2,130 (the 95-percent confidence interval for this estimate, constructed via bootstrapping with 1,000 iterations, covers 1,922 to 2,468 no-shows). This is an average estimate of 66 no-shows averted per week, or a reduction in the no-show rate of 5.75 percentage points.

Figure 4. Linear ITS model results for initial no-shows

Washington state, Jan. 1, 2017 through Feb. 24, 2020. Source: Employment Security Department/Data Architecture, Transformation and Analytics
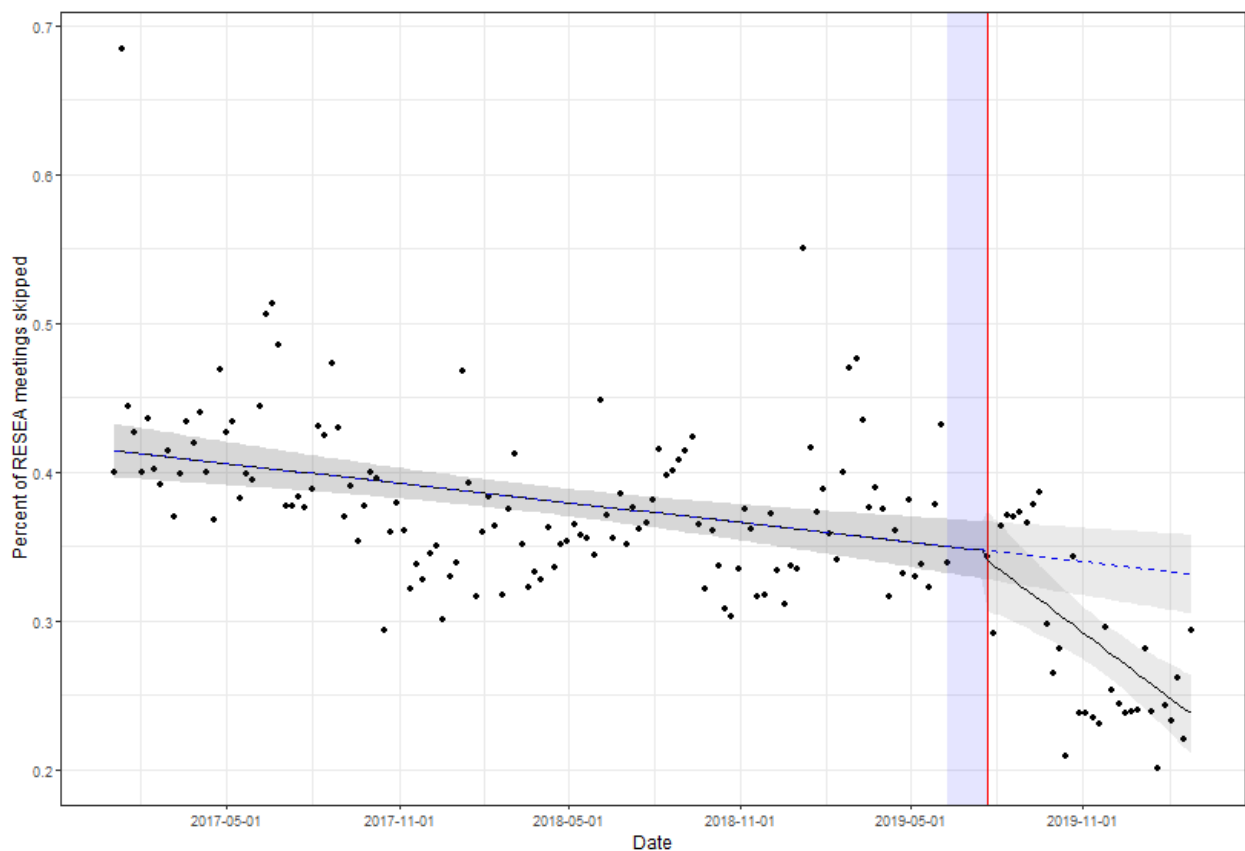

The ARIMA model predictions (*Figure* 5) indicate that 3,472 no-shows were averted (the 95-percent confidence interval for this estimate, constructed via bootstrapping with 1,000 iterations, covers 3,263 to 3,652 no-shows). This is an estimate of 109 no-shows averted per week, on average, or a reduction in the no-show rate of 9.36 percentage points.

Therefore, both models indicate that RAS substantially reduced the no-show rate, but the ARIMA model indicates that it reduced the rate by a larger extent. This is due to the slightly different predictions from the two models.

Figure 5. ARIMA ITS model results for initial no-shows

Washington state, Jan. 1, 2017 through Feb. 24, 2020. Source: Employment Security Department/Data Architecture, Transformation and Analytics
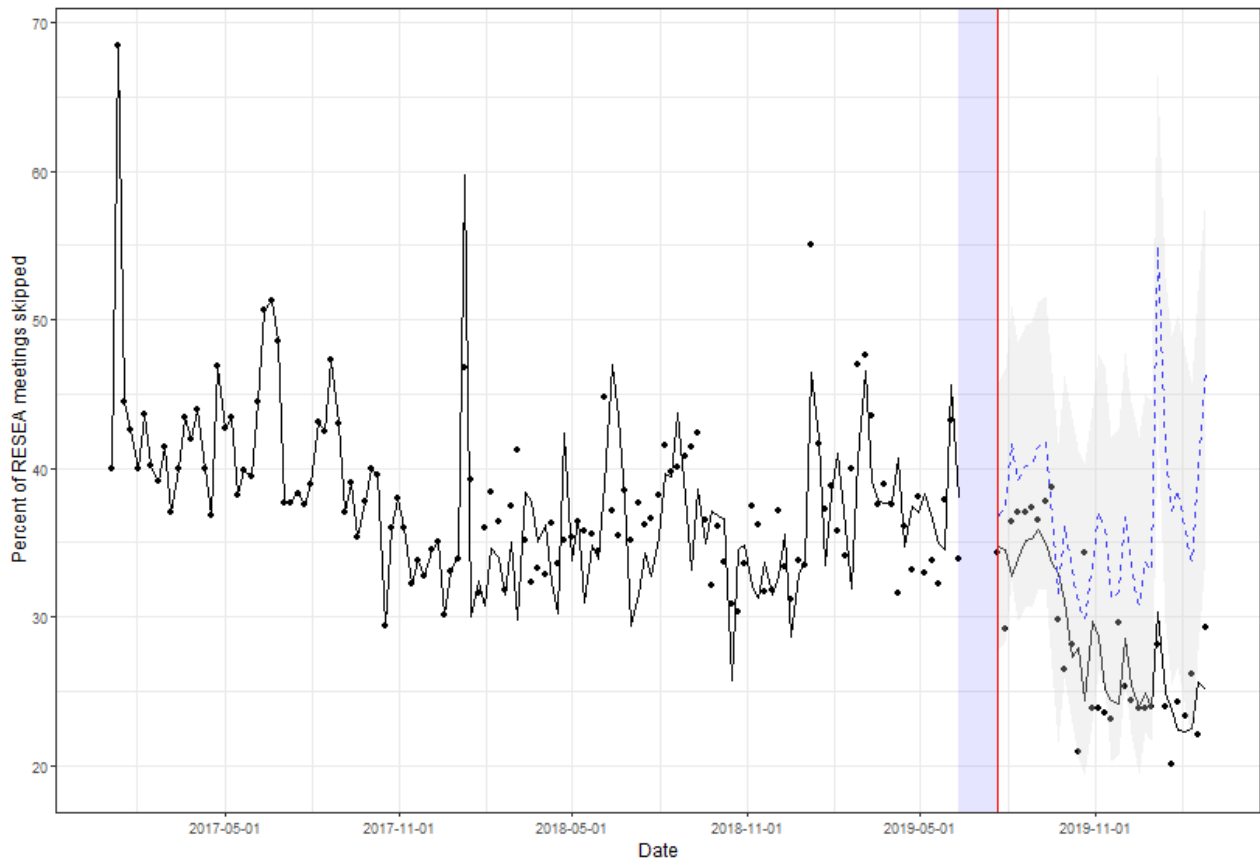
Disqualifications arising from no-shows

When people fail to attend their RESEA meeting, they may be denied UI benefits for the week of their appointment as a consequence. For a disqualification to occur, a claimant must have failed to attend their appointment, failed to provide a justifiable cause for not attending, and filed a weekly claim for UI compensation in the same week as the appointment.[15]

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[15] See Policy 2000, section 3.G, for the standard operating procedures for disqualifications.

Because the no-show rate decreased, it is possible that the introduction of RAS indirectly led to a reduction in disqualifications. Employment Security staff fit a linear ITS model and an ARIMA ITS model for the percent of people considered for RESEA each week, who did not attend their meeting, and who were disqualified because of it.[16]

Figure 6 depicts the ARIMA model results. Linear model results (not depicted for brevity) indicate that 708 fewer disqualifications occurred over the 32 weeks following the switch to RAS (the bootstrap 95% confidence interval, constructed via 1,000 iterations, covers 552 to 880 disqualifications). ARIMA results indicate that 763 fewer disqualifications occurred over the 32 weeks following the switch to RAS (the bootstrap 95% confidence interval, constructed via 1,000 iterations, covers 658 to 855 disqualifications).

Figure 6. ARIMA ITS model results for disqualifications occurring because of no-shows

Washington state, Jan 1, 2017 through Feb 24, 2020. Source: Employment Security Department/Data Architecture, Transformation and Analytics

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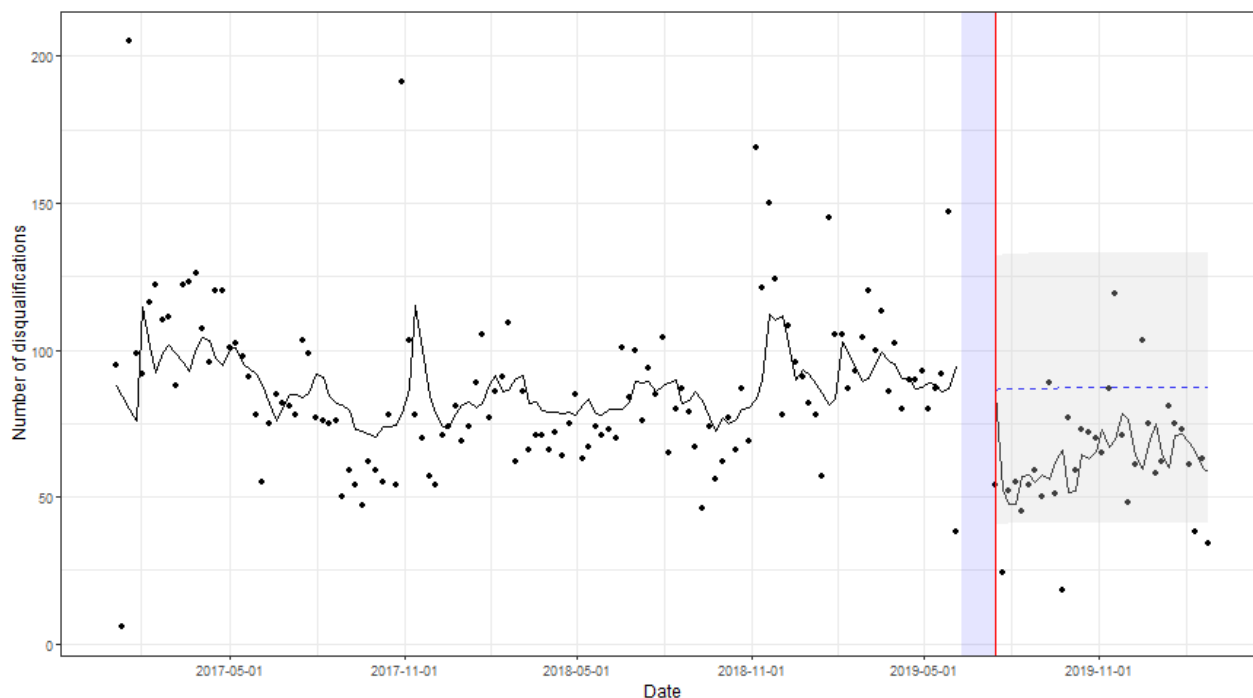
[16] Specifically, ESD staff modeled the percent of people considered for RESEA each week whose appointment resulted in adjudication, whose claim was denied, and who adjudication was labeled "Failure to Schedule/Report Weekly Denial" in the pre-RAS data, and as either "Did Not Schedule Appointment" or "Failure to Schedule/Report Weekly Denial" in the post-RAS data. Note that the best-fit ARIMA model for the disqualifications data was an ARIMA(2,0,0)(1,0,0)$_{52}$ model.

Which claimants benefit from RAS?

Because of the additional flexibility offered by the new scheduling system, model results indicate that fewer claimants missed their appointments. The ARIMA model results indicate that 3,472 people received RESEA services because of RAS over the 32-week period following the process change. If the state had not updated the scheduling process, their meetings would have been no-shows instead.

Employment Security staff conducted a classification exercise to determine who these 3,472 claimants most likely were. This exercise had three steps.

First, Employment Security fit a logistic regression model to predict which claimants did not attend their RESEA meeting from Jan. 1, 2017 through June 10, 2019. The explanatory variables in the model include earnings in each of the five quarters preceding their benefit year, education level, age at the start of the benefit year, race and ethnicity, county in which the claim is filed, disability status, and veteran status. The fitted values from this model are predictions for who will not attend their RESEA meeting, given their observable characteristics and given the scheduling process that was used before RAS.

Second, Employment Security staff used this model – calibrated using data before RAS was introduced – to predict which claimants were most likely to not attend their RESEA meeting *after RAS was introduced.* Employment Security staff generated predictions for all people selected for RESEA after RAS was introduced, who attended their meeting. These predictions indicate which RESEA recipients were most likely to not attend their RESEA meeting in the hypothetical circumstance in which RAS was not adopted.

Third, Employment Security staff categorized the 3,472 individuals who attended their meeting after RAS was introduced, and who had the highest predicted chance of no-showing if RAS had not been available to them, as "averted no-shows." Of the 25,883 attendees after RAS was adopted, these were the people most likely to have benefitted from the increased scheduling flexibility.

This prediction and classification exercise allows Employment Security researchers to consider two groups of claimants:

1) <u>Always attenders</u>: The 22,341 people who attended RESEA after RAS was introduced and would most likely have attended if faced with the old scheduling process as well.

2) <u>Averted no-shows</u>: The 3,472 people who attended RESEA after RAS was introduced but would most likely have not attended the meeting if faced with the old scheduling process.

Figure 7 provides summary statistics for these two groups of UI claimants. This exercise indicates that that the 3,472 averted no-shows are significantly different from the population of people that would have still attended RESEA in the absence of RAS.

On average, averted no-shows are 17 years younger than always attenders. They are far more likely to identify as male. They were more likely to self-identify as African American/Black. They are far more likely to have attained a high school education at most. They earned over $5,000 per quarter less, on average, in the two quarters prior to the quarter of the claim. Note that the summary statistics in *Figure 7* are all calculated independently. For example, Employment Security staff looked at age and gender separately, instead of assessing whether young men were more likely to be averted no-shows than older men.

Figure 7. Summary statistics (dollar amounts provided in 2019 dollars)

Washington state, July 22, 2019 through Feb. 24, 2020. Source: Employment Security Department/Data Architecture, Transformation and Analytics

Demographic characteristic	Averted No-shows	Always attenders
Average age	30.4	47.7
Percent female	26.9%	46.9%
Percent male	72.7%	53.0%
Percent White	56.9%	71.7%
Percent Black	11.8%	2.6%
Percent Asian and Pacific Islander	1.8%	4.7%
Percent Hispanic	24.1%	21.1%
Average earnings in the quarter before the claim	$9,835.32	$15,289.53
Average earnings two quarters before the claim	$9,168.53	$15,054.58
Percent with high school or less	65.9%	30.7%
Percent with college degree	28.3%	55.7%
Percent with post-college degree	0.3%	9.4%
Number of people	3,472	22,341

Note: Inflation adjustment was conducted using the Consumer Price Index for all urban consumers.

Discussion

This report documents how the introduction of the RAS scheduling system improved RESEA service provision in Washington state. Employment Security staff relied on prior literature to apply the ITS method to estimate the impact of the introduction of RAS (Linden and Adams, 2011; Bernal et al., 2017; Schaffer et al., 2021).

This report also helps build evidence on ways that state government agencies may improve their RESEA services, possibly facilitating compliance with federal RESEA evaluation requirements. The federal requirement in Social Security Act section 306(c)(2)[17] requires states spend federal funding on program interventions that have been shown to effectively improve claimants' job searches. The US Department of Labor (DOL) has developed a two-stage process for identifying effective program interventions. The DOL provides information about this two-stage process through Unemployment Insurance Program Letters (UIPLs) and via their Clearinghouse for Labor Evaluation and Research (CLEAR, https://clear.dol.gov/reemployment-services-and-eligibility-assessments-resea).

This two-stage process is to rate individual *studies* that evaluate RESEA program interventions, which can build a consensus about what works. Then, once a consensus is established by a body of research, the *intervention* receives a rating. [18] For example, this report can receive a study rating and introduce "flexible scheduling" as a rated intervention. *Studies* can receive low, moderate, and high ratings. *Interventions* can receive potentially promising, moderate, and high ratings.

Two or more high-rated studies must find that an intervention is effective for the intervention to receive a high rating. If only one study with a high or moderate rating shows that an intervention is effective, the intervention receives a moderate rating. If only low-rated studies document that an intervention is effective, then the intervention is rated "potentially promising."

Study ratings depend on the statistical design used in the evaluation. Studies using the ITS method are eligible to receive a high rating from the DOL if they satisfy five criteria.

Currently, this study is expected to receive a low rating from CLEAR because it does not meet causal inference criterion ITS.2, which states that "authors must *examine at least three units of observation* that became subject to an intervention *at three different points in time"* (emphasis in

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[17] See the relevant Social Security Act section here: https://www.ssa.gov/OP_Home/ssact/title03/0306.htm.
[18] For information on intervention ratings, see https://clear.dol.gov/view-intervention-evidence-ratings-keys. For information on study ratings, see https://clear.dol.gov/reference-documents/causal-evidence-guidelines.

original). This study only uses data from Washington state, and there is only one instance in time when RAS was introduced in Washington state. These data do not permit the study to receive a high or moderate rating.

To meet the ITS.2 requirement, the evaluation study should present evidence on the same intervention from at least three states. The other states must have implemented their updates at different points in time. To accomplish this goal, Employment Security would need to coordinate with other states, pool data, and produce an updated report with three units of observation (states) and with the intervention occurring at three different points in time. This future study with pooled data from multiple states could receive a high or moderate rating. This study is a steppingstone towards establishing flexible scheduling as a high rated RESEA intervention.

Conclusion

The introduction of a new scheduling system for RESEA meetings in 2019 reduced the no-show rate substantially. Under the old scheduling process, people likely had conflicts with their RESEA meeting at a relatively high rate. Under the new system, people could consider their calendar when selecting the date and time of their RESEA service. RAS significantly improved UI claimants' access to reemployment services. Results from the ARIMA ITS model suggest the number of missed appointments decreased by 3,472 over the 32 weeks after RAS was introduced.

Because the no-show rate decreased, the number of disqualifications occurring because of no-shows decreased as well. The reduction in disqualifications is smaller than the reduction in the number of no-shows because not all no-shows result in a disqualification. Results from the ARIMA ITS model indicate the introduction of RAS reduced the number of disqualifications over the next 32 weeks by 763.

Classification modeling results indicate job seekers who benefitted from this process change were more likely to self-identify as African American/Black and male, were younger, and earned less than their peers.

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Appendix A: Placebo check

Over the course of a year, the demographic composition of UI claimants tends to change due to seasonal employment patterns. Since some industries – like tourism and agriculture – experience layoffs seasonally, a greater proportion of UI claimants come from those industries at certain points in the year.

In theory, the results documented above, and visualized in *Figures 4* and *5*, may be driven by changes over time in UI claimants' demographic characteristics. Specifically, there may be some concern that claimants in August 2019 through February 2020 were less likely to not attend their RESEA meeting than those who claimed beforehand for reasons that are not measured in Employment Security's administrative dataset. In this hypothetical case, some of the changes in the no-show rate after RAS's introduction would be attributable to changes in the composition of the UI claimant population, and some would be attributable to RAS. In this case, the results would potentially over-estimate the no-show rate in the absence of RAS, possibly resulting in over-estimates of RAS's effect on the no-show rate.

Employment Security staff conducted a placebo check to generate evidence that the changes in claimant demographic characteristics do not influence the estimates in this report. In this placebo check, Employment Security replicated the analysis above treating July 23, 2018 as a hypothetical RAS introduction date ("placebo RAS" introduction), one year prior to the actual RAS introduction date. In this placebo exercise, Employment Security staff only considered the 32 weeks of data after the "placebo RAS" introduction. The dates in this placebo analysis are:

1) Jan. 1, 2017 through June 11, 2018 identify the period before the "placebo RAS" introduction.
2) June 18, 2018 through July 16, 2018 identify a five-week period of "placebo RAS" transition.
3) July 23, 2018 through Feb. 25, 2019 identify the period when claimants were selected for RESEA under the "placebo RAS" system.

This placebo exercise has two steps. First, Employment Security staff assessed whether the changes over time in these placebo data are similar to the changes over time documented in *Figure 1*. Step two is to fit the models described in the Methods section to the placebo data. If underlying changes in claimant composition over time adversely affect the predictions, then the results for this placebo check should be significantly different from zero. If the results from the placebo check are negative, this exercise suggests that the estimates in the body of the report are *overestimates.* If the results are positive from the placebo check, this exercise suggests the estimates in the body of the report are likely *underestimates.*

Figure A1 presents summary statistics to assess changes over time in UI claimants' demographic characteristics in the placebo data. Column two of *Figure A1* provides summary statistics on people who were considered for RESEA before the "placebo RAS" introduction. Column three provides summary statistics for people who were considered for RESEA after the "placebo RAS" introduction.

Step one in this placebo check is to compare the changes over time in the data used for analysis and the data used for the placebo check. Column 4 of *Figure A1* documents the difference in changes over time. The value in column four is equal to (a – b) – (c – d), where these values are defined as:

> a) The summary statistic for people considered for RESEA from Jan. 1, 2017 through June 10, 2019, corresponding to the data before RAS used in the analysis in the body of the report.
>
> b) The summary statistic for people considered for RESEA from July 22, 2019 through Feb. 24, 2020, corresponding to the data after RAS used in the analysis in the body of the report.
>
> c) The summary statistic for people considered for RESEA from Jan. 1, 2017 through June 11, 2018, corresponding to the data before "placebo RAS" used in the placebo check.
>
> d) The summary statistic for people considered for RESEA July 23, 2018 through Feb. 25, 2019, corresponding to the data after "placebo RAS" used in the placebo check.

If the changes over time are the same in the two data samples, then (a - b) – (c – d) = 0. This means that the underlying demographic changes over time were the same in the two samples. If the underlying demographic changes over time were similar in the two data samples, then the values will be small, but may differ slightly from zero. In either case the second step of the placebo check – the modeling exercise – will shed light on the validity of the main results.

Column four of *Figure A1* suggests that the changes over time in the placebo sample are very similar to the changes over time in the sample analyzed in the body of this report. Average age increased over time in both, by 0.2 years in the real data and by 0.1 years in the placebo data. Similarly, the changes over time were comparable for gender, race, and ethnicity. There was an increase over time in earnings prior to the claim in both datasets, but it was slightly larger in the data used for the analysis. There was also a small difference in changes over time in educational attainment.

Overall, the comparison of the changes in claimant characteristics indicates that this placebo check is informative about the validity of the results in the body of this report. That is, there

were comparable changes over time in the composition of UI claimants in the placebo data sample and in the data sample analyzed in the body of this report.

Figure A1. Summary statistics for the placebo data (dollar amounts provided in 2019 dollars)

Washington state, Ja. 1, 2017 through Feb. 25, 2019. Source: Employment Security Department/Data Architecture, Transformation and Analytics

Demographic characteristic	Before "placebo RAS"	After "placebo RAS"	(a-b) – (c-d)
Average age	43.9	44.0	0.1
Percent female	42.5%	42.7%	0.2 p.p.
Percent white	69.4%	68.7%	-0.7 p.p.
Percent Black	5.7%	5.0%	0.2 p.p.
Percent Asian and Pacific Islander	4.5%	3.8%	-0.3 p.p.
Percent Hispanic	15.4%	20.0%	0.0 p.p.
Earnings pre-claim			
Average earnings in the quarter before the claim	$12,100.69	$12,819.70	-$671.21
Average earnings two quarters before the claim	$12,171.59	$12,638.35	-$594.27
Education	NA	NA	
Percent with high school or less	40.6%	40.4%	1.9 p.p.
Percent with college degree	49.0%	48.2%	-1.9 p.p.
Percent with post-college degree	6.0%	6.4%	0.5 p.p.
Number of people	91,580	38,822	
Number of people per week	1,205.2	1,213.2	

Employment Security staff replicated the ARIMA ITS modeling exercise using the data from Jan. 1, 2017 through Feb. 25, 2019 to study the "placebo RAS" introduction. The best-fit model for the data before "placebo RAS" (from Jan. 1, 2017 through June 11, 2018) was an ARIMA(2,1,2) model. The ARIMA model prediction and prediction interval are presented in *Figure A2*, which is analogous to *Figure 5*.

To construct the estimate of the "placebo RAS" introduction's effect on the no-show rate, Employment Security staff compared the observed post-placebo data to the prediction. The estimate is an *increase* of 172 no-shows over the 32 weeks following the placebo-introduction

date. (The confidence interval for this estimate, constructed via bootstrapping with 1,000 iterations, covers 99 to 437).

The estimate of the introduction of "placebo RAS" on the no-show rate (an increase of 172 no-shows) is small compared to the estimates of the RAS introduction (a reduction of 3,472 no-shows). Since the estimate is positive, this placebo-check exercise suggests that the demographic changes before and after placebo-RAS' introduction are associated with a very small *increase* in the no-show rate. To the extent that demographic trends were similar in 2018 and 2019, the estimates in the main body of the report may even slightly *underestimate* the true effect of RAS on the no-show rate. This placebo check dispels concerns that changing UI claimant demographic characteristics explain the results documented in this report.

Figure A2. ARIMA ITS model results for initial no-shows, placebo check

Washington state, Jan 1, 2017 through Feb. 25, 2019. Source: Employment Security Department/Data Architecture, Transformation and Analytics