

**The Effects on Employees from the Switch to Mandatory Contributions in the University of
Arkansas Retirement Plan**

by

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Many Americans either contribute too little or wait too long to save for retirement, which forces them to live on a fraction of their income earned before retiring. A 2010 estimate from the National Institute on Retirement Security (NIRS) shows that 53% of people are at risk of not being able to maintain their current lifestyle once retired. The NIRS also estimates that 45% of working-age households have no retirement savings at all, 92% do not meet conservative savings targets for their age and income, and only 52% of people that have the opportunity to participate in a workplace retirement plan actually do so.

Saving too little for retirement can either be a rational (optimal) or irrational (suboptimal) decision. All households are budget constrained to some extent, meaning they must choose a savings rate that balances current consumption versus future consumption in retirement. Those who are severely budget constrained may not have the ability to contribute to retirement at all beyond Social Security taxes because they need all their disposable income for present day consumption. Others may choose to divert some of their income for retirement even though they know the amount is insufficient to fund the retirement lifestyle they would prefer. Others have the income that allows them to save enough to live comfortably in retirement. If these decisions are made with careful thought and with the best information available, then such savers are acting rationally. They are optimizing their retirement savings, even if it means not saving at all or saving too little to be prepared for retirement.

In contrast, an individual or household can irrationally choose to save too little for retirement, which leads to a suboptimal outcome. A behavioral bias exists when an individual makes a less-than-optimal decision given the available information because of a bias in the decision making. Three behavioral biases can lead people to voluntarily save too little even though they would prefer to save more. The first bias is *inertia*. Many people realize they need to increase saving for retirement, but they procrastinate until nudged or forced to do so. Second is *loss aversion* where the perception of a loss of a certain amount hurts more than the pleasure derived from an equal gain. This bias prevents some people from increasing their retirement saving because the intense pain of seeing their paycheck go down outweighs the pleasure of equal financial returns in the future. A purely rational decision would lead these people to save more. The third bias is *present bias*. People acknowledge a need to save more and may even make a non-binding pledge to doing so in the future, but as the future draws nearer, their preference for

consumption in the present becomes increasingly stronger, which ultimately overcomes their desire to save. People with strong present bias have low self-discipline in the present moment.

After the 2016 fiscal year (FY), which ended June 30, 2016, the University of Arkansas enacted changes to the retirement plan, presumably to address low savings rates among some employees.¹ Beginning in 2017, the University of Arkansas Retirement Plan required all full-time employees to make a mandatory retirement contribution of 1% of salary. This contribution rate increased by one percentage point every fiscal year to 4% in 2020. The final increase to 5% was originally planned for 2021, but the university delayed that increase one additional year with the onset of COVID-19. As of July 1, 2021 (FY 2022), employees must contribute the minimum rate of 5%. The university matches employee contribution rates up to a maximum of 10%, so full-time employees that contribute the minimum rate in 2022 have a combined saving rate of 10% of their income, a large increase relative to those that chose not to participate in the program prior to 2017.

The change to mandatory contributions may have harmed some employees while making others better off. The main concern with mandatory contributions is that they harm individuals with tight budget constraints who wish to contribute less than the minimum contribution rate. Mandatory contributions are harmful to such employees because the reduction in utility from the decline in current consumption outweighs the increased utility from the additional retirement savings. These employees would view the minimum rate as too high, leading to suboptimal savings because they are unable to reduce the contribution rate to the rational rate they would choose without the mandate.

On the other hand, mandatory contributions may have benefitted some employees because behavioral biases prior to the change in the retirement plan caused them to have suboptimal savings rates that were too low. For those with inertia, the rollout of the new plan may have raised awareness among the procrastinators to actively choose a more optimal contribution rate. Even if they did not take explicit action, the increase in the savings rate from mandatory contributions may have brought them closer to their optimal contribution rate. For employees with intense loss aversion, an increase in mandatory contributions would force them to save more optimally. With employer matching and tax benefits, a 1% increase in the contribution rate leads to an increase in

¹ The University of Arkansas fiscal year begins July 1 of the preceding calendar year and ends June 30 of the current calendar year. For example, FY2020 began July 1, 2019 and ended June 30, 2020. Reference to a year in this report is to the fiscal year.

savings of more than 2%. Finally, mandatory contributions would force those with present bias to make a more optimal trade-off between current consumption and future consumption by overcoming their inability to make a rational decision in the present moment. In sum, mandatory retirement savings can increase saving rates to more optimal levels for many employees because it nudges or forces them to overcome at least partially each of these three biases.²

We document the effects on full-time employees from the changes to the University of Arkansas Retirement Plan. We designed and conducted a survey (see Appendix A) of full-time employees at the University of Arkansas. The survey tracks annual contribution rates between 2016 and 2020 and identifies those that do not believe their retirement savings are optimal either because their contribution rates are too low or too high. Our objectives are to describe the impact of mandatory contributions on employee retirement savings, and to assess the degree to which employees have been helped or harmed. Those that have been harmed are relatively easy to identify because they would be contributing at the minimum rate (4% in 2020) and view their contribution rate in 2020 as ‘too high.’ Tight budget constraints rather than behavioral biases should account for the belief that their contribution rate is too high. Alternatively, those that have been helped would have increased their retirement contributions between 2016 and 2020, whether voluntarily or by force, because mandatory contributions helped them overcome behavioral biases. These employees would view their contribution rate in 2020 as ‘just right,’ and they should exhibit strong behavioral biases.

Our main findings are the following:

1. Most survey respondents are unaffected by the switch to mandatory contributions. Of the 102 respondents that were employed prior to the change, 72% (92% of faculty and 59% of staff) contributed 10% or more to their retirement account in Fiscal Year 2020.
2. A large majority of respondents (89%) are either satisfied or indifferent to the change to mandatory contributions. Just 7% of faculty, and 15% of staff are not satisfied with the changes. In addition, 76% of faculty, and 63% of staff agree they are adequately prepared for retirement

² These same behavioral biases could also lead to contribution rates that are too high. An employee may set a contribution rate of 10%, for example, but then a spouse is laid off, and inertia prevents the employee from reducing the contribution rate. However, if the optimal contribution rate is equal to or greater than the minimum required rate, the change to mandatory contributions has no effect. If the minimum required rate is binding, the harm to the employee results from budget constraints rather than behavioral biases.

given their current contribution rates. However, a sizable minority of staff (29%) disagree with this viewpoint.

3. Average contribution rates increased for all full-time employees, especially staff, after the switch to mandatory contributions. The average contribution rate for staff increased by 120 basis points to 8.4% between 2016 and 2020. We estimate that the average staff member at the University of Arkansas in 2020 increased annual retirement contributions by \$1,250 including the employer match relative to the contributions they would have made without the switch to mandatory contributions. The average contribution rate for faculty increased by 30 basis points to 10.1%.
4. A small percentage (2.4%) of staff, but no faculty, may have been harmed by the switch to mandatory contributions. These staff respondents perceive their 2020 contribution rate of 4% (the minimum) as ‘too high.’ They exhibit tight budget constraints and present bias. The power of statistical testing, however, is too weak to confirm these results.
5. A much larger percentage of staff (16%) and faculty (11%) may have been helped by the switch to mandatory contributions. These respondents increased their contribution rates at some point between 2016 and 2020 either voluntarily or by force, and they view their contribution rates in 2020 as ‘just right.’ These employees exhibit signs of inertia and present bias, and the staff also exhibit signs of loss aversion. Again, the power of statistical testing is too weak to confirm these results.

The results of this study must be interpreted with caution because they are limited by a relatively small sample size that is not representative of the employee composition at the University of Arkansas. The 171 total responses may be insufficient to draw statistically significant inferences from a population of 4,593 full-time employees where 73% are staff but only 53% of the survey respondents are staff.³ In addition, roughly 10% of university employees work in the Sam M. Walton College of Business, but 62% of the respondents work there, so the results disproportionately represent Walton College employees. This disconnect results from our inability to solicit responses from all full-time employees via email. The survey was released in the summer of 2020, but we were able to email the survey only to Walton College employees. To reach employees in other colleges, the survey announcement was posted on the University’s online

³ University of Arkansas Quick Facts, accessed March 2021 at <https://oir.uark.edu/quickfacts>.

Newswire publication, but this indirect approach sharply reduced the response rate. A much larger survey is needed that reaches across all campuses of the University of Arkansas System to accurately assess the effects on employees from mandatory contributions.

Hypotheses

In this section, we state the hypotheses and describe the theory for why the implementation of mandatory contributions may have helped or harmed certain employees.

Hypothesis 1: The switch to mandatory contributions in the University of Arkansas Retirement Plan has made some employees better off because mandatory contributions nudged or forced them to overcome behavioral biases that led to savings rates that were lower than optimal.

Three behavioral biases that can lead to suboptimal contribution rates that are lower than the optimal rate. (Thaler, 2015).

1. *Inertia.* People with inertia know they need to save more or start saving “soon” for retirement, but they procrastinate and may not act until nudged or forced to do so. Employees with low savings rates driven by high inertia will benefit from the change to the mandatory contributions.
2. *Loss aversion.* People hate to see their paychecks go down, which happens when the retirement saving rate increases. Loss aversion means that an individual feels the pain from the loss of \$1 more than the joy from a gain of \$1. Although most people experience loss aversion to some extent, the loss aversion required to forego matching contributions must be at least 2 to 1 because an additional \$1 reduction in the paycheck is offset by \$2 in savings. Moreover, the gain to loss ratio may be greater than two-to-one because the additional savings reduces current taxes because the savings are tax deferred. Consequently, those forced to overcome loss aversion due to mandatory contributions will benefit financially in the long run.
3. *Present bias.* Although people differ in their intertemporal consumption preferences, the preferences of those with present bias change quickly as the future draws nearer. The behavioral effect is that people have more self-control when they make binding decisions now regarding actions they will take in the future rather than making

decisions about the future only in the present. Planning to save money in the future is an easy thought, but actually increasing the savings rate in the present moment is much harder. People with strong present bias have less self-control to delay consumption when forced to make the choice, so they should benefit from a mandatory contribution retirement plan that boosts savings.

Regardless of the source of the bias, the survey respondents that benefitted from the program change would have increased their retirement contributions between 2016 and 2020, and they would view their contribution rate in 2020 as just right. They should also exhibit strong behavioral biases after controlling for budget constraints.

Hypothesis 2: The switch to mandatory contributions in the University of Arkansas Retirement Plan has made employees that are severely budget constrained worse off because their contribution rates are too high and cannot be lowered to the optimal rate. The disutility of the reduction in current consumption exceeds the utility of the additional savings.

Many people use their entire paycheck to purchase necessities and they have no desire to shift disposable income into retirement savings because the reduced consumption is painful and outweighs the future monetary gains in retirement. Mandatory contributions make these people worse off. These individuals would view their required contribution rate as too high, contribute the minimum rate to the retirement plan in 2020, and exhibit tight budget constraints after controlling for behavioral biases.

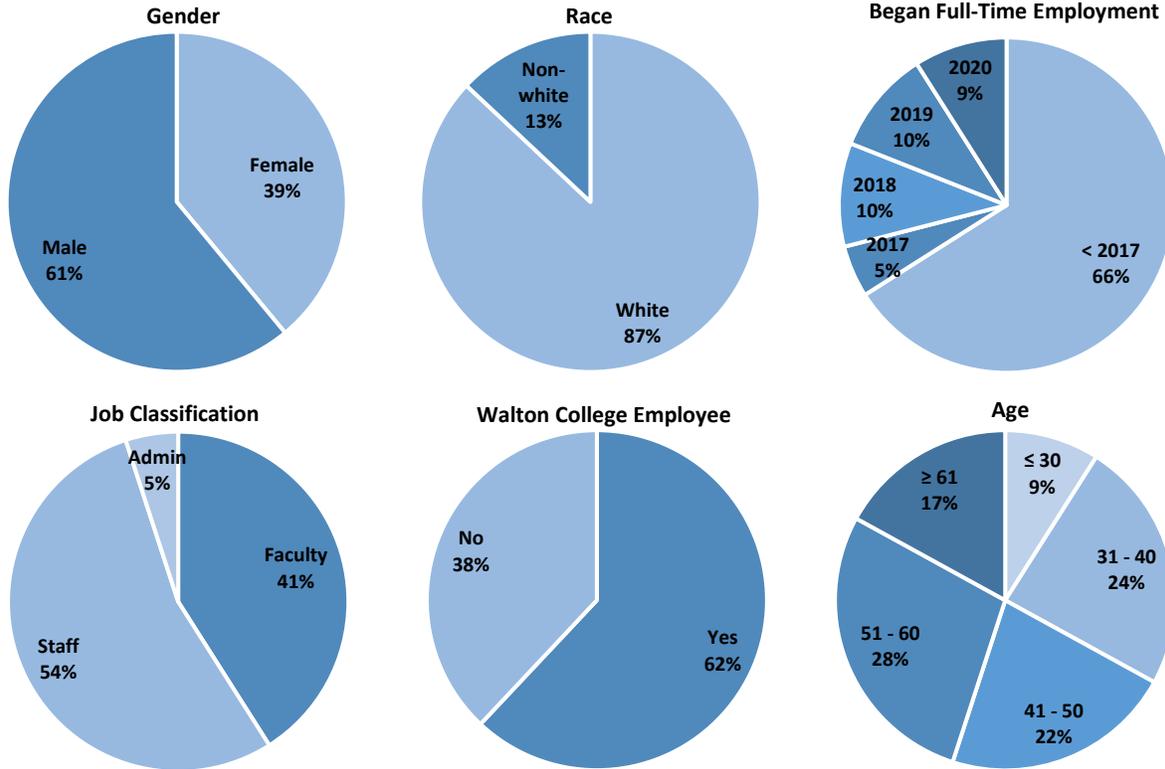
Summary Statistics

In this section, we present key summary statistics from the survey, first for all respondents and then separately for faculty and staff. We assess employees' perceptions of the retirement plan and examine the prevalence of behavioral biases and budget constraints.

All Respondents

The survey solicitation received 171 responses from full-time employees at the University of Arkansas. The first several questions gather demographic information shown in Figure 1. Of the respondents, 61% are male and 87% are white. By job classification, 92 (54%) are staff, 71

Figure 1. Survey Demographics



(42%) faculty, and 8 (5%) administration. The most common age concentration is 51-60 at 28% of all responses, followed by 31-40 at 24%. The least common age group is those less than 30 years of age (9%). A majority (62%) of respondents work in the Sam M. Walton College of Business, reflecting easier survey access to business school employees. Finally, most respondents (66%) began full-time employment before 2017 meaning they were employed prior to the retirement plan’s change to mandatory contribution. Another 5% started in 2017, and roughly 10% started each year from 2018 to 2020.

Faculty and Staff

We report several summary statistics separately for faculty and staff because gender, age, income, and education are quite different, which could affect contribution rates and budget constraints. Given the low number of responses by administrators and their similarity with faculty profiles, we aggregate the two groups throughout the study and refer to them collectively as ‘Faculty.’

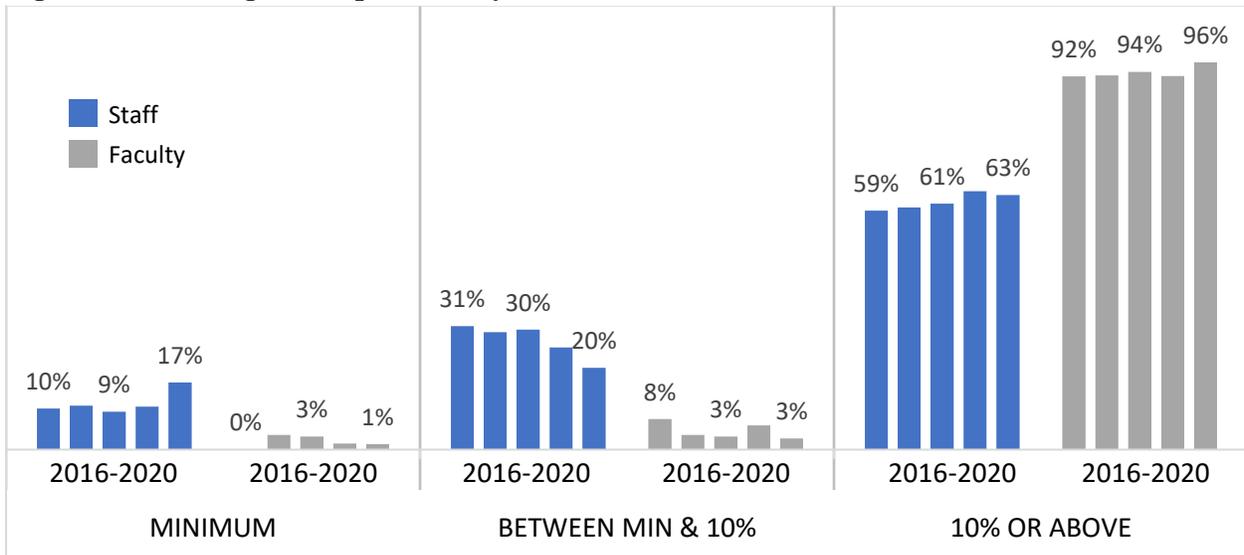
Table 1. Summary Statistics by Job Classification

| Gender | N | Male | Female | | | |
|--------------------------|----|--------|-----------|-------------|------------|---------|
| Faculty | 80 | 58% | 43% | | | |
| Staff | 92 | 23% | 77% | | | |
| Age | N | ≤ 30 | 31 - 40 | 41 - 50 | 51 - 60 | ≥ 61 |
| Faculty | 72 | 4% | 18% | 25% | 28% | 25% |
| Staff | 89 | 13% | 29% | 20% | 28% | 9% |
| Income | N | <\$25K | \$25K-50K | \$50K-75K | \$75K-100K | >\$100K |
| Faculty | 80 | 1% | 6% | 10% | 13% | 70% |
| Staff | 92 | 3% | 58% | 21% | 14% | 4% |
| Little Disposable Income | N | Agree | Disagree | Indifferent | | |
| Faculty | 74 | 14% | 69% | 18% | | |
| Staff | 86 | 50% | 44% | 6% | | |

Table 1 presents select summary statistics of the survey respondents by job classification. The majority of faculty (58%) are male, but 77% of staff are female. Faculty are older than staff on average; 25% of faculty are older than 60 years of age compared with 9% of staff. In addition, 22% of faculty are less than 40 years of age relative to 43% of staff. Most staff (58%) earn between \$25,000 and \$50,000 in annual income while most faculty (70%) earn \$100,000 or above. Given this wide pay gap, a decrease in take-home pay from mandatory contributions will harm staff more than faculty, and staff are more likely than faculty to be budget constrained. Half the staff, but just 14% of faculty agree with this statement: “After paying for necessities each month I have very little disposable income.”

Most respondents take full advantage of the employee matching benefit provided by the university retirement plan. Figure 2 displays the percentage of staff and faculty, respectively, by contribution rate buckets for the years 2016 through 2020. Nearly all faculty (96%) and a majority of staff (63%) contributed at least 10% (the maximum rate for employer matching) to their retirement accounts in 2020. A significant minority of staff, however, contribute the minimum to the retirement plan. In 2016, the year before the introduction of mandatory contributions, 10% of staff respondents did not participate in the retirement plan. A similar percentage contributed the minimum rate through 2019, but the number jumped sharply to 17% in 2020 when the minimum rate was 4%. That jump, however, is misleading because it ignores the percentage of respondents in prior years that had contribution rates less than or equal to 4%. In 2016, for example, 22% of staff respondents had contribution rates of 4% or less, five percentage points higher than the 17% of respondents in 2020.

Figure 2. Percentage of Respondents by Contribution Rate Buckets, 2016-2020



Mandatory contributions have led to higher average retirement savings rates. Figure 3 plots the average contribution rates by year of faculty and staff, respectively, that were employed prior to 2016. The average contribution rate for faculty increased by 30 basis points between 2016 and 2020 to 10.1% while the average rate for staff increased by 120 basis points to 8.4%.⁴ Assuming that the contribution rates and income brackets of the respondents are representative of the 3,300 full-time staff as a whole, we estimate that the average staff member at the University of Arkansas who earned a salary in 2020 of \$52,000, increased retirement contributions by \$625, which was matched by an additional \$625 for a total increase of \$1,250 relative to retirement contributions

Figure 3. Average Contribution Rates

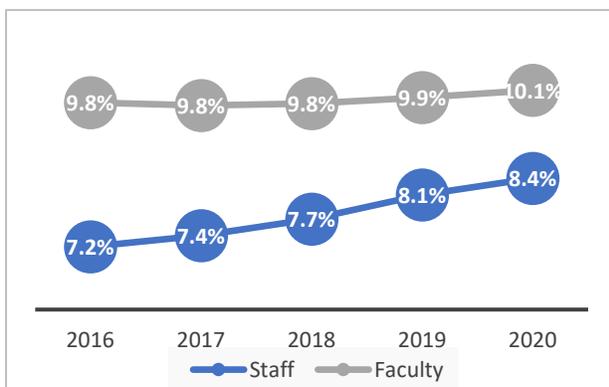
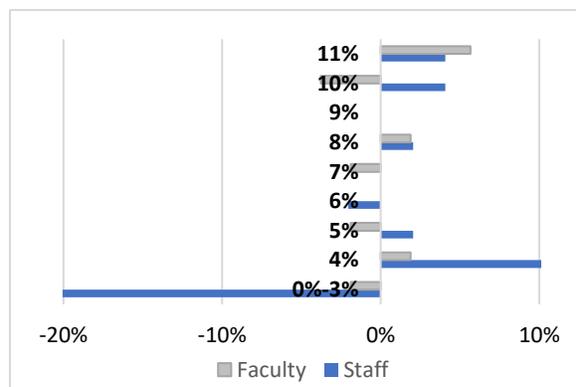


Figure 4. Change Between 2016 and 2020



⁴ When all staff respondents are included regardless of the year they began employment, the increase in the average contribution rate between 2016 and 2020 is 100 basis points to 8.2%.

that would have occurred if the switch to mandatory contributions did not occur. (See Appendix B for the details of this computation.)

Figure 4 shows why retirement contributions increased between 2016 and 2020. The figure plots the change between those years in the percentage of respondents hired prior to 2016 that selected a particular contribution rate. The increase in the average contribution rate by faculty resulted primarily from a shift in contributions of 10% to contributions greater than 10%. The share of faculty contributing 10% declined by 4 percentage points while the share contributing more than 10% increased by 6 percentage points. The increase by staff, in contrast, resulted primarily from a shift in contribution rates of 3% or less to contribution rates of 4% and contribution rates of 10% or above. The share of staff contributing 3% or less declined between 2016 and 2020 by 20 percentage points, while the share contributing 4% increased 10 percentage points. In addition, the share contributing 10% or more increased by 8 percentage points.⁵

Perceptions of the Retirement Plan

Several survey questions asked all respondents their perceptions of the retirement program. As Figure 5 shows, a large majority of full-time employees (89%) are either satisfied or indifferent to the change to mandatory contributions. Just 7% of faculty, and 15% of staff are not satisfied with the changes. In addition, Figure 6 shows that 76% of faculty, and 63% of staff agree they are adequately prepared for retirement given their current contribution rates. However, a sizable minority of staff (29%) disagree with this viewpoint.

Figure 5. Satisfied with Mandatory Cont. Changes

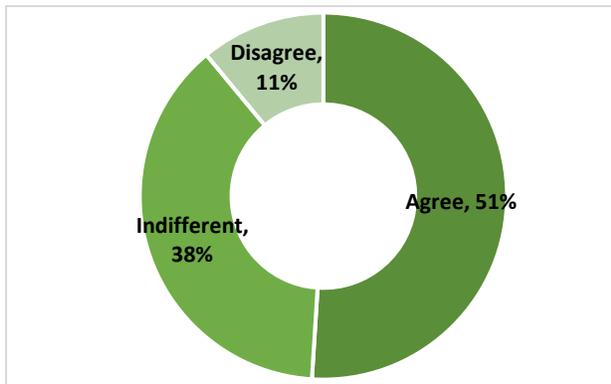
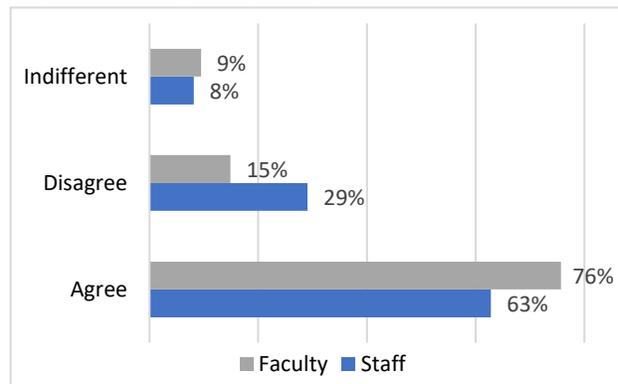
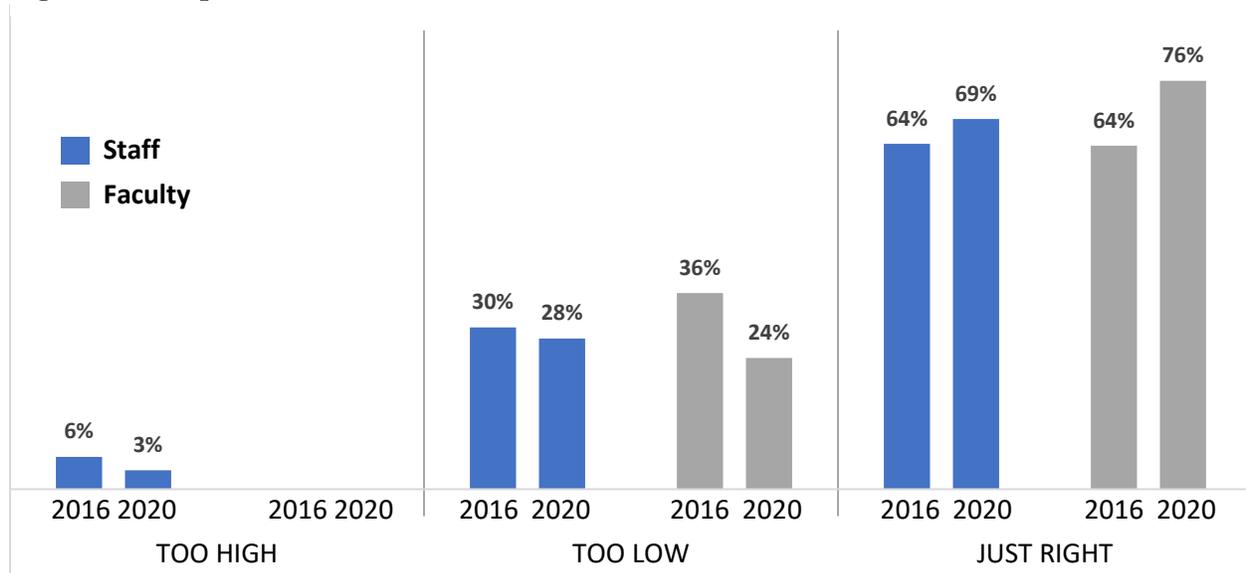


Figure 6. Adequately Prepared for Retirement



⁵ The share of all staff respondents contributing 3% or less declined by 20 percentage points between 2016 and 2020, while the share contributing 4% increased by 15 percentage points, and the share contributing 11% or more increased by 4 percentage points.

Figure 7. Perception of Contribution Rates in 2016 and 2020



The switch to mandatory contributions is correlated with an increase in the percentage of employees who believe their contribution rates are ‘just right.’ As shown in Figure 7, the share of faculty that perceived their contribution rates to be just right increased from 64% in 2016 to 76% in 2020. Similarly, the share of staff that perceived their contribution rates to be just right increased from 64% to 69%. A minority of respondents, however, perceive their contribution rates as too high or too low. Nearly one-quarter of faculty and 28% of staff view their contribution rates in 2020 as too low. In addition, 3% of staff (3 respondents) view their contribution rate as too high. These employees are the ones that may be hurt by the change to mandatory contributions.

Figure 8. Procrastinate Making Financial Decisions

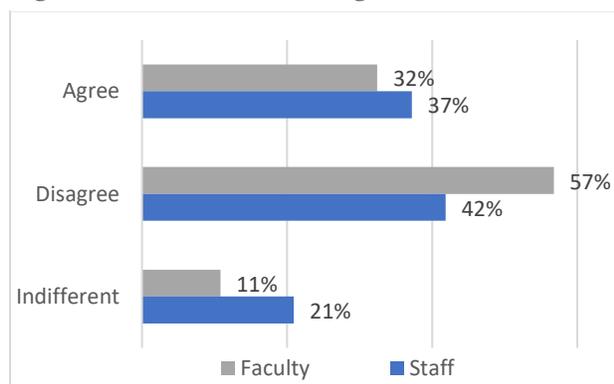
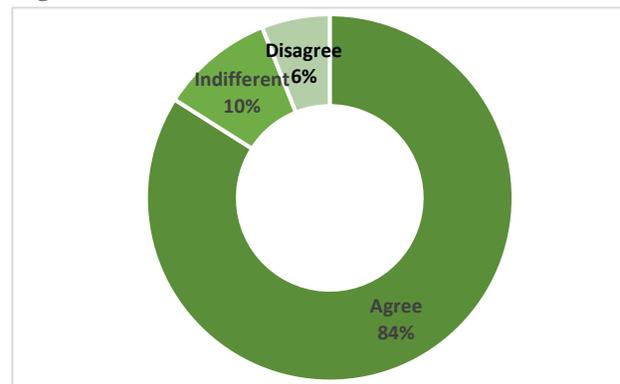


Figure 9. Make Conscious Effort on Rate Decision



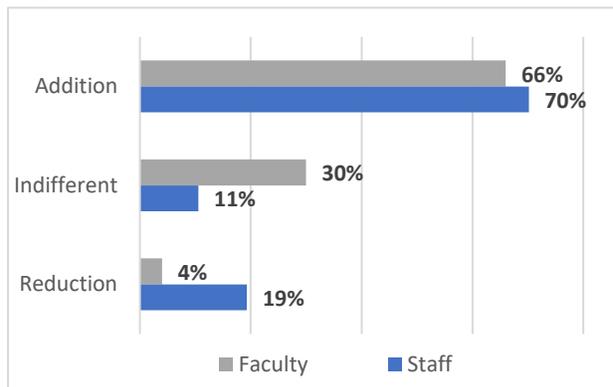
Behavioral Biases

Behavioral biases could lead to suboptimal contribution rates that are too low. Employees hired before the change to mandatory contributions may have been saving less than they desired, and this change either encouraged or forced them to increase contribution rates to save more optimally. We present summary statistics for evidence of inertia, loss aversion, and present bias.

Two survey questions address a respondent's degree of inertia. Figure 8 shows that 37% of staff respondents and 32% of faculty agree that they procrastinate making financial decisions. However, Figure 9 shows that just 6% of all respondents disagree with the statement "I make a conscious effort to make the best decision on my contribution rate," suggesting that inertia may not be prevalent. Responses by faculty and staff are similar for this question.

Loss aversion could be contributing to low and suboptimal contribution rates for staff. Two-thirds (107) of all respondents pay attention to the section on their paycheck showing retirement contributions. Of those respondents, as shown in Figure 10, eleven staff (19%) but just two faculty (4%) view the contribution as a reduction from their paycheck rather than an addition to their retirement savings.

Figure 10. Contribution is Addition or Reduction?



Present bias does not seem to be an important bias among the respondents. To calculate effects from present bias, we use the methodology used by Ameriks et al. (2007) where present bias is measured using with the expected-ideal (EI) gap. Respondents are asked about a hypothetical situation in which they receive ten free dinner tickets to any restaurant to use within two years. They first must choose the number they would *ideally* use in each year (Q31). They are then asked how many tickets they actually *expect* to use each year (Q34). The EI gap is computed by subtracting the expected number of tickets used in year 1 by the ideal number of tickets used in year 1. The theory behind this scenario is that those who do have a present bias will choose to use more meal tickets in the first year than their ideal number. A positive EI gap represents a standard problem of overconsumption due to low self-control, and a negative gap corresponds to underconsumption.

Figure 11. Increase Contribution Rate if Given Raise

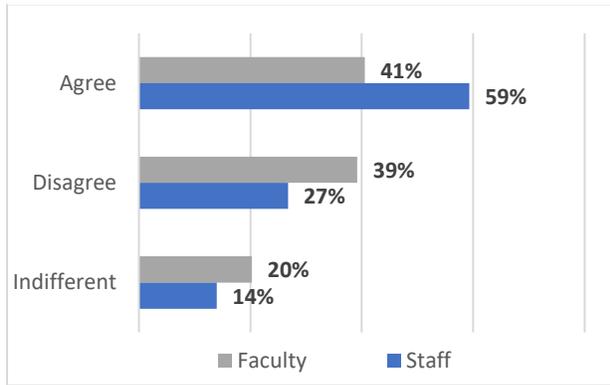
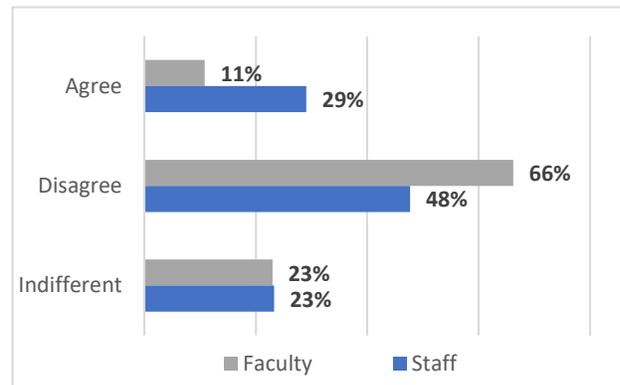


Figure 12. Save Less Elsewhere



When survey respondents were asked about the hypothetical dinner ticket situation, most answered that they would use more tickets in year one rather than year two. However, just 12% stated they would be tempted to use more tickets in year one than initially stated. Moreover, the difference in means of the expected and ideal number of tickets used in year one is less than one whole ticket. This outcome suggests that present bias is not an important reason for suboptimal savings.

Budget Constraints

Budget constraints prevent many staff from achieving their optimal contribution rates. Figure 11 shows that 41% of faculty answered that they would increase their contribution rate if they received a raise beyond the normal increase for inflation and cost of living, but an even greater percentage of staff (59%) would do so. Further, just one faculty member (1%) but 14 staff (17%) contributed the minimum rate of 4% in Fiscal Year 2020. Of the staff respondents, 14 of 15 (93%) would contribute 10% if they could afford to do so.

Two additional survey questions assess the effects from budget constraints. The first asks whether respondents agree with the statement “I offset the adverse effect on my budget from mandatory University of Arkansas contributions by contributing less to my other long-term financial savings accounts (Q19).” Once again, as shown in Figure 12, a larger percentage of staff (29%) than faculty (11%) agree that they save less elsewhere. Finally, Table 1 shows that 50% of staff agree that they have little disposable income after paying for necessities each month, while only 14% of faculty agree with that statement. In sum, staff are more budget constrained than faculty.

Respondents Most Likely Helped and Harmed

In this section, we identify the respondents most likely to be impacted (either helped or harmed) by the switch to mandatory contributions. We then use mean differencing to compare their behavioral biases and budget constraints with respondents less likely to be impacted.

Table 2 summarizes the expected employee profiles for each category. Respondents most likely to be harmed by the switch to mandatory contributions perceive their 2020 contribution rate as too high, and their contribution rate in that year is the minimum of 4%. These respondents should exhibit tighter budget constraints than other respondents. Given their awareness that contribution rates are too high, those harmed should be less driven by behavioral biases than other respondents, they should be less prepared for retirement, and less satisfied with the program.

Respondents most likely to be helped are those with strong behavioral biases whose contributions rates increased between their first year of employment⁶ and 2020, whether by force or from voluntary decisions. These employees should also perceive their contribution rate as ‘just right’ in 2020 because the change moved them closer to their optimal rate.⁷ We expect these respondents to be more satisfied with the program changes because the increase in the contribution rate, whether forced or voluntary, was perceived positively. Although most of these respondents experienced a reduction in their paychecks, they may still face significant budget constraints because they are more likely to have lower income and contribute at the minimum rate.

For robustness, we also define those helped slightly differently by including only respondents who were employed on or before 2016 (*Helped-2016*). Although this condition reduces the sample nearly in half, these employees were more cognizant of the changes to the

Table 2. Profiles of Employees Most Likely Harmed and Helped

| Harmed | Helped |
|---|---|
| • Contribution rate in 2020 perceived as too high | • Contribution rate increased between year of employment & 2020 |
| • Contribution rate at the minimum 4% in 2020 | • Contribution rate in 2020 perceived as just right |
| • Tight budget constraints | • Strong behavioral biases |

⁶ Contribution rates from 2016 are used for those who were employed before the switch to mandatory contributions.

⁷ It is also possible that those helped by the change could view their contribution rates as too low if they are budget constrained. Excluding these respondents, however, provides a cleaner identification of behavioral biases and budget constraints.

retirement plan because they worked—often for many years—under the previous rules, which gives them a different reference point than those hired after the change was in effect.

To conduct mean difference testing (and regression analysis in the next section), we create a set of variables from the survey, most of which are binary. All variables and definitions are listed in Table 3, but we also describe the ones used in this analysis for convenience. The behavioral variables used for mean differencing are as follows. Inertia is proxied by *NoEffort* and *Procrastinate*. *NoEffort* equals one for respondents that either somewhat or extremely disagree that they make a conscious effort each year to make the best decision about their retirement contribution rate, and zero otherwise. *Procrastinate* equals one for respondents who either somewhat or strongly agree that they tend to procrastinate making financial decisions. Loss aversion is measured with *Reduction*, which equals one if respondents think of the section on their paycheck that shows their retirement contributions primarily as a reduction from their paycheck. Respondents only answered this question if they always or frequently pay attention to the section on their paycheck that shows the retirement contributions. We assume, therefore, that those that do not pay attention to their paycheck also do not view their contributions as a reduction in pay. Finally, present bias is measured with *Tempted* and *EIGAP*. *Tempted* equals one if respondents state they would be somewhat or strongly tempted to use more restaurant certificates in the first year than would be ideal. *EIGAP* is the difference between the expected and ideal number of certificates the respondent would use in the first year. For both variables, higher values signal stronger present bias.

Three budget constraint variables are also used in the mean differencing. *OffsetBudget* equals one if the respondent extremely or somewhat agrees that they offset the adverse effect on their budget from mandatory University of Arkansas contributions by contributing less to other long-term financial savings accounts. *Income* is the respondent's income bracket, which ranges from 1 to 5 where higher values represent higher income. *LittleDispIncome* equals one if the respondent strongly or somewhat agrees that after paying for necessities each month they have little disposable income, zero otherwise.

Finally, we include two variables that assess the respondent's overall perception of the retirement plan. *NotPrepared* equals one if the respondent somewhat or extremely disagrees that at the current contribution rate, they will be adequately prepared for retirement, zero otherwise. *NotSatisfied* equals one if the respondent somewhat or extremely disagrees that they are satisfied

Table 3. Variable Names and Definitions

| Dependent Variables | Definition |
|------------------------------|---|
| Harmed | Equals one if the concentration rate in 2020 (CR20) is too high and is at the minimum of 4%, zero otherwise. (Q14,Q17) |
| Helped | Equals one if CR20 > CR 2016 or the first year of employment if it occurred after 2016, and CR20 is perceived to be just right, zero otherwise. (Q10-Q14,Q17) |
| Helped-Alternative | Equals one if CR20 > CR16, and CR20 is perceived to be just right, zero otherwise. (Q10,Q14,Q17) |
| NotPrepared | Equals one if you somewhat or extremely disagree that at current contribution rate, you will be adequately prepared for retirement, zero otherwise. (Q18) |
| NotSatisfied | Equals one if you somewhat or extremely disagree that you are satisfied with the mandatory contribution changes to the University's Retirement Plan because they have made you better prepared for retirement, zero otherwise. (Q29) |
| Explanatory Variables | Definition |
| Gender | Female = 1; Male=0 (Q2) |
| Race | White = 1; Nonwhite = 0 (Q3) |
| Age | Age of respondent in years. (Q4) |
| Position | Equals 1 for staff; 0 for faculty and administrators. (Q5) |
| Income | <\$25K=1; \$25K-\$50K=1; \$50K-75K=3; \$75K-\$100K=4; >\$100K=5 (Q6) |
| Walton | Equals one for Walton College employees; zero otherwise. (Q7) |
| BeginEmployment | Employed before end of FY2016=1; FY2017=2; FY2018=3; FY2019=4; FY2020=5 (Q8) |
| NoEffort | Equals one if you somewhat or strongly disagree that I make a conscious effort each year to make the best decision about my contribution rate, zero otherwise. (Q16) |
| OffsetBudget | Equals one if you extremely or somewhat agree that you offset the adverse effect on your budget from mandatory University of Arkansas contributions by contributing less to other long-term financial savings accounts, zero otherwise. (Q19) |
| Raise | Equals one if definitely or probably yes that if you were to get an increase in salary beyond the expected raise for cost of living (e.g. from a promotion), you would contribute a larger percent to retirement, zero otherwise. (Q21) |
| PayAttention | Equals one if you always or frequently pay attention to section on your paycheck that shows retirement contributions, zero otherwise. (Q22) |
| Reduction | Equals one if you think of the section on your paycheck that shows your retirement contributions primarily as a reduction, zero otherwise. (Q23) |
| Procrastinate | Equals one if you strongly or somewhat agree that you tend to procrastinate making financial decisions, zero otherwise. (Q24) |
| NegativeEffect | Equals one if you strongly or somewhat agree that when your mandatory contribution rate increases it has a negative effect on your budget and lifestyle zero otherwise. (Q25) |
| WouldContribute10pct | Equals one if you would probably or definitely contribute 10% if you could afford to do so to receive the highest retirement matchings from the university, zero otherwise. (Q26) |
| LowDispIncome | Equals one if you strongly or somewhat agree that after paying for necessities each month you have very little disposable income, zero otherwise. (Q27) |
| EIGap | Difference between number of certificates expected to use in Year 1 and the ideal number to use in Year 1. (Q34 less Q31) |
| Tempted | Equals one if you would be somewhat/strongly tempted to use more certificates in the first year than would be ideal, zero otherwise. (Q32) |

with the mandatory contribution changes to the University's Retirement Plan because the changes have made them better prepared for retirement, zero otherwise. (Q29)

Table 4 lists mean differences of key variables between those most likely impacted (harmed or helped) and those less likely impacted by the change to mandatory contributions. We separate staff and faculty in the analysis, but no statistics are reported for faculty that were likely harmed because no faculty fit that profile. The expected signs for the mean differences are listed in the table as well. Differences in means with unexpected signs are shaded, and the differences that are statistically significant at least at the 10% level are in bold font.⁸

The first row of the table lists the mean change in the contribution rate between 2016 (or first year of employment) and 2020. For those likely harmed, mean contribution rates increased by a statistically insignificant 1.49 percentage points more than for staff less likely harmed. For those more likely helped, contribution rates increased by more than 3.0 percentage points for staff, and at least 1.98 percentage points for faculty relative to those less likely helped, and all four mean differences are statistically significant.

Columns 1 and 2 of Table 4 list the expected signs and mean differences, respectively, for those most likely harmed relative to those not likely to be harmed. Consider the three budget constraint variables: *Income*, *OffsetBudget*, and *LittleDispIncome*. We expect the mean income bracket of those harmed to be lower than the mean income bracket of the respondents not harmed, and the mean difference of -0.59 is negative as expected. Similarly, those more likely to be harmed should have little disposable income (positive sign) and offset their budget by saving less elsewhere (positive sign). Indeed, both mean differences in the table are positive, and *OffsetBudget* is also statistically significant. We also expect that these employees will have unfavorable perceptions of the program. Again, the results are consistent with this view. Mean differences in those not prepared for retirement (0.22) and those not satisfied with the program (0.87) are positive, and the latter is statistically significant. On the other hand, we do not expect behavioral biases to be stronger for those that are likely harmed, so the mean differences for the five behavioral bias variables should have negative signs. Table 4, however, shows that the values for two of them, *EIGap* and *Tempted*, are positive and shaded. The bottom portion of the table displays the number

⁸ We compute statistical significance of the t-tests conservatively using the pooled method that assumes equal variances of the two groups because the small numbers of observations in the harmed (helped) sample are insufficient to generate reliable variances.

Table 4. Differences in Means of Those Likely Impacted and Those Not Likely Impacted

Mean differences of those most likely to be harmed (helped) less those less likely to be harmed (helped). Shaded cells represent mean differences with unexpected signs. Numbers in bold font represent statistical significance at the 10% level or better.

| Variable | Harmed | | Helped | | | Helped-2016 | |
|----------------------------|--------|--------------|--------|--------------|--------------|--------------|--------------|
| | Sign | Staff | Sign | Staff | Faculty | Staff | Faculty |
| Chg in Contribution Rate | | 1.49% | | 3.31% | 1.98% | 3.06% | 2.40% |
| <i>Program Perception</i> | | | | | | | |
| NotPrepared | + | 0.22 | ? | 0.18 | -0.14 | 0.22 | -0.17 |
| NotSatisfied | + | 0.87 | - | 0.11 | -0.07 | 0.11 | -0.06 |
| <i>Behavioral Biases</i> | | | | | | | |
| NoEffort | - | -0.06 | + | 0.12 | 0.11 | 0.10 | 0.16 |
| Procrastinate | - | -0.37 | + | 0.04 | 0.11 | 0.06 | 0.23 |
| Reduction | - | -0.13 | + | 0.07 | -0.03 | 0.10 | -0.04 |
| EIGap | - | 1.25 | + | -0.09 | -0.40 | -0.11 | -0.90 |
| Tempted | - | 0.15 | + | 0.07 | 0.23 | 0.11 | 0.21 |
| <i>Budget Constraints</i> | | | | | | | |
| Income | - | -0.59 | - | -0.08 | -0.04 | -0.31 | -0.23 |
| OffsetBudget | + | 0.72 | + | 0.00 | 0.04 | 0.04 | -0.13 |
| LittleDispIncome | + | 0.51 | + | 0.06 | 0.06 | 0.07 | 0.10 |
| No. Harmed/Helped | | 2 | | 12 | 7 | 11 | 5 |
| No. not Harmed/Helped | | 83 | | 63 | 59 | 38 | 48 |
| Percent with Expected Sign | | 80% | | 78% | 78% | 78% | 67% |

of observations in the likely harmed group (2) and the not likely harmed group (83). It also shows that 8 of 10 (80%) variables have the expected signs.

Results in columns 4-7 of Table 4 compare mean differences for those likely helped less those not likely helped, and column 3 displays the expected signs. We expect behavioral biases and budget constraints to be stronger for those helped. We also expect these respondents to be satisfied with the program so that the sign on *NotSatisfied* is negative. However, the expected sign for *NotPrepared* is ambiguous because employees may believe they are more prepared for retirement than before the program changes, but they still may be unprepared overall due to budget constraints. For staff likely helped, none of the mean differences are statistically significant. However, four of five behavioral biases (except *EIGap*) have the correct signs, as well as all three budget constraint variables. Interestingly, *NotSatisfied* is positive, indicating that staff most likely helped are not satisfied with the program relative to those less likely helped. In sum, 7 of 9 (78%) of the variables had the expected signs. All these results hold for both definitions of *Helped*. With a few exceptions, results are similar for faculty most likely to be helped. The sign on *Reduction*

is unexpectedly negative, suggesting that loss aversion is not an important bias for those faculty. In addition, *NotSatisfied* has the expected negative sign. In all, 7 of 9 (78%) of the variables for *Helped* have the expected signs, and 6 of 9 (67%) have the expected signs for *Helped-2016*, which includes only those that were employed prior to the change to mandatory contributions.

In sum, the analysis in Table 4 reveals that the sample is too small to assess statistical significance of the mean differences. Nevertheless, a high percentage of the mean differences consistently have the expected signs, suggesting that behavioral bias may be an important reason that staff and faculty were helped by the switch to mandatory contributions, and budget constraints may be an important reason that some staff were harmed.

Logit Regression Analysis

The mean difference approach above analyzes variables one at a time so we cannot determine, for example, the relative importance and statistical significance of a particular variable while controlling for the effects from other variables. For example, those most likely to be helped by mandatory contributions also are likely to be budget constrained. Multivariate regression analysis overcomes this shortcoming.

Logit regressions, appropriate when the dependent variable is binary, can simultaneously estimate the effects from behavioral biases and budget constraints on respondents that are likely to have been helped or harmed from the change to mandatory contributions. Because few faculty respondents fit either profile, the regression analysis focuses only on staff respondents. Equation (1) presents the logit regression run on staff respondents. F^{-1} is the inverse of the logit function, α is the intercept, and ε_i is the error term for respondent i .

$$F^{-1}(H_i) = \alpha + \beta \text{ Controls}_i + \gamma \text{ Bias}_i + \text{Budget}_i + \varepsilon_i \quad (1)$$

All dependent and independent variables are defined in Table 3, but we describe here new variables not utilized in the mean differencing. H_i is a vector of five binary dependent variables. They include *Harmed*, *Helped*, *Helped-2016*, *NotPrepared*, and *NotSatisfied*. Controls_i is a vector of three control variables. *Gender* equals one for female, and zero for male. *Age* is the respondent's age in years, and *Walton* equals one if the respondent works in the Walton College, and zero otherwise. Bias_i is a vector of behavioral bias measures that include *NoEffort*, *Procrastinate*, *Reduction*, *Tempted* and *EIGap*. Budget_i is a vector of three budget constraint variables: *Income*, *OffsetBudget*, and *Raise*. *Raise* equals one if the respondent would contribute

a larger percent to retirement if they received an increase in salary beyond the expected raise for cost of living, zero otherwise.

We exclude the following explanatory variables from the regression either because they are highly correlated with other variables, or missing observations greatly reduce the sample size. The year the employee began employment (*BeginEmployment*) is inversely correlated with age; and low disposable income (*LowDispIncome*) is inversely correlated with *Income* and positively correlated with *OffsetBudget*. Missing responses in the variable *Race* reduce the number of respondents that say their contribution rate is too high. Finally, *WouldContribute10pct*, and *NegativeEffect* are dropped because they are conditional questions with small numbers of responses. Table 5 presents the full correlation table where correlations greater than the absolute value of 0.25 are highlighted.

Table 6 presents the regression results. We first consider respondents who were likely to be harmed by mandatory contributions. The dependent variable, *Harmed*, equals one if contribution rates in 2020 are perceived as too high are at the minimum rate of 4%. We expect to find strong evidence of tight budget constraints. Results, shown in column (1) of Table 6, show that none of the coefficients are statistically significant. In addition, the logit model did not achieve convergence. In the sample of 82 respondents, only 2 (2.4%) meet the criteria for being harmed, so the sample is insufficient to generate reliable estimates. Nevertheless, consistent with theory, the results suggest that budget constraints may be important. The negative coefficients on *Income* and *Raise* imply that respondents that view their 2020 contribution rates as too high have low incomes and are unlikely to increase their contribution rates if given a raise. In addition, the positive coefficient on *OffsetBudget* indicates that respondents are more likely to offset their retirement plan savings by saving less elsewhere. Also consistent with theory, the negative signs of the behavioral bias coefficients for inertia and loss aversion suggest that such biases do not explain the perception that 2020 contribution rates are too high. Present bias, however, may be important given the positive signs for *EIGap* and *Tempted*. Unfortunately, strong conclusions cannot be drawn from the limited sample and weak statistical results.

Table 5. Correlation Matrix

Table presents correlations of dependent and independent regression variables. Correlations with absolute values greater than 0.25 are highlighted.

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) | (16) | (17) | (18) | (19) | (20) |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|
| (1) Harmed | 1.00 | | | | | | | | | | | | | | | | | | | |
| (2) Helped | -0.04 | 1.00 | | | | | | | | | | | | | | | | | | |
| (3) Helped-Alternative | -0.07 | 0.63 | 1.00 | | | | | | | | | | | | | | | | | |
| (4) NotPrepared | 0.08 | 0.14 | 0.28 | 1.00 | | | | | | | | | | | | | | | | |
| (5) NotSatisfied | 0.37 | 0.05 | 0.05 | 0.17 | 1.00 | | | | | | | | | | | | | | | |
| (6) Gender | -0.27 | 0.03 | -0.04 | 0.06 | 0.10 | 1.00 | | | | | | | | | | | | | | |
| (7) Race | 0.04 | 0.06 | 0.10 | 0.05 | 0.10 | 0.09 | 1.00 | | | | | | | | | | | | | |
| (8) Age | -0.15 | -0.23 | -0.30 | -0.04 | 0.03 | 0.10 | 0.04 | 1.00 | | | | | | | | | | | | |
| (9) Income | -0.10 | 0.02 | 0.11 | -0.18 | -0.25 | -0.32 | -0.06 | 0.03 | 1.00 | | | | | | | | | | | |
| (10) Walton | -0.02 | 0.26 | 0.09 | 0.09 | 0.05 | -0.16 | 0.06 | -0.10 | 0.06 | 1.00 | | | | | | | | | | |
| (11) BeginEmployment | 0.05 | | | -0.01 | -0.13 | 0.08 | 0.01 | -0.36 | -0.21 | -0.06 | 1.00 | | | | | | | | | |
| (12) NoEffort | -0.04 | 0.15 | 0.54 | 0.29 | 0.31 | 0.03 | 0.06 | -0.07 | -0.11 | 0.02 | -0.19 | 1.00 | | | | | | | | |
| (13) Procrastinate | -0.12 | 0.21 | 0.14 | 0.12 | -0.05 | 0.10 | 0.09 | -0.03 | 0.23 | -0.11 | -0.05 | 0.02 | 1.00 | | | | | | | |
| (14) PayAttention | 0.17 | -0.13 | -0.23 | -0.16 | -0.06 | -0.08 | -0.07 | 0.24 | 0.10 | -0.12 | -0.01 | -0.13 | -0.31 | 1.00 | | | | | | |
| (15) Reduction | -0.06 | -0.10 | -0.16 | -0.01 | 0.03 | 0.05 | -0.06 | -0.15 | 0.02 | -0.05 | 0.22 | -0.10 | -0.15 | 0.07 | 1.00 | | | | | |
| (16) EIGap | 0.14 | -0.02 | 0.03 | -0.03 | 0.10 | -0.08 | 0.01 | -0.10 | -0.02 | -0.06 | -0.04 | 0.08 | 0.07 | -0.08 | -0.07 | 1.00 | | | | |
| (17) Tempted | 0.05 | 0.24 | 0.08 | 0.19 | 0.16 | 0.03 | -0.02 | -0.05 | 0.08 | 0.02 | -0.07 | 0.13 | 0.00 | -0.14 | -0.06 | 0.16 | 1.00 | | | |
| (18) OffsetBudget | 0.24 | 0.18 | 0.34 | 0.34 | 0.08 | -0.05 | -0.05 | -0.15 | -0.10 | 0.06 | 0.18 | 0.06 | 0.05 | -0.18 | 0.14 | -0.07 | 0.01 | 1.00 | | |
| (19) Raise | -0.03 | 0.14 | 0.25 | 0.10 | -0.04 | -0.03 | -0.10 | 0.08 | 0.06 | 0.16 | 0.31 | 0.11 | -0.06 | 0.19 | 0.18 | -0.03 | 0.07 | 0.12 | 1.00 | |
| (20) LowDispIncome | 0.15 | 0.01 | 0.17 | 0.52 | 0.22 | 0.10 | 0.16 | -0.20 | -0.46 | 0.01 | 0.10 | 0.25 | 0.06 | -0.13 | 0.10 | -0.04 | 0.19 | 0.28 | 0.13 | 1.00 |

We next consider those likely helped from the change in mandatory contributions. For this group, mandatory contributions may have encouraged or forced some employees to overcome behavioral biases to lead to more optimal contribution rates. The results using *Helped* as the dependent variable are reported in column (2) of Table 6. Again, the statistical results are weak. Although the model converged, the Chi-Square of the full regression is statistically insignificant, meaning that we cannot be confident that the joint regression coefficients are statistically different from zero. However, coefficient signs provide some evidence that behavioral bias explains the low contribution rates. The positive coefficients on *NoEffort* and *Procrastinate* suggests that those helped may exhibit inertia. Similarly, the positive coefficient on *Reduction* suggest that those helped are also more likely to exhibit loss aversion. However, the positive coefficient on *Tempted* contradicts the negative coefficient on *EIGap*, giving mixed results for present bias. Budget constraint coefficients are also mixed. The *OffsetBudget* coefficient is unexpectedly negative, but *Income* and *Raise* have the expected signs.

Table 6. Logit Regressions of Staff Respondents

Logit regressions of staff respondents. See Table 3 for variable definitions. * represents statistical significance at the 10% level or better.

| Variable | (1) Harmed | (2) Helped | (3) Helped-2016 | (4) Not Prepared for Retirement | (5) Not Satisfied w/ Plan Change |
|---------------------------|---------------|---------------|--------------------|---------------------------------------|---|
| Controls | | | | | |
| Gender | -13.80 | -0.28 | 0.64 | -0.11 | -0.51 |
| Age | 0.00 | 0.01 | -0.05 | 0.02 | 0.03 |
| Walton | -0.68 | 0.91 | 0.55 | 0.40 | 0.74 |
| Behavioral Biases | | | | | |
| NoEffort | -2.33 | 0.41 | -0.65 | 1.80 | 2.04 * |
| Procrastinate | -0.95 | 0.64 | 0.86 | 1.17 * | 0.23 |
| Reduction | -0.92 | 0.82 | 1.46 | -0.03 | 0.71 |
| EIGap | 0.68 | -0.09 | -0.13 | -0.15 | 0.22 |
| Tempted | 1.00 | 0.07 | -0.48 | 1.20 * | 0.76 |
| Budget Constraints | | | | | |
| Income | -11.38 | -0.27 | -0.74 | -0.82 * | -1.78 * |
| OffsetBudget | 13.33 | -0.40 | 0.09 | 7.04 | 0.42 |
| Raise | 0.23 | 0.80 | 1.55 | 0.24 | -0.90 |
| No. | 82 | 72 | 47 | 82 | 82 |
| No. where DV = 1 | 2 | 11 | 10 | 23 | 12 |
| Likelihood Ratio | 18.78 | 4.82 | 7.94 | 21.64 | 14.20 |
| Pr > ChiSq | 0.07 | 0.94 | 0.72 | 0.03 | 0.22 |

Column (3) of Table 6 shows the results using the alternative *Helped-2016* measure, which causes the sample size to drop from 72 to 47. Again, the Chi-Square of the full regression is statistically insignificant. Relative to column (2), the coefficient signs exhibit less evidence of behavioral bias and more support for budget constraints.

The final two regressions assess the perception of the retirement plan. The dependent variable in column (4) is *NotPrepared*. The logit regression shown in column (4) converged for this sample, and the results show that those not prepared for retirement exhibit behavioral biases and budget constraints. The coefficients on *Procrastinate* and *Tempted* are positive and statistically significant at the 10% level. The economic significance shows that those not prepared for retirement are 3.2 times more likely than their counterparts to procrastinate, and 3.3 times more likely to be tempted to use another dinner certificate in year 1. In addition, the *Income* coefficient is negative and statistically significant, and it shows that respondents that are one level higher in the income brackets are only 0.4 times as likely to be unprepared for retirement. These results suggest that behavioral bias and budget constraints at least partly explain why some employees are unprepared for retirement

The dependent variable in column (5) of Table 6 is *NotSatisfied*, which indicates whether respondents are not satisfied with the plan change. As with columns 2 and 3, the joint coefficients are not statistically different from zero so interpretation of the results is tentative. Nevertheless, the two statistically significant coefficients, *NoEffort* and *Income*, are consistent with inertia and budget constraints for those that are unsatisfied. Respondents that do not make a conscious effort to decide their annual contribution rate are 7.7 times more likely to be unsatisfied, and those in a higher income bracket are only 0.2 times as likely to be unsatisfied. Moreover, all five behavioral bias coefficients have the expected signs.

In sum, as with the mean difference tests, we find no statistically significant evidence from logit regressions that University of Arkansas employees have been harmed or helped from the switch to mandatory contributions. Unfortunately, the small sample size greatly limits the power of the regression results. The coefficient signs, however, hint at the possibility that a small percentage of staff may have been harmed by the switch to mandatory contributions due to budget constraints, and a larger percentage of staff may have been helped by at least partially overcoming inertia, loss aversion, and present bias. Our statistically strongest result is that those not prepared for retirement may suffer more from inertia, present bias, and budget constraints, but it is unclear

whether those not prepared for retirement are harmed or helped from the changes in the retirement plan.

Conclusion

We analyzed survey results of 171 full-time employees at the University of Arkansas to examine the effects from the retirement plan switch to mandatory contributions beginning in Fiscal Year 2017. Minimum required contribution rates increased by one percentage point each year to 5% in Fiscal Year 2022. (The increase from 4% to 5% was delayed one year due to the Covid pandemic.)

We found that 72% of respondents are unaffected by the switch to mandatory contributions because they already contribute 10% or more to their retirement, which is the maximum rate for employee matching. Average contribution rates, however, increased for all full-time employees, and especially for staff where the average contribution rate increased by 1.2 percentage points. In addition, 89% of respondents are either satisfied or indifferent to the changes even though 29% of staff disagree that they are adequately prepared for retirement given their current contribution rates.

We also examined the percentage of employees that were most likely to be harmed or helped by the program changes. Mandatory contributions harm individuals with tight budget constraints who wish to contribute less than the minimum contribution rate. We identified the respondents most likely to be harmed as those that perceive their 2020 contribution rate of 4% (the minimum) as ‘too high.’ We find that 2.4% of staff may have been harmed by the switch to mandatory contributions. However, logit regression analysis and T-tests of mean differences between those likely harmed and those not likely harmed cannot confirm these results because the sample size is too small.

In contrast, mandatory contributions may help those with strong behavioral biases of inertia, loss aversion, or present bias. Such biases lead individuals to save too little, and mandatory contributions can nudge or force them to save more optimally. Those most likely helped by the change increased their contribution rates at some point between 2016 and 2020 either voluntarily or by force, and they perceived their contribution rates in 2020 as ‘just right.’ We find that 16% of staff and 11% of faculty may have been helped by the switch to mandatory contributions because it helped them overcome their low savings rates resulting from behavioral biases. Again, the power of our statistical tests is too weak to confirm these results.

Our results need to be interpreted with caution because the sample size is too small to conduct statistically reliable tests. Moreover, the sample may not accurately reflect the profiles of university employees. The sample greatly overrepresents employees from the Walton College resulting from our inability to directly solicit responses from employees in other colleges. Consequently, a much larger survey needs to be done across all campuses of the University of Arkansas System to assess with greater statistical confidence the effects on employees from the change to mandatory contributions.

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Appendix A. Retirement Plan Survey

Start of Block: Intro

Q0 Sarah Brasche is an undergraduate majoring in Finance. She is conducting her Honors Thesis under the supervision of Professor Tim Yeager (tyeager@uark.edu) in the Finance Department on the effects on retirement savings from recent changes to the University of Arkansas Retirement Plan that required mandatory contributions for all full-time employees. Mandatory contributions began with Fiscal Year 2017 (July 1, 2016 – June 30, 2017) at 1% and have increased by 1% each year. In this current Fiscal Year 2020, the mandatory contribution rate is 4%, and it will cap at 5% in Fiscal Year 2022 (which begins July 1, 2021). It would be so helpful to Sarah if you could take 5 minutes to answer these survey questions. In addition, the research will be used to inform our university community of the effects from these retirement plan changes. The survey must be completed by end of day July 13th. There are no foreseeable risks in taking this survey. If you are uncomfortable with any question, you do not need to answer it. You may stop participating in the survey at any time without penalty (45 CFR 46.116(a)). All responses will be kept confidential to the extent allowed by law and university policy. Should you have questions about the survey itself or how it will be used, you can contact Professor Yeager at 479-575-2992 or tyeager@uark.edu.

You may also contact the University of Arkansas Research Compliance office listed below if you have questions about your rights as a participant or to discuss any concerns about or problems with the research.

Iroshi (Ro) Windwalker, CIP, IRB Coordinator Research Compliance,
109 MLKG Building, Fayetteville, AR 72701 phone 479-575-2208 and fax 479-575-6257

Q1 Are you a full time employee at the University of Arkansas that participates in the University of Arkansas retirement plan? (Answer 'No' if you are participating in the Arkansas Public Employee Retirement System or the Arkansas Teacher Retirement System.)

- Yes (1)
- No (2)

End of Block: Intro

Start of Block: Demographic Questions

Q2 Indicate your gender.

- Male (1)
 - Female (2)
 - Prefer not to answer (3)
-

Q3 What is your race or origin? You may select more than one option.

- Black or African American (2)
 - Asian (3)
 - Hispanic, Latino, or Spanish origin (4)
 - White (5)
 - Other (6)
 - Prefer not to answer (7)
-

Q4 Indicate your age in years.

Q5 Are you faculty, staff, or administration?

- Faculty (1)
 - Staff (2)
 - Administration (3)
-

Q6 In which bracket does your income earned in calendar year 2019 fall?

- < \$25,000 (1)
 - \$25,001 - \$50,000 (2)
 - \$50,001 - \$75,000 (3)
 - \$75,001 - \$100,000 (4)
 - > \$100,000 (5)
-

Q7 Do you work in the Sam M. Walton College of Business?

- Yes (1)
 - No (2)
-

Q8 When did you begin full-time employment with the University of Arkansas? (If you were full-time and then quit and returned, select the year that you began your most recent employment with the university.)

- Before July 1st 2016 (1)
- Between July 1st 2016 and June 30th 2017 (2)
- Between July 1st 2017 and June 30th 2018 (3)
- Between July 1st 2018 and June 30th 2019 (4)
- After July 1st 2019 (5)

End of Block: Demographic Questions

Start of Block: Yearly Contribution Questions

Q9

For each fiscal year between 2016 and 2020 that you have been employed at the University of Arkansas, you will be asked in these next question(s) to select your total contribution rate to the retirement plan.

To find your contribution rate for a given fiscal year, you can view your past earnings statements on webBasis. After logging on, click **My Pay > Pay Activity**. By searching for any earnings statement between **January** and **June** of a given calendar year, you will be viewing your statement for that **same fiscal year**. (A statement from July through December is for the next fiscal year.) You will see one or two entries in the Deductions section that says something like: TIAA/CREF Mandatory [X%], TIAA/CREF TaxDeferrd [Y%]. (Your statement may reference Fidelity instead.) Add the contribution rates together and that is your contribution rate for the fiscal year.

Display This Question:

If When did you begin full-time employment with the University of Arkansas? (If you were full-time a... = Before July 1st 2016

Q10 Your Fiscal Year 2016 (July 1st 2015 - June 30th 2016) contribution rate (a value of '5', for example, indicates a contribution rate of 5% of your salary). If your contribution is more than 10% please select 11%+.

- 0% (2)
- 1% (3)
- 2% (4)
- 3% (5)
- 4% (6)
- 5% (7)
- 6% (8)
- 7% (9)
- 8% (10)
- 9% (11)
- 10% (12)
- 11%+ (13)

Display This Question:

If When did you begin full-time employment with the University of Arkansas? (If you were full-time a... = Before July 1st 2016

Or When did you begin full-time employment with the University of Arkansas? (If you were full-time a... = Between July 1st 2016 and June 30th 2017

Q11 Your Fiscal Year 2017(July 1st 2016 - June 30th 2017) contribution rate (a value of '5', for example, indicates a contribution rate of 5% of your salary). If your contribution is more than 10% please select 11%+.

- 1% (2)
- 2% (3)
- 3% (4)
- 4% (5)
- 5% (6)
- 6% (7)
- 7% (8)
- 8% (9)
- 9% (10)
- 10% (11)
- 11%+ (12)

Display This Question:

If When did you begin full-time employment with the University of Arkansas? (If you were full-time a... = Before July 1st 2016

Or When did you begin full-time employment with the University of Arkansas? (If you were full-time a... = Between July 1st 2016 and June 30th 2017

Or When did you begin full-time employment with the University of Arkansas? (If you were full-time a... = Between July 1st 2017 and June 30th 2018

Q12 Your Fiscal Year 2018 (July 1st 2017 - June 30th 2018) contribution rate (a value of '5', for example indicates a contribution rate of 5% of your salary). If your contribution is more than 10% please select 11%+.

- 2% (3)
- 3% (4)
- 4% (5)
- 5% (6)
- 6% (7)
- 7% (8)
- 8% (9)
- 9% (10)
- 10% (11)
- 11%+ (12)

Display This Question:

If When did you begin full-time employment with the University of Arkansas? (If you were full-time a... = Before July 1st 2016

Or When did you begin full-time employment with the University of Arkansas? (If you were full-time a... = Between July 1st 2016 and June 30th 2017

Or When did you begin full-time employment with the University of Arkansas? (If you were full-time a... = Between July 1st 2017 and June 30th 2018

Or When did you begin full-time employment with the University of Arkansas? (If you were full-time a... = Between July 1st 2018 and June 30th 2019

Q13 Your Fiscal Year 2019 (July 1st 2018 - June 30th 2019) contribution rate (a value of '5', for example, indicates a contribution rate of 5% of your salary). If your contribution is more than 10% please select 11%+.

- 3% (4)
- 4% (5)
- 5% (6)
- 6% (7)
- 7% (8)
- 8% (9)
- 9% (10)
- 10% (11)
- 11%+ (12)

Display This Question:

If When did you begin full-time employment with the University of Arkansas? (If you were full-time a... = Before July 1st 2016

Or When did you begin full-time employment with the University of Arkansas? (If you were full-time a... = Between July 1st 2016 and June 30th 2017

Or When did you begin full-time employment with the University of Arkansas? (If you were full-time a... = Between July 1st 2017 and June 30th 2018

Or When did you begin full-time employment with the University of Arkansas? (If you were full-time a... = Between July 1st 2018 and June 30th 2019

Or When did you begin full-time employment with the University of Arkansas? (If you were full-time a... = After July 1st 2019

Q14 Your Fiscal Year 2020 (July 1st 2019 - June 30th 2020) contribution rate (a value of '5', for example, indicates a contribution rate of 5% of your salary). If your contribution is more than 10% please select 11%+.

- 4% (4)
- 5% (5)
- 6% (6)
- 7% (7)
- 8% (8)
- 9% (10)
- 10% (11)
- 11%+ (12)

End of Block: Yearly Contribution Questions

Start of Block: Contribution Policy Questions

Display This Question:

If When did you begin full-time employment with the University of Arkansas? (If you were full-time a... = Before July 1st 2016

Q15 The University began mandatory contributions of 1% for full-time employees in Fiscal Year 2017 (Beginning July 1st 2016.). In your opinion, was your contribution rate in the previous Fiscal Year 2016 (July 1st 2015 to June 30th 2016) too high, too low, or just right?

- Too high (1)
 - Too low (2)
 - Just right (3)
-

Q16 I make a conscious effort each year to make the best decision about my retirement contribution rate.

- Extremely agree (1)
 - Somewhat agree (2)
 - Neither agree nor disagree (3)
 - Somewhat disagree (4)
 - Extremely disagree (5)
-

Q17 In your opinion, is your contribution rate in the Fiscal Year 2020 (July 1st 2019 through June 30th 2020) too high, too low, or just right?

- Too high (1)
 - Too low (2)
 - Just right (3)
-

Q18 At my current contribution rate, I believe I will be adequately prepared for retirement.

- Extremely agree (1)
 - Somewhat agree (2)
 - Neither agree nor disagree (3)
 - Somewhat disagree (4)
 - Extremely disagree (5)
-

Q19 I offset the adverse effect on my budget from mandatory University of Arkansas contributions by contributing less to my other long-term financial savings accounts.

- Extremely agree (1)
- Somewhat agree (2)
- Neither agree nor disagree (3)
- Somewhat disagree (4)
- Extremely disagree (5)

Display This Question:

If Your Fiscal Year 2020 (July 1st 2019 - June 30th 2020) contribution rate (a value of '5', for exa... = 4%

Q20 Are you planning to increase your contribution rate in the Fiscal Year 2021 (July 1st 2020 to June 30th 2021)?

- Definitely yes (1)
 - Probably yes (2)
 - Might or might not (3)
 - Probably not (4)
 - Definitely not (5)
-

Q21 If you were to get an increase in salary beyond the expected raise for cost of living (e.g. from a promotion), would you contribute a larger percent to retirement?

- Definitely yes (1)
 - Probably yes (2)
 - Might or might not (3)
 - Probably not (4)
 - Definitely not (5)
-

Q22 Do you pay attention to the section on your paycheck that shows your retirement contributions?

- Always (5)
 - Frequently (1)
 - Sometimes (2)
 - Rarely (3)
 - Never (4)
-

Display This Question:

If Do you pay attention to the section on your paycheck that shows your retirement contributions? = Always

*Or Do you pay attention to the section on your paycheck that shows your retirement contributions? =
Frequently*

Q23 Do you think of the section on your paycheck that shows your retirement contributions primarily as an addition to your retirement savings account or a reduction from your paycheck?

- An addition (1)
- I am indifferent (2)
- A reduction (3)

End of Block: Contribution Policy Questions

Start of Block: Likert Scale Questions

Q24 I tend to procrastinate making financial decisions.

- Strongly agree (1)
- Somewhat agree (2)
- Neither agree nor disagree (3)
- Somewhat disagree (4)
- Strongly disagree (5)

Display This Question:

If Your Fiscal Year 2020 (July 1st 2019 - June 30th 2020) contribution rate (a value of '5', for exa... = 4%

Q25 When my mandatory contribution rate increases it has a negative effect on my budget and lifestyle.

- Strongly agree (1)
- Somewhat agree (2)
- Neither agree nor disagree (3)
- Somewhat disagree (4)
- Strongly disagree (5)

Display This Question:

If Your Fiscal Year 2020 (July 1st 2019 - June 30th 2020) contribution rate (a value of '5', for exa... = 4%

Q26 If I could afford to contribute 10% in order to receive the highest retirement matchings from the university, I would.

- Definitely yes (1)
 - Probably yes (2)
 - Might or might not (3)
 - Probably no (4)
 - Definitely no (5)
-

Q27 After paying for necessities each month I have very little disposable income.

- Strongly agree (1)
 - Somewhat agree (2)
 - Neither agree nor disagree (3)
 - Somewhat disagree (4)
 - Strongly disagree (5)
-

Display This Question:

If Your Fiscal Year 2020 (July 1st 2019 - June 30th 2020) contribution rate (a value of '5', for exa... = 4%

Q28 The adverse effect on my budget has gotten easier to accept as the mandatory contribution rate has risen each fiscal year.

- Strongly agree (1)
 - Somewhat agree (2)
 - Neither agree nor disagree (3)
 - Somewhat disagree (4)
 - Strongly disagree (5)
-

Q29 I am satisfied with the mandatory contribution changes to the University's Retirement Plan because they have made me better prepared for retirement.

- Strongly agree (1)
- Somewhat agree (2)
- Neither agree nor disagree (3)
- Somewhat disagree (4)
- Strongly disagree (5)

End of Block: Likert Scale Questions

Start of Block: Meal Tickets Questions

Q30 Now we will present you with a hypothetical situation. Please answer the following questions after careful consideration of this situation.

Situation: Suppose you win ten certificates, each of which can be used (once) to receive a “dream restaurant night.” On each such night, you and a companion will get the best table and an unlimited budget for food and drink at a restaurant of your choosing. There will be no cost to you: all payments, including gratuities, come as part of the prize. The certificates are available for immediate use, starting tonight, and there is an absolute guarantee that they will be honored by any restaurant you select if they are used within a two-year window. If they are not used up within this two-year period, however, any that remain are valueless.

Q31 From your current perspective, how many of the ten certificates would you ideally like to use in year 1 (as opposed to year 2)?

0 1 2 3 4 5 6 7 8 9 10

| | |
|------------|--|
| Year 1 () |  |
|------------|--|

Q32 Some people might be tempted to depart from their ideal allocation. Which of the following best describes you?

- I would be strongly/somewhat tempted to keep more certificates for use in the second year than would be ideal. (1)
- I would have no temptation in either direction. (2)
- I would be somewhat/strongly tempted to use more certificates in the first year than would be ideal. (3)

Q33 If you were to give in to your temptation, how many certificates do you think you would use in year 1 (as opposed to year 2)?

0 1 2 3 4 5 6 7 8 9 10



Q34 Based on your most accurate forecast of how you think you would actually behave, how many of the nights would you end up using in year 1 (as opposed to year 2)?

0 1 2 3 4 5 6 7 8 9 10



End of Block: Meal Tickets Questions

Appendix B. Estimate of Average Staff Salary and Increase in Retirement Contributions

Table B.1 shows the assumptions made to estimate the average staff salary and increase in retirement contributions at the University of Arkansas in FY2020. Each survey respondent identified the income bracket they fell into in FY2020, and we used those values to compute a representative salary (usually the mid-point) for each bucket, shown in the *Estimated Avg. Income (\$)* column. We then weighted each estimated salary by the number of staff in that income bracket and summed cross all buckets to arrive at the weighted salary of \$52,072 (e.g. the 25K-50K bracket is weighted by multiplying \$37,500 x 53/90). Finally, the increase in retirement income of is the estimated change in staff dollar contributions to retirement income in FY 2020 relative to what the contribution would have been without the change to mandatory contributions. The value of \$625 is computed by multiplying the average staff salary of \$52,072 by the average change in the retirement contribution rate of 1.2%. The matched value of \$1,250 accounts for the university match of 1.2%.

Table B.1. Estimated Increase in Retirement Contributions in 2020

| Income Bracket | Estimated Avg. Income (\$) | Number of Staff | Weighted Salary (\$) | Increase in Retirement Income (\$) |
|----------------|----------------------------|-----------------|----------------------|------------------------------------|
| <25K | 22,000 | 2 | 489 | 6 |
| 25K-50K | 37,500 | 53 | 22,083 | 265 |
| 50K-75K | 62,500 | 19 | 13,194 | 158 |
| 75K-100K | 87,500 | 13 | 12,639 | 152 |
| >100K | 110,000 | 3 | 3,667 | 44 |
| Sum: | | 90 | 52,072 | 625 |
| Matched: | | | | 1,250 |