Minimum Wages, Morality, and Efficiency: A Choice Experiment[†]

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Public discussions of minimum wage legislation tend to focus on issues of fairness, equality, right versus wrong, exploitation, dignity, and "living" wages.[1] In contrast, economic research on minimum wages tends to focus on employment outcomes (Card and Krueger 1994; Dube, Lester, and Reich 2010; Allegretto, Dube, and Reich 2011; Neumark, Salas, and Wascher 2014; Meer and West 2016; Jardim et al. 2017). To address this apparent disconnect, we use a choice experiment to examine the extent to which morality and efficiency concerns shape preferences for minimum wages.

In the experiment, respondents encounter two hypothetical labor market systems: one with a minimum wage ($7.25, $10.10, or $15.00) and one without.[2] Respondents assess these two systems on several moral dimensions including the degree to which they view the system as unfair, exploitative, or undignified. After they assess the systems, we present each respondent with four pairs of hypothetical employment consequences where the disemployment effect of the minimum wage, relative to the system without a minimum wage, ranges from 0 to 8 percentage points. Respondents then "vote" for their preferred system within each pair.[3]

Given the experiment's parameters and respondents' moral assessment of the two systems, we estimate that the average respondent requires at least a 4.65 percentage point unemployment reduction before they will support a system without a minimum wage. Focusing on the average respondent masks considerable heterogeneity; 41.5 percent of respondents always vote for the system with a minimum wage, while 27.1 percent of respondents always vote for the system without a minimum wage. Importantly, respondents' choices are largely consistent with differences in their moral assessments of the two systems.[4] We also find that equity matters; respondents are 11.1 percentage points less likely to support a system with a minimum wage when females and minorities are disproportionately affected. Moreover, our results suggest that support for minimum wages is not explained by a desire to maximize aggregate income for workers; conditional on the same level of unemployment, respondents were almost 11 percentage points less likely to support a minimum wage of $15.00 relative to $10.10 or $7.25.

I. The Experiment

We implement our choice experiment using Qualtrics, recruiting respondents from Amazon's

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[1] For example, see former President Obama's April 2014 remarks (https://obamawhitehouse.archives.gov/the-press-office/2014/04/30/remarks-president-raising-minimum-wage).

[2] Our experimental design is inspired by Elias, Lacetera, and Macis (forthcoming), who examine Americans' willingness to support private or publicly-financed payments to kidney donors.

[3] We describe our choice experiment in greater detail in Section I. The experiment remains available at http://louisville.az1.qualtrics.com/jfe/form/SV_39Keupyg3Vnqt49. University of Louisville IRB Protocol 18.0002.

[4] For example, those who always choose the system without a minimum wage assess that system to be 41 percent less morally problematic than other respondents.

MTurk service.[5] We restrict participation to US residents aged 18 or older. In the experiment, we ask respondents to consider a system with a minimum wage (denoted System A) and a system with market-determined wages (denoted System B). We randomly vary the order of presentation of each system. We assign each respondent to 1 of 3 minimum wage levels: $7.25, $10.10, or $15.00 with probabilities of 20 percent, 40 percent, and 40 percent. Respondents then rate each system on five dimensions: exploitation, unfairness to workers, unfairness to employers, human dignity, and the extent to which the system conflicts with their personal values. For example, respondents observe the statement "[T]his system exploits workers" and then indicate their agreement or disagreement using a sliding scale that ranges from 0 (strongly disagree) to 100 (strongly agree).

We find that respondents consider both systems to be relatively fair to employers. On the other hand, they assess System A to be fairer to workers, less exploitative, more dignified, and more concordant with their personal values. Because respondents' assessments are similar across these four measures, we use their average (29.2 out of 100 for System A, and 72.1 out of 100 for System B) as the overall "repugnance" rating for each system.[6]

Next, we ask respondents to vote for their preferred system given some hypothetical employment consequences. To ease interpretation, we ask respondents to focus on outcomes in a representative US city with a labor force of 100,000 adults. We present unemployment for each system as "the number of people who are unable to find work." For a given respondent, the number of people unable to find work under System A (minimum wage) is either 8 percent (8,000 people) or 10 percent (10,000 people) in all four scenarios. For System B (no minimum wage),

the number "unable to find work" across the four scenarios, in order, is 8, 6, 4, and 2 percent.[7]

We tell one-sixth of our respondents that females and minorities comprise 45 percent and 40 percent of the labor force in the experiment's fictional city, and that females and minorities comprise 45 percent and 40 percent of those unable to find work under both System A and System B ("equal effects"). We tell one-third of respondents that females and minorities comprise 75 percent and 70 percent of those unable to find work under System A, but only 45 percent and 40 percent under System B ("unequal effects"). The remainder observe no information on the distribution of employment effects by race and gender.

We include several attention checks. First, we ask respondents to recall their choices. Second, we ask respondents whether they would never choose one of the two systems. We eliminate those whose answers are inconsistent with their earlier choices (226 out of 2,534 responses). We also eliminate those whose Internet Protocol address appears more than once in our data. Thus, we obtain 2,123 usable responses from 2,534 completed surveys.

As an additional check on attention, we ask respondents to use a sliding scale to select the level of unemployment they require in order to support a system with no minimum wage: 96.2 percent give an answer that is consistent with their earlier choices. Moreover, 96.4 percent of respondents' choices respect monotonicity in the sense that their vote does not jump from one system to the other more than once across the four scenarios.[8] In the final stage of the experiment, respondents provide demographic information to help us relate choices to respondent characteristics.[9]

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[5] Our online Appendix explains recruitment, payments, pretesting, and our sample composition.

[6] Because respondents assess them similarly, we do not include "unfair to employer" (35 out of 100 under System A and 27 out of 100 for System B) in the average repugnance rating. Our estimates are much the same when it is included or when using any one of the fairness to workers, exploitation, dignity, and personal values measures rather than an overall average rating.

[7] Our pretests indicated that we would need relatively large employment differences to generate sufficient variation.

[8] We do not eliminate those who "fail" these weaker attention checks. In any case, our estimates are similar when we include or exclude all those who fail any attention check.

[9] See our online Appendix for more details on attention checks and sample characteristics.

II. Findings

We present our findings as the coefficient estimates from a linear probability model (LPM).[10] The basic estimating equation takes the following form:

$$\Pr(ChoseA)_{ic} = \beta_0 + \beta_1 \Delta Repugnance_i$$
$$+ \beta_2 \Delta Unemployment\ Rate_{ic}$$
$$+ X_{it}\Pi + \epsilon_{ic}.$$

In the estimating equation, $\Pr(ChoseA)_{ic}$ refers to respondent i's probability of choosing System A (minimum wage) in choice situation c and takes on the value of 100 when person i chooses System A in choice scenario c and a value of 0 otherwise. The $\Delta Repugnance_i$ term reflects the difference between respondent i's moral assessment of System A and System B ($\Delta Repugnance_i = Assessment\ of\ System\ A_i - Assessment\ of\ System\ B_i$). The $\Delta Unemployment_{ic}$ term reflects the percentage point difference in the unemployment rate between the systems in each choice scenario ($\Delta Unemployment_{ic} = Unemp.\ System\ A_{ic} - Unemp.\ System\ B_{ic}$). We also include controls, X_{it}, and an idiosyncratic error term ϵ_{ic}. With this setup, β_1 and β_2 represent percentage point changes in the probability of supporting System A (minimum wage) for each one unit difference in $\Delta Repugnance$ and $\Delta Unemployment$.

In the first column of Table 1, we present the estimates from a specification without controls.[11] We find that respondents' choices are strongly associated with their moral assessment of the two systems; the coefficient on the repugnance term suggests that a one unit increase in $\Delta Repugnance_i$ is associated with a 0.44 percentage point reduction in the probability of choosing System A. The mean of $\Delta Repugnance_i$ is −42.92, suggesting that respondents are 18.88 percentage points

(−42.92 × −0.44) more likely to support a minimum wage, all else equal. The coefficient associated with the unemployment term suggests that a 1 percentage point increase in $\Delta Unemployment_{ic}$ is associated with a 4.06 percentage point reduction in the probability of choosing System A. Our estimates therefore imply that the average respondent requires a 4.65 percentage point (18.88/4.06) reduction in unemployment to support a system without a minimum wage.

In the second column, we present estimates from a specification including controls for age, gender, race, income, education, location, labor force status, and political affiliation. Due to space limitations, we present only selected coefficient estimates.[12] Compared to Democrats, Independents and Republicans are 6.87 and 12.32 percentage points less likely to vote for a minimum wage. Males are 7.31 percentage points more likely than females to support a minimum wage.[13] The probability of voting for System A is decreasing in reported income. The only coefficient estimate we present is for those who report an income of $100,000 or more. These respondents are 12.12 percentage points less likely to choose System A relative to those who earn less than $20,000 per year.[14] Finally, we find that white respondents are 8.1 percentage points more likely than non-whites to support a minimum wage.

In the third column, our specification includes an indicator for System A unemployment of 10,000 (10 percent). While the coefficient on the indicator term is positive, the overall effect is a reduction in the probability of choosing System A of about 5.6 percentage points. The overall effect consists of the sum of the coefficient on the indicator term plus the effect of the two additional percentage points of unemployment relative to System A unemployment of 8,000 (that is, $2.992 - [2 \times 4.312] = -5.632$). In the fourth column, we include indicators for the minimum wage values of $10.10 and $15.00. Although not statistically significant, respondents are

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[10] The estimating equation is better-described as a modified linear probability model because our outcome variable takes on values of 0 or 100, ensuring that our coefficients are percentage point changes.

[11] Post-estimation marginal effects from a logit version of the specifications in Table 1 are available in our online Appendix. The logit estimates are remarkably similar to the LPM estimates.

[12] See our online Appendix for more details.

[13] This finding is robust to both the size of the minimum wage under consideration and political party affiliation.

[14] We find that those with reported income between $20,000 and $100,000 are about 5 percentage points less likely (relative to those who earn less than $20,000 per year) to choose System A but the estimated effect is not statistically significant in all specifications.

TABLE 1—MAIN ESTIMATES: LINEAR PROBABILITY MODEL

	(Proportion who chose System A = 55.5%)				
	Pr(ChoseA) (1)	Pr(ChoseA) (2)	Pr(ChoseA) (3)	Pr(ChoseA) (4)	Pr(ChoseA) (5)
ΔUnemployment Rate mean = 4.02	−4.059 (0.195)	−4.069 (0.196)	−4.312 (0.173)	−4.312 (0.173)	−4.312 (0.173)
ΔRepugnance mean = −42.92	−0.440 (0.0191)	−0.409 (0.0209)	−0.409 (0.0208)	−0.435 (0.0216)	−0.441 (0.0213)
No political affiliation 23 percent of sample		−6.866 (2.238)	−6.869 (2.238)	−6.535 (2.210)	−6.563 (2.192)
Republican 28 percent of sample		−12.32 (2.154)	−12.33 (2.152)	−11.62 (2.153)	−11.66 (2.132)
Male 49 percent of sample		7.314 (1.727)	7.226 (1.727)	7.576 (1.722)	7.743 (1.706)
White 75 percent of sample		8.101 (2.166)	8.120 (2.163)	7.895 (2.152)	7.942 (2.121)
Income > $100,000 13 percent of sample		−12.12 (3.467)	−12.32 (3.473)	−12.48 (3.426)	−10.88 (3.417)
System A = 10,000 49 percent of sample			2.992 (1.722)	3.445 (1.716)	3.203 (1.695)
Observed Min. Wage = $10.10 40 percent of sample				−2.886 (2.375)	−2.689 (2.349)
Observed Min. Wage = $15.00 40 percent of sample				−10.90 (2.397)	−10.56 (2.373)
Equal race/gender employment effects 16 percent of sample					2.381 (2.263)
Unequal race/gender employment effects 34 percent of sample					−11.10 (1.873)
Number of choices	8,492	8,288	8,288	8,288	8,288
Number of respondents	2,123	2,072	2,072	2,072	2,072
Controls		Yes	Yes	Yes	Yes

Notes: Standard errors are clustered at the respondent level. Estimates in columns 2 to 5 include a complete set of controls and fixed effects including age, gender, race, income, education, location, labor force status, and political affiliation. Only selected coefficient estimates for the various controls are reported. The number of responses drops from 2,123 to 2,072 between column one and two because 51 respondents declined to provide information on their income.

2.7 percentage points less likely to support a minimum wage when it is $10.10 relative to when it is $7.25. Respondents are 10.9 percentage points (significant at the 1 percent level) less likely to support a minimum wage when it is $15.00. These estimates suggest that support for minimum wages is not explained by a desire to maximize aggregate income for workers.

In the final column of Table 1, we add indicators for whether respondents observe information on the distribution of disemployment effects by race and gender. The coefficients on these indicators should be interpreted as relative to "no information." We find that equity is important; respondents' choices are similar to the baseline

if all races and genders are affected equally, but support for a minimum wage is 11.1 percentage points lower when minorities and females are disproportionately affected. Exploring heterogeneity in this response, the effect is 10 percentage points for whites and 14 percentage points for non-whites (these estimates are not reported in the table). Looking at responses by gender, males are 8 percentage points and females are 15 percentage points less likely to support a minimum wage when females and minorities are disproportionately affected.

Table 2 examines the robustness of our main estimates to the omission of certain groups of respondents using a specification where we

TABLE 2—SENSITIVITY ANALYSIS: LINEAR PROBABILITY MODEL

	Pr(*ChoseA*) (1)	Pr(*ChoseA*) (2)	Pr(*ChoseA*) (3)	Pr(*ChoseA*) (4)	Pr(*ChoseA*) (5)
$\Delta Unemployment = 2\%$	−20.60 (2.304)	−12.94 (1.745)	−10.56 (1.605)	−11.14 (1.538)	−12.37 (1.090)
$\Delta Unemployment = 4\%$	−50.91 (2.576)	−22.64 (1.909)	−19.79 (1.803)	−20.41 (1.699)	−21.84 (1.090)
$\Delta Unemployment = 6\%$	−73.84 (2.383)	−30.24 (1.976)	−28.16 (1.959)	−26.85 (1.794)	−29.00 (1.090)
$\Delta Unemployment = 8\%$	−83.89 (2.277)	−35.92 (2.668)	−34.18 (2.745)	−30.82 (2.555)	−35.56 (1.369)
$\Delta Repugnance$	−0.127 (0.0263)	−0.448 (0.0265)	−0.506 (0.0280)	−0.464 (0.0245)	
Number of choices	2,652	4,368	3,728	4,660	8,492
Number of respondents	663	1,092	932	1,165	2,123
Omitted group	Never switchers	Extreme politics	Religious	Non-college educated	—
Fixed effects	—	—	—	—	Yes

Notes: Estimates in the first four columns include standard errors clustered at the respondent level. The fifth column reports fixed effects estimates.

include each possible difference in the unemployment rate as an indicator variable. The unemployment coefficients should be interpreted as relative to $\Delta Unemployment = 0$ percent. In the first column, we exclude the 68.6 percent of respondents $(2{,}219 - 663 = 1{,}556)$ who never switch choices. It is unsurprising that estimates excluding "never switchers" are more sensitive to disemployment effects.[15] In columns 2, 3, and 4 of Table 2, we eliminate those who identify as extremely conservative or liberal, those who express a religious affiliation, and those who are non-college educated. The point estimates are similar across specifications, and align well with the estimates presented in Table 1 considering that each indicator represents a 2 percentage point employment difference. The final column of Table 2 presents estimates when controlling for individual fixed effects. These estimates are largely consistent with our other specifications, thereby alleviating concerns about the representativeness of our sample.[16]

III. Conclusion

In this paper, we use a choice experiment to examine public support for minimum wages. Our findings suggest that support rests primarily upon moral foundations. We establish the importance of moral concerns by showing that (i) support for minimum wages is only mildly affected by large disemployment effects and (ii) respondents' choices are strongly associated with their moral assessments. In addition, given the same disemployment effect, respondents are more likely to support a \$7.25 or \$10.10 minimum wage than a \$15 minimum wage. If preferences for minimum wages were driven by a desire to maximize aggregate income for workers, we would expect a higher wage to be more attractive, all else equal. We also find that equity matters; respondents are less likely to support a minimum wage when it disproportionately affects females and minorities.

Notably, the majority of respondents appear to be unmoved by disemployment effects. In our sample, 41.5 percent of respondents always

[15] It is worth noting that political affiliation does not seem to be a very strong predictor of these invariant choice patterns. See our online Appendix for more on the characteristics of never-switchers.

[16] Our sample contains respondents from 8 different racial groups, all 50 states (plus PR and DC), both political

parties plus independents, the entire spectrum of education levels, 12 different income groups, employees, retirees, and job seekers, a balance of males and females, and respondents ranging in age from 18 to 80.

vote for and 27.1 percent always vote against a minimum wage. Roth (2008) explains that "laws against buying or selling kidneys reflect a reasonably widespread repugnance, and this repugnance may make it difficult for arguments that focus only on the gains from trade to make headway in changing these laws." Our findings suggest that both proponents *and* opponents of minimum wage legislation face a similar challenge.

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